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STRATEGIES IN THE FORMATION OF PIANO TECHNIQUE IN ELEMENTARY LEVEL PIANO STUDENTS: AN EXPLORATION OF TEACHING ELEMENTARY LEVEL TECHNICAL CONCEPTS ACCORDING TO AUTHORS AND TEACHERS FROM 1925 TO THE PRESENT

A DISSERTATION

SUBMITTED TO THE GRADUATE COLLEGE

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

JULIE KNERR
Norman, Oklahoma
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A DISSERTATION APPROVED FOR THE
SCHOOL OF MUSIC

BY

_____
Dr. Nancy Barry

_____
Dr. Jane Magrath

_____
Dr. Barbara Fast

_____
Dr. Roland Barrett

_____
Dr. Raymond Miller

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Grounded Theory of Elementary Piano Technique

ABSTRACT

In spite of the hundreds of books and articles written on the subject of piano technique throughout the 20th century, no consensus has been reached concerning the materials and procedures that should be used to teach basic concepts of piano technique.

The purpose of this qualitative research study was two-fold: first, to analyze what influential writers of the past and present wrote regarding the teaching of elementary level technical concepts; second, to discover what strategies, methods, and materials excellent teachers of 5- to 11-year-old elementary level piano students use to develop a solid technical foundation that will prepare their young students to be capable of playing advanced works from the piano literature once they reach the high school and college levels.

To accomplish this purpose, the technical systems of three source groups were analyzed to present three different perspectives on teaching elementary level piano technique to children. First, the writings of fifteen influential authors from 1925 to the present, designated Technique Authors, were studied. Second, writings by the authors of piano method series of the 20th century and current books and articles related to teaching piano technique to children were analyzed. This source group was designated Pedagogical Authors. Third, four Exemplary Teachers were interviewed and observed by the principal investigator to discover how teachers work with students in the private lesson to achieve excellent technical results. The technical systems of these three source groups were then compared to yield 107 Technical Principles that formed the basis for a grounded theory relating to teaching elementary level piano technique to children.

Among the most interesting findings are the ideas of the seriousness of intent behind teaching every child, the importance of a knowledgeable teacher in the early years of piano lessons, and the importance of separating the instruction of technique from that of music reading by utilizing rote teaching. In terms of specific technical procedures, all the sources agreed in the importance of coordinating all parts of the playing apparatus from the beginning of study, which is done most effectively by teaching arm movements before finger movements.

It is hoped that results of this study will provide all piano teachers with a clearer understanding of how to teach elementary level technique and that this may result in greater excellence in piano teaching and an increase in technical proficiency in young pianists in the United States.

CHAPTER I

INTRODUCTION

Problem

In spite of the hundreds of books and articles written on the subject of piano technique throughout the 20th century, no consensus has been reached concerning the materials and procedures that should be used to teach basic concepts of piano technique. William Newman (1950/1984), in his book *The Pianist's Problems*, stated that because of the advances in psychology of training and the research conducted by piano technicians such as Breithaupt, Ortmann, Matthay, and others, at least a preferable answer that will apply to all pianists should be standard for each technical problem. However, even decades after the advent of scientific research in piano technique with the experiments of Otto Ortmann in the 1920s, there exist almost as many ideas on technical development as there are teachers of technique.

This problem is by no means limited to advanced technique. Standardization for the teaching of basic technical concepts to elementary level students is also lacking. Lister-Sink (1994) suggested that one reason for the low success rate among piano students is the abundance of too many confusing technical approaches. Fink (1993) said, "Of the various elements that go into teaching piano to beginners, whether privately or groups, technique is perhaps the least understood, the least systematized" (p. 28). Kraehenbuehl (1987) remarked on his astonishment regarding the number of students at every level who have never had any technical instruction. He said he met piano teachers regularly who admitted that they figured out how to play the piano on their own and have no program of technical instruction for their students. If, as Nadia Boulanger (Gerig, 1974) said, "One can only be free if the essential technique of one's art has been completely mastered" (p. 1), then it is essential that a consensus be reached as to the best way to lay a solid technical foundation for students, one that begins at the elementary level of piano playing.

Purpose

The purpose of this qualitative research study was two-fold: first, to analyze what influential writers of the past and present wrote regarding the teaching of technical concepts; second, to discover what strategies, methods, and materials excellent teachers of 5 to 11-year-old elementary level piano students use to develop a solid technical foundation that will prepare their young students to be capable of playing advanced works from the piano literature once they reach the high school and college levels.

This study sought to answer the following research questions:

1. How do teachers of highly skilled students teach these students to develop technical proficiency in their playing?
2. What materials do these excellent teachers use?
3. Do the teachers have a set curriculum for technical development?
4. How do teacher and student interact in the lesson to achieve excellent technical results?
5. What are the commonalities among what excellent teachers do in their lessons?
6. What does the past and present literature say about teaching basic technical concepts, and about teaching technique to children?
7. How does the past literature relate to how excellent teachers teach technique?
8. What other factors promote success in the technical development of elementary level students?

To accomplish this purpose and answer the research questions, the technical systems of three source groups were analyzed to present three different perspectives on teaching elementary level piano technique to children. First, the writings of 15 influential authors from 1925 to the present, designated Technique Authors, were studied. Second, writings by the authors of piano method series of the 20th century and current books and articles related to teaching piano technique to children were analyzed. This source group was designated Pedagogical Authors. Third, four Exemplary Teachers were interviewed and observed by the principal investigator to

discover how teachers work with students in the private lesson to achieve excellent technical results. The technical systems of these three source groups were then compared to yield 107 Technical Principles that formed the basis for a grounded theory relating to teaching elementary level piano technique to children. Two definitions of grounded theory are "Any theory developed inductively using qualitative data" (Bogdan & Biklen, 2003, p. 259), and "Theory derived inductively from the data collected in a natural setting rather than from a priori ideas or theorems" (Ary, Jacobs, & Razavieh, 2002, p. 560).

It is hoped that results of this study will provide all piano teachers with a clearer understanding of how successful teachers teach piano technique to their elementary level students and how this relates to what has been written about technique in the past. This may result in greater excellence in piano teaching and an increase in technical proficiency in young pianists in the United States.

Need for the Study

Although many teachers throughout the United States recognize the importance of teaching technique to their elementary level students, little consensus exists as to the best way to approach this important topic. In 1945, Willi Apel said that although it is possible to organize systematically many basic and universally accepted laws that govern piano playing, "it is surprising that among the rank and file of piano teachers (and, as a consequence, of piano players) there are still a great number who are ignorant of…basic principles" (p. 580). Fifty years later, in 1994, Barbara Lister-Sink echoed the same concern when she said, "Many pianists have had little technical training at all or were taught as many technical approaches as they had teachers. Sometimes these techniques were blatantly contradictory and left students to resolve the relative merits of each" (p. 29). Even with the myriad books written on the subject of technique, a standard curriculum for teaching technique to elementary level students has yet to be established.

Part of the confusion about teaching elementary level piano technique may be related to the fact that many teachers of beginning students in the United States are not specifically trained

to teach piano. In spite of a recent trend towards teacher certification, exemplified by the Professional Certification Program of the Music Teachers National Association (MTNA), only 15.86% of MTNA members are certified (current as of October 2005, www.mtna.org). This does not even account for the multitude of piano teachers who do not belong to MTNA or to another professional organization. Because of lack of certification, no standards exist that a pianist must attain before marketing him/herself as a piano teacher.

This lack of a standard of certification is confusing to parents who are seeking a teacher for their children. Because parents lack knowledge about certification or may not recognize the necessity for a qualified teacher for beginning piano study, they often may resort to selecting a teacher based on factors such as convenience or finances. Boris Berlin (Beauchamp, 1994), known for his excellent teaching of elementary through advanced level students, said, "Parents who send their child to somebody often think, 'Well, he's just a beginner and any teacher will do. Later on, if Johnny or Mary shows interest, we'll change and find a good teacher.' But the harm is done and a good teacher will never be able to do anything later" (pp. 150-151).

Like Berlin, Richard Chronister (Bastien, 1973/1995) also stressed the necessity of qualified teachers for beginning students when he debunked certain myths about piano teaching, including:

1. "Performance training is sufficient for those who teach piano" (p. 242).
2. "Talent will emerge regardless of the teaching at the beginning level, allowing the special student to move on to a more experienced, successful teacher" (p. 243).

Chronister (Bastien, 1973/1995) stated, "Piano teacher training is necessary because millions of students are going to the nearest teacher who may or may not be a fine performer, whose training may or may not have included any guidelines for determining what different kinds of students need in order to become successful piano students" (p. 244).

Echoing Chronister's strong statements about the necessity of excellent training for students, Max Camp (1981) said,

> Those students who receive effective training during their early years of piano study have the greatest chance of developing their performance potential. The reason, quite simply, is that most successful performers, amateurs and professionals, are individuals who have been fortunate enough to study, from their beginning lessons, with exceptionally-gifted teachers. (Preface)

Along with the problem of standard certification and the resultant parental attitudes towards beginning piano teachers, another hurdle to proficient technical development in elementary level piano study is that many method books that are used to teach beginning students provide few explanations about developing technique. Most technical instruction is limited to a brief presentation of proper posture and hand position, followed by instructions for the student to, for example, play legato, with no detailed explanation of how to accomplish this task physically.

Like the sparse technical explanations found in many method books, most pedagogy textbooks also devote only a small portion of the book to the teaching of elementary level piano technique. Notice in Table 1 that most of the major pedagogy texts from the past 30 years devote less than 9% to a discussion of piano technique. In addition, the general trend is that the newer books contain fewer pages related to piano technique than the older texts. Therefore, pedagogy students may enter the teaching profession with little concrete understanding of how to go about teaching technique successfully to their elementary level students.

Table 1

Frequency of Information about Elementary Level Piano Technique

Author	**Title**	**Pages Elementary Technique**	**Percentage Elementary Technique**
Byman	*The Piano Teacher's Art* (1978)	24/144	16.67%
Bastien	*How to Teach Piano Successfully* (1973/1995)	34/383	8.88%
Bigler & Lloyd-Watts	*Studying Suzuki Piano* (1979)	21/251	8.37%

Lyke, Enoch & Haydon	*Creative Piano Teaching* (1977/1996)	41/505	8.12%
Camp	*Teaching Piano* (1992)	14/195	7.18%
Jacobson	*Professional Piano Pedagogy* (2006)	27/389	6.94%
Agay	*Teaching Piano, V. 1* (1981)	14/307	4.56%
Baker-Jordan	*Practical Piano Pedagogy* (2003)	13/449	2.90%
Uszler, Gordon & Smith	*The Well-Tempered Keyboard Teacher* (2000)	4/380*	1.05%

* Although 30% of the book was devoted to a survey of technical writings.

The problems of lack of standard certification, parents who are uninformed about the requirements for beginning piano study, and sparse technical information in method books and pedagogy texts are all symptomatic of the lack of a resource for teaching technique to elementary level students that would bring together research from the past with practice of excellent teachers of today. This research study was designed to provide such a resource by analyzing the most influential writings on technique from the 20th century and comparing this past knowledge with observations of currently recognized excellent teachers in an effort to provide practical technical advice to all teachers. This resource will help equip teachers to establish a solid technical foundation in their young students, allowing these students to reach the highest possible level of achievement in piano performance.

Definitions

For the purposes of this research study, the following definitions were formulated.

Abduction: Moving a part of the body away from the center of an axis of the body. For example, moving the arm away from the body, or spreading the fingers apart.

Adduction: Moving a part of the body toward the center of an axis of the body. For example, moving the arm toward the body, or the fingers toward each other.

Current Authors: Those authors of books and articles relating to current pedagogical thought and presented in Chapter V.

Elementary Level: Study during the first 3 years of piano lessons, corresponding approximately to Primer Level through Level 3 of a method book series; or standard piano repertoire at Level 3 or lower according to leveling guidelines developed by Magrath (1995) in *Pianist's Guide to Standard Teaching and Performance Literature*.

Elementary Level Technical Concepts: Basic technical skills necessary for piano students at the elementary level to possess, as compiled from an analysis of elementary piano method series and pedagogy texts. (See Table 4 for a list of the Elementary Level Technical Concepts).

Elementary Piano Method Series: A published series of books designed to aid the student in progressing smoothly from the beginning levels of piano study to the study of standard literature of Level 3, based on Magrath's (1995) leveling system.

Etudes: Musical compositions designed to overcome a certain technical difficulty by repeating the technical formula as often as possible and in as many forms as possible (Gát, 1958/1980).

Exemplary Teacher: Teachers who have been recognized by piano pedagogy professors and/or by Music Teachers National Association as teachers who consistently produce students who play with extreme proficiency for their level as evidenced by winning competitions and/or by acquiring a reputation for success among their colleagues.

Exercises: Rote patterns meant to drill a specific physical concept, separate from the fundamental forms. Examples include the exercises of Schmitt (1922), Hanon (1873/1900), or Pischna (1931). Also, those exercises derived from a musical passage in a piece.

Fundamental Forms: The standard formula that make up much of piano music and have been a technical diet for pianists since the inception of the piano. Included are five-finger patterns, scales, arpeggios, chords, and rotating or zigzagging patterns.

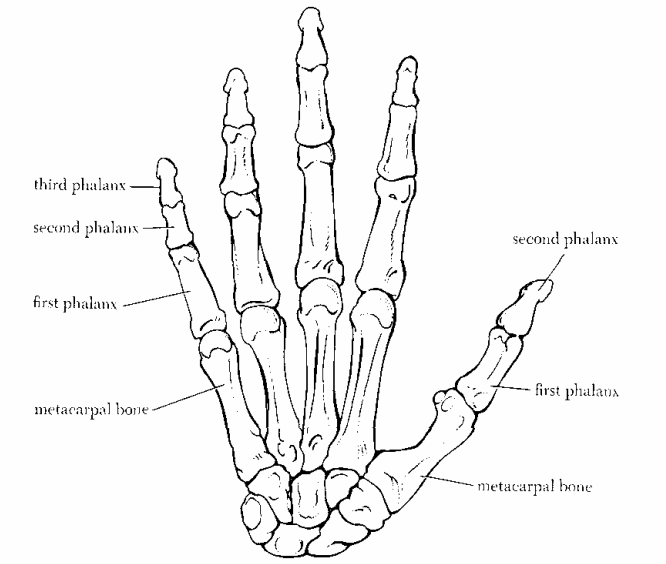
Gymnastic Exercises: Exercises done away from the piano that are designed to develop strength, flexibility, suppleness, or limb awareness. Also exercises to practice correct movements at a table or in the air before applying a movement to the piano keyboard.

Hand Bones and Joints: The phalanges of the hand are numbered from the bridge of the hand out toward the finger tips as seen in Illustration 1. The hand joints are:

- Knuckle Joint: The joint connecting the metacarpal bone and the first phalanx.
- Mid-Joint: The joint connecting the first phalanx and the second phalanx.
- Nail Joint: The joint connecting the second phalanx and the third phalanx.

Illustration 1

Hand Structure (Sandor, 1981, p. 21)



Method Authors: Those authors of piano method series presented in Chapter V.

Non-Percussive Touch: A stroke that begins with the fingers on the key surface.

Pedagogical Authors: The combined sources in Chapter V, which include the Method Authors and Current Authors.

Percussive Touch: A stroke that begins with the fingers above the key surface.

Piano Curriculum: An organized sequence of technical concepts presented through the use of exercises, gymnastic exercises, etudes, and pieces of music.

Piano Technique: The physical control of the playing apparatus needed to express desired sounds on the piano.

Playing Apparatus, Playing Mechanism, Playing Unit: The parts of the body used in piano playing, including the hips, torso, feet, shoulders, arms, forearms, hands, and fingers in particular.

Pronate: To rotate the arm in a direction toward the body, in a direction where the palm faces downward.

Scale Direction: In this study, the term "scales moving out from center" is used to denote a right hand ascending or left hand descending scale, which are physiologically similar, because both use a fingering where the thumb passes under the hand. "Scales moving in toward center" is used to denote a right hand descending or left hand ascending scale, which feature the fingers crossing over the thumb.

Supinate: To rotate the arm in a direction away from the body, in a direction where the palm faces upward.

Taubman Technique: The technical system of Dorothy Taubman (Urvater, 1986; Taubman & Golandsky, 1995) is based in great part on the ideas of rotation. These ideas are similar to those presented by several of the authors and teachers in this study. In spite of her extreme importance in technical thought in the 20th century, Taubman was not chosen as a Technique Author for this study because she has not written a book on technique.

Technique Authors: Those authors of books on piano technique from 1925 to the present who are presented in Chapter IV.

Limitations of the Study

The study of piano technique is complicated and multi-faceted. In an attempt to describe the acquisition of technique in terms of the development of mechanical skill in elementary level

students, many valid and necessary components of technical development were not discussed in detail. Limitations of this study include the following:

1. Although the principal investigator agrees with the commonly held belief that piano technique is a means to the end of artistry, this study focuses primarily on the physical movements at the keyboard, assuming that the teacher would link the physical gesture to the interpretation of a piece.
2. Fingering habits are associated with technical development at the piano. However, a detailed description of theories of fingering is not included.
3. Pedaling, although encountered in many elementary level piano methods and in literature related to elementary level students, is not discussed.
4. Although innate talent is an important component to technical success, an in-depth discussion of the influence of talent on technical development is not included.
5. Ideally, this study would investigate how teachers teach technique to average students. However, because well-known teachers are being studied, it is recognized that these teachers may attract only the very gifted students, transforming this into a study of how teachers teach technique to highly gifted students.
6. Only one lesson of each student participating in the study was videotaped. Therefore, it is not possible to present information related to progress from lesson to lesson.
7. The principal investigator decided that the best way to gain detailed knowledge about the technical development of elementary level piano students was through a qualitative study that allowed for in-depth study of a few teachers rather than a broad survey of many teachers. Because of the qualitative nature of this study and the small number of teachers interviewed, it is recognized that the possibilities of generalization from the results of this study are limited.

CHAPTER II

REVIEW OF RELATED LITERATURE

The literature relating to piano technique is vast. Chapter II describes only books that either set the background for or are directly applicable to this study. The chapter begins with a general history of piano technique to provide background information on the general trends in piano technique history from 1750 to the present. The history is followed by summaries of the writings directly applicable to this study, divided into four categories:

1. Histories of Piano Technique
2. Technique Authors on Piano Technique from 1925 to the Present
3. Current Pedagogical Materials
4. Sources Used for Research Design

A General History of Piano Technique

The history of piano technique can be divided into three broad periods: the Finger School (1750-1850), the Relaxation School (1850-1925), and the Contemporary School (1925-present).

Finger School

Gerig (1974) described the Finger School as resulting from the techniques used in playing the forerunners of the modern piano: the harpsichord, the clavichord, and the organ. These instruments were played with a still hand and attention to finger technique, as set forth in C.P.E. Bach's famous treatise, *Essay on the True Art of Playing Keyboard Instruments* (1753/1762/1949).

Composers who had been writing for harpsichord and clavichord transferred their styles of writing for these instruments to their compositions for pianoforte (Kochevitsky, 1967). Players executed these works in the same manner they would have on the older instruments. Since the early pianoforte had a light action, finger strength was sufficient. However, as the piano began to grow in size and weight throughout the 19th century, finger strength became increasingly

insufficient to overcome the resistance of the heavier action. The pedagogy of the Finger School lasted for the first 100 years of the piano's existence, in spite of developments in the instrument. According to Kochevitsky (1967), the three main principles of the Finger School were:

1. Only the fingers should be used. The upper parts of the arm should be fixed.
2. Technical training is a purely mechanical procedure requiring many hours of daily practicing.
3. The teacher is the absolute authority.

Representative writings by adherents of the Finger School include Hummel's (1820/1981) *A Complete Theoretical and Practical Course of Instructions on the Art of Playing the Pianoforte*, Kullak's (1893/1972) *Aesthetics of Pianoforte Playing*, Czerny's *Theoretical and Practical Pianoforte School* (1839/1900), Hanon's *The Virtuoso Pianist* (1873/1900), and Heinrich Ehrlich's (1879/1901) *How to Practice on the Piano.*

The evolution in piano design and increasing complexity of compositions for the piano had a reciprocal effect, each leading to development of the other. In other words, the piano was expanded to accommodate the compositions being written, and more complex pieces were composed to utilize the new sounds and possibilities of the piano (Kochevitsky, 1967).

Newer schools of thought on piano technique gradually developed due to the demands both of the music and of the developing piano. Throughout the 19th century, teachers and performers like Chopin, Schumann, Wieck, Liszt, and Leschetizky began advocating a greater use of the arms and wrists in connection with finger technique. Chopin emphasized the connection between the arm, forearm, wrist, and hand, which were to be behind the playing finger. Schumann believed that although exercises and etudes could be useful, practicing mechanical exercises for many hours would be as absurd as trying to pronounce ABC faster and faster every day. For Liszt, each movement of the finger was connected with the whole process of movement of the arm. He reduced all difficulties in piano music to a certain number of basic formulas, believing that the pianist who mastered these formulas would be equipped to play any piano

music. Leschetizky's technical system attached great importance to the movement of the wrist (Kochevitsky, 1967).

The main commonalities among these pianists was their belief that the mind leads, taking the place of mechanical practicing of finger exercises, as well as a belief in a greater involvement of the bigger levers in the playing mechanism (Kochevitsky, 1967).

Relaxation School

Kochevitsky (1967) discussed an impasse that came about in the second half of the 19th century when it became obvious that pianists on the concert stage did not play according to the instruction of the majority of teachers of the time, which was based on the traditions of the Finger School. While some teachers recognized the right of the performing pianist to use free movements, they still demanded of their students strict obedience to the old rules of the Finger School.

In reaction to the Finger School, Ludwig Deppe wrote two open letters in 1885 that caused a great deal of controversy, as discussed by Caland (1903) in her book. Deppe believed that tone must be produced not by finger stroke of the relatively weak finger muscles, but by coordinated action of all parts of the arm. Unfortunately, his ideas were distorted by some of his pupils and immediate followers, who disregarded Deppe's cautions to listen carefully to tone quality and to be aware of the continued importance of sensitive fingers. This led to sloppy and uncontrolled playing (Kochevitsky, 1967).

In 1909, Rudolf Maria Breithaupt continued in Deppe's tradition of playing with relaxation in his book, *Die Natüraliche Klaviertechnik*, in which he proclaimed that the most important principle of technique is the loose and heavy arm (Kochevitsky, 1967). The Relaxation School came to be characterized by lumbering playing with a lack of finger action, leading to sloppiness, loss of speed, and lack of clarity and tonal control.

Contemporary Schools

After the Finger School and its antithesis, the Relaxation School, the pendulum of technical thought has swung in varying directions. In the 20th century, writers about technique have emphasized various aspects of technique, including concepts such as analysis of physiology, rhythm as a basis for technique, the role of the central nervous system in piano technique, choreography of the body with the passage, and injury prevention. Otto Ortmann's two landmark books, *The Physical Basis of Piano Touch and Tone* (1925) and *The Physiological Mechanisms of Piano Technique* (1929), present the first truly scientific investigation of piano technique. Ortmann's work divided the history of piano technique into two eras: the Finger School and Relaxation School of the 19th and early 20th centuries, and the Contemporary schools of 20th century. Although they vary widely, these Contemporary Schools are similar to Ortmann in that they all take a detailed and increasingly scientific approach to the study of piano technique from their respective perspectives. Because Ortmann's work forms the divide between Relaxation and Contemporary Schools, the date of publication of his first book, 1925, was chosen as the start date for the authors included in this study.

Histories of Piano Technique

Twelve histories of piano technique found in books and dissertations were surveyed to discover the most frequently occurring names in the history of piano technique (see Tables 5 and 6). Although these histories discuss different eras, have various focuses, and are detailed to a greater or lesser degree, common names do appear in all the histories, providing a way to identify the most influential writers on piano technique in the 20th century. This section provides descriptions of these histories of piano technique.

Of the books surveyed that include histories of piano technique, Gerig's (1974) seminal work, *Famous Pianists and their Technique*, provides the most thorough exploration of the subject. The book covers eras from the early clavier methods of Couperin and C.P.E. Bach through the mid-20th century. Chapters are devoted to important individuals (Chapter 6. The Dynamic

Beethoven Technique), national schools (Chapter 14. Russian Nationalism), as well as to eras in piano technique history (Chapter 16. Breithaupt and Weight Technique). Gerig not only explained the theories of the great technical writers in some depth, but also described their place in the sociological evolution of piano technique as it relates to composition and to the development of the piano as an instrument. Gerig at times showed his biases in favor or against certain technical theories, evidenced in part by the length of his discussion on certain writers. For instance, he devoted an entire chapter of 48 pages to Otto Ortmann's theories and work, yet glossed over other writers such as József Gát, who is allotted only three pages.

In contrast to Gerig's exhaustive treatment of the subject, George Kochevitsky's (1967) book, *The Art of Piano Playing: A Scientific Approach*, presents only a selective history of piano technique based on Kochevitsky's interest in the role of the mind in technical development. Beginning with harpsichord technique, Kochevitsky then summarized the main proponents and ideas of the Finger School and the Anatomic-Physiological School (also known as the Relaxation School). Kochevitsky completed his survey of the history of piano technique with brief descriptions of some of the newer trends of the first half of the 20th century. However, Kochevitsky's bias for and against certain writers is shown. Conspicuously missing is any discussion of the works of Otto Ortmann, who was allotted only one sentence. Kochevitsky (1972; 1973) also wrote several articles about the history of technique and acquiring velocity

Developing Piano Performance: Teaching Philosophy by Max Camp (1981) and *The Well-Tempered Keyboard Teacher* by Uszler, Gordon, and Smith (2000) are pedagogy texts that both include chapters on the history of piano technique. While Camp presented a brief summary of the history of piano technique from Diruta's *Il Transilvano* of 1593 through the 20th century, highlighting concert performers who are also pedagogues, Uszler et al. presented a surprisingly thorough history of piano technique for a pedagogy textbook, which offers the most updated history of piano technique currently available. Writers from Girolamo Diruta's treatise of 1593 through the 1995 video series by the Taubman Institute are surveyed. The authors gave brief and informative

synopses of the main writers on piano technique, devoting complete chapters to Ortmann and Schultz, Breithaupt and Matthay.

Dissertations provide another source for histories of piano technique. Michèle Royer's (1988) dissertation, *An Evaluation of the Piano Examination Objectives of l'Extension de l'enseignement de l'école de musique de l'université Laval*, provides a general survey of many 20th century writers on various aspects of piano technique. In contrast, Hester Sophia Rhoodie's (2002) dissertation from the University of Pretoria (South Africa), entitled *Piano Tuition for the Beginner: The Structuring and Teaching of the Basic Movements in Piano Playing*, does not present a formal history of piano technique but does mention what Rhoodie called "leading authors" (p. 1) in the field of piano technique.

Four dissertations present detailed histories of piano technique and then focus on the technical systems of several of the major protagonists from the 20th century. These include two older dissertations: Roger Boardman's (1954) dissertation, *A History of Theories of Teaching Piano Technic*; and John Love Norman's (1969) dissertation, *A Historical Study of the Changes in Attitudes Toward the Teaching of Piano Technique from 1800 to the Present Time*; and two more recent dissertations: Victoria Holloway McArthur's (1987) dissertation, *An Application of Instructional Task Analysis and Biomechanical Motion Analysis to Elementary Cognitive and Psychomotor Piano Learning and Performance (Volumes I and II)*; and Pamela Jo Prater's (1990) dissertation, *A Comparison of the Techniques of Piano Playing Advocated by Selected 20th-Century Pedagogues.*

Other dissertations present a history that focuses mainly on those authors who relate directly to the topic being studied. Max Camp's (1977) dissertation, *An Instructional Approach to Piano Study Referenced to Selected Learning Theories,* and Felix Chung-Chuen Chan's (1992) dissertation, *The Development of Technique for Playing the Waltzes of Frédéric Chopin,* both emphasize writers on technique who believed in a holistic approach to piano technique. Camp focused on using rhythmic pulse to teach technique, while Chan's holistic approach limited his study to those authors who believed technical exercises are not useful.

One of the most original treatments of the history of piano technique is found in Goldreich's (1969) dissertation, *References to Psycho-physical Relationships in Piano Technique as Reflected in 20th-Century Writings about Piano Pedagogy,* which provides an in-depth history of writings on piano technique from 1900-1967. Similar in topic to Kochevitsky's (1967) book, Goldreich explored how mental processes can be used in piano study through a survey of the literature relating to the role of the mind in piano playing. References to many authors not usually covered in histories of piano technique were included, such as Peter Ramul, Ruth Dickerson, Lilias Mackinnon, and Andor Foldes, among others. One of the most helpful aspects of the dissertation is its organization by decade. Beginning with 1900-1909, a chapter presenting summaries of articles and books by writers from each decade of the first half of the 20th century is presented. Because of this chronological organization, a general sense of the evolution of thought on piano technique can be gained that is not available in other sources.

Influential Authors on Piano Technique from 1925 to the Present

Based on the histories of piano technique, 15 of the most frequently mentioned authors were chosen as representative writers on piano technique from 1925 to the present and designated "Technique Authors" for this study. Following is a description of their writings. Authors are presented in chronological order according to their publication dates (see Table 7).

Tobias Matthay

Tobias Matthay occupies a central place in the history of piano technique due to his prolific writings and his influence as a teacher in England in the first half of the 20th century. He is usually associated with the Relaxation School, and yet not all his ideas are pure Relaxation Theory. Matthay's books at times are difficult to read because of a redundancy that sprung from his desire to be thorough, as well as from his creative terminology relating to piano technique, such as "species of touch" (Matthay, 1932/1947, p. 115) and "touch movements" (p. 107).

Matthay's most controversial contributions relate to two ideas: first, his idea that each key should be weighed before playing to determine the amount of weight needed to press the key; and

second, his emphasis on forearm rotation as indispensable to piano technique. There has been much confusion about Matthay's theories, leading to Ambrose Coviello's book *What Matthay Meant* (1948), Denise Lassimonne's book *Tobias Matthay's Technical Piano Teaching Simplified* (1983), and an article by Rodney Hoare called "What did Matthay Mean?" (1985).

In spite of the controversy and criticism, Matthay remains one of the most influential writers on piano technique in the 20th century and continues to exert an influence through the work of The American Matthay Association (www.matthay.org). Matthay's books, written between 1903 and 1947, span the 1925 starting point for this study. However, all his books need to be taken together in order to form a picture of the evolution of his technical theory. Therefore, his earlier writings were included in this study to explain points in his later books. Matthay's writings include the following books:

The Act of Touch in all its Diversity (1903) presents Matthay's revolutionary yet controversial approach to piano technique. Although the book contains many statements that were later proven false by the scientific research of Otto Ortmann (1925; 1929), one has to admire Matthay's brilliant understanding of the problems facing pianists in their quest for the acquisition of technique. The book is divided into four parts: Part 1 presents the problems of technique. Part 2 discusses the piano as an instrument, including the strings, dampers, hammers, and sounding board. Part 3 discusses key treatment in muscular terms and presents Matthay's unique system of classification for different touches. Part 4 relates to posture and hand and finger position. Although written before the 1925 starting date of this study, this book provides an essential foundation for an understanding of Matthay's post-1925 writings.

Relaxation Studies in the Muscular Discriminations Required for Touch, Agility and Expression in Pianoforte Playing (1908) presents sets of exercises both at and away from the piano designed to be practiced daily by all students, including beginners. The book is divided into three parts. Part 1 contains exercises for the freedom of hand and fingers, accuracy, hand and arm isolation, and rotation. Part 2 contains preparatory exercises for discrimation beween tension and relaxation in

various muscles. Part 3 contains exercises for special difficulties such as finger action, hand touch, finger independence, and lateral freedom of the thumb, among others.

Some Commentaries on the Teaching of Pianoforte Technique (1911) was written as a supplement to *The Act of Touch* (1903) in reaction to criticism Matthay received. In this book Matthay clarified and expanded on the concepts presented in his earlier book.

The Child's First Steps in Pianoforte Playing (1912) is directed to the child beginner and presents the basics of Matthay's principles of tone production and rotation. Though it would be rather difficult for a child to understand, it provides a valuable source for understanding the very basics of Matthay's principles as they relate to teaching children at the elementary levels of piano study.

The Fore-Arm Rotation Principle in Pianoforte Playing (1912) is a short book detailing Matthay's theory of forearm rotation. Steps are presented to provide the student with a basic understanding of forearm rotation and its uses in piano technique.

In *Musical Interpretation* (1913), Matthay explored his thoughts on the relationship between teacher and student in terms of teacher effectiveness in the lesson and elements of interpretation, including phrasing, *rubato*, tone inflection, and pedaling. The book aids readers in correlating Matthay's technical system with his ideas on interpretation.

The First Principles of Pianoforte Playing (1919) is an extract from Matthay's 1903 book, *The Act of Touch in All its Diversity* and also contains two new chapters, "Directions for Learners," and "Advice to Teachers." The book is designed for school use. The new chapters include Matthay's theories on key treatment; differences between staccato and legato; arm, hand, and finger touches; posture at the piano; and hand and finger position.

The Nine Steps towards Finger Individualization through Forearm Rotation (1923) is a condensed version of the 21 steps presented in Matthay's (1912) earlier book, *The Child's First Steps in Pianoforte Playing.*

The Slur or Couplet of Notes (1928) is a short book that was first delivered as a lecture at the Royal Academy of Music in 1916. Delving into the into the subtlety of different kinds of phrasing and slur marks, Matthay used standard advanced repertoire to illustrate his points. Although Matthay did give rules for shaping slurs and phrases, he did not do so in a pedantic way, but instead aimed to give pianists tools for finding their own musically tasteful interpretations.

The Visible and Invisible in Pianoforte Technique (1932/1947) was written by Matthay to simplify and synthesize his technical system, which had been undergoing change since *The Act of Touch* was first published in 1903. The book sets down Matthay's technical system in a more concise way than his other books in an attempt to clear up the confusion that led to "piratical works" (p. viii) written by Matthay's followers.

The Epitome of the Laws of Pianoforte Technique (1931) is a summary of the contents of *The Visible and Invisible in Pianoforte Technique* (1932/1947). It was designed as a school textbook and was released before the publication of its parent book. This textbook contains a succinct version of Matthay's system of technique, which had evolved since his 1903 book, *The Act of Touch*. At the end of the book are "Fifty-Five Daily Maxims" for students of the piano that further summarize the most important points of Matthay's system.

Piano Fallacies of To-Day (1939) is a collection of articles, six of which were published in *The Music Teacher* periodical. The aim of these articles was "to demolish certain stupidities and bogies rampant with regard to the processes of PIANO TECHNIQUE" (p. v). Articles include topics such as relaxation, stiffness, touch, tone, agility, and rotation in a frank and critical exploration of piano teaching of Matthay's day.

The Life and Works of Tobias Matthay (1945) is a biography of Matthay by his wife, Jessie Henderson Matthay. It chronicles Matthay's life from childhood to his 85th year and tells the story of the founding of his school and technical theories. Photos are included, as is a list of Matthay's compositions and books.

Thomas Fielden

Fielden's book, *The Science of Pianoforte Technique* (1949), seems to be influenced by Ortmann's scientific work, as the purpose is to prove "that technique can be purely natural, not artificial, and that it can be achieved, not by mechanical grinding at finger and arm studies, but by the application of physical and mechanical laws to those studies" (p. vii). The book begins with critiques of Deppe, Leschetizky, Matthay, and Breithaupt. Fielden claimed that while some of these authors' relaxation theories were beneficial, they all fell short in some way.

Fielden (1949 *Science*) described three important factors in technique: mental, nervous, and muscular. His technical system included emphases on the laws of levers, balance between contraction and relaxation, gymnastic training away from the piano, and balance between arm weight and finger work through perfect timing of muscular movement. He discussed the preparation for key contact, the point of contact, and the departure from the key in detail. A chapter on teaching elementary students is included, which contains many practical suggestions for teaching technique to children at the elementary level. This book, though difficult reading in some respects, is useful in that it provides not just technical theory, but practical advice for teachers, including exercises at and away from the piano and daily routines for practicing technique.

The practical nature of Fielden as a teacher is further expressed in his small book, *A New Approach to Scales and Arpeggios* (1949 *New Approach*), which contains a brief summary of Fielden's approach to the technical teaching of scales as well as fingerings for scales, arpeggios, and double notes.

Otto Ortmann

Ortmann is regarded by many piano scholars as the most influential writer on piano technique in the 20th century and is credited with writing the first comprehensive, scientific study of piano technique. His scientific approach led to controversy between those who embraced his scientific approach as an answer to the confusing maze of technical thought and those who

thought that applying scientific method to piano study would rob music of its artistic expression. Uszler et al. (2000) said,

> In retrospect, Ortmann's work was a heroic effort to bring rationality and an attitude of impartial investigation to piano pedagogy at a time when prevailing doctrine was steeped in subjective imagery of a pseudo-physiological nature. He went a long way toward checking the momentum of methodology based on "relaxation," "arm weight," and related ideas. He was heralded by some as a savior, by others as a fanatic. (p. 312-313)

Ortmann's book, *The Physical Basis of Piano Touch and Tone* (1925), presents a scientific discussion of the production and properties of a piano tone using the sciences of acoustics, mechanics, and physics. Ortmann conducted experiments with the playing apparatus of the pianist and the physical mechanisms of the piano and compared differences in the production of tones in order to validate or refute common beliefs towards qualitative differences in piano tone. Ortmann discovered that qualitative differences in the production of one piano tone are not brought about by changes in the touches or movements employed by the pianist, but instead are the result of key speed and noises of the piano mechanism. However, he was careful not to deny that qualitative differences in tone do exist, explaining these differences in terms of the infinite number of variables present when a single piano tone is combined with other piano tones.

This preliminary scientific investigation into the mysteries of piano tone is expanded in Ortmann's most famous work, *The Physiological Mechanics of Piano Technique* (1929), which explores such topics as the playing mechanism, including the bones, muscles, and nerves of the body; relaxation and tension; physical properties such as gravity and inertia; and laws of leverage. Ortmann explored movements of the arms, hands, fingers, and body and categorized them as coordinated or incoordinated based on the amount of physical energy expended. Common pianistic skills such as legato, staccato, *tremolo*, scales, and arpeggios were analyzed, and the most coordinated movements were explained for each skill. Throughout, Ortmann provided practical application to the pianist and advice for teachers of children.

An MM thesis by Claire Hennessy (1979) presents a detailed but readable summary of Ortmann's (1929) *The Physiological Mechanics of Piano Technique* and includes implications for piano teaching, including a codification of movement types as related to Ortmann's experiments.

James Ching

James Ching (1946) was a student of Matthay but disagreed with Matthay's technical philosophy. He wrote several books on piano technique.

Sidelights on Touch: Together with 101 Questions Suitable for Candidates Studying for the Pianoforte Teaching Diplomas of the A.R.C.M, L.R.A.M, L.Mus., T.C.L., etc. (1929) presents Ching's ideas on the basics of touch, including the use of levers, quantity of tone, and quality of tone. Exercises for understanding Ching's ideas are provided throughout, along with illustrations. This book devotes much attention to questions of agility and speed. The 101 questions at the end of the book test the information from the book and also ask readers to relate these ideas to teaching their own students.

Piano Technique: Foundation Principles (1934) seeks to show Matthay's fallacies in the field of piano technique and to lay the foundation for a method of technique in agreement with scientific facts. Chapters on topics such as muscular contraction, forearm rotation, tone quality, and touch form present Ching's ideas regarding these subjects, which were covered in such depth by Matthay. A chapter on the teaching of technique is also included.

Ching's (1946) book, *Piano Playing: A Practical Method: A Rationale of the Psychological and Practical Problems of Pianoforte Playing and Teaching in the Form of Twenty-Five Lectures Originally Given in London in the Years 1944-1945*, is a series of lectures meant for "the ordinary pianist" (p. iii). Ching's approach towards piano technique was to compare movements from everyday life to the movements necessary in playing the piano in the most efficient way. Throughout the book Ching provided examples using movements not related to piano playing, which he then related to technique. Like Ortmann, Ching made a clear distinction between art and the mechanics of technique. The book details the basic movements of piano touch in relation to tone production,

balance between tension and relaxation, and properties of levers and muscles. Ching frequently attacked the Relaxation School. Ching explained himself clearly in this book and was obviously well-versed in the research on piano technique.

Piano Technique (1956) is a pamphlet that provides a 9-page overview of Ching's technical system. It discusses the Permanent and Variable Postures, Principal and Auxiliary Movements, and Joint Conditions that are the foundation of Ching's technical system.

The Amateur Pianist's Companion (1956) was written for the purpose of helping the serious adult amateur make the most progress possible and gain enjoyment from playing the piano. As in his other books on piano technique, Ching explained his system of postures, movements, and conditions of joints in relation to basic technique. Solutions to common problems such as playing legato, staccato, balancing hands, voicing chords, and acquisition of high speeds are provided. Unique to this book are the first four chapters, which outline Ching's philosophy on playing the piano as an amateur in terms of motivation, incentives, standards, and self-confidence.

New Graded Studies (1952) and *Studies for Basic Piano Technique, Written and Selected with Technical Commentary* (1957) present short etudes at the elementary and intermediate level for practicing Ching's technical approach. A short introductory section provides a summary of the principles to be mastered in the etudes.

James Ching's Piano Primer (1958) is a Middle C method book that includes no technical explanation at all. Students play legato tunes almost immediately, and hands together playing follows quickly.

On Teaching Piano Technique to Children (1962) provides advice based on Ching's 25 years of teaching. Ching operated under the assumption that "the limit to what children can do when properly taught technically is far higher than people believe" (p. 4). The book is organized in sections that explain Ching's Standard Postures, Principle Movements, and Conditions of Relaxation and Tension. Ching provided a clear and logical sequence in which the postures and movements should be taught in this book. He believed in the separation of the factual skill of

technique from the teaching of interpretation and considered technical training so necessary that he said it should be taught to every child from the very first lesson.

Abby Whiteside

The Pianist's Mechanism (1929) was written in response to Whiteside's dismay at the appalling lack of technique in students she heard around the country. This book details Whiteside's ideas about technique that she used with her students. In the chapter "Hindrances to be Discarded" (p. 9), she called for nearly all the ideas from the Finger School and the Relaxation School to be rejected. This book marked the beginning of Whiteside's career as a pioneer in the field of teaching piano technique, as shown through her later books. *The Pianist's Mechanism* provides insight into the problems with the older schools and paves the way for the newer Contemporary Schools.

Abby Whiteside's (1955) book, *Indispensables of Piano Playing,* details the innovative rhythmic approach to technical development for which she is best known. Her theory of technique is based on an all-encompassing rhythm that brings the whole bodily mechanism into play from the center (torso and upper arms) to the periphery (hands and fingers). After presenting her technical system, Whiteside examined how the rhythmic approach to technique applies to each part of the playing mechanism, from shoulder to fingers. A helpful chapter framed as a series of questions and answers further clarifies her theories and provides answers to common questions asked by piano teachers.

Mastering the Chopin Etudes and Other Essays (1969) relates Whiteside's technical approach to studying the Chopin etudes and is therefore most applicable to advanced pianists. Other essays are included on different aspects of piano playing and teaching, including one entitled "Flaws in Traditional Teaching of Piano" (p. 171), which presents her criticisms of traditional teaching methods related to teaching both technique and musicianship.

Arnold Schultz

When Arnold Schultz encountered technical problems in his own playing, he sought help from teachers who were exponents of the methods of Breithaupt and Matthay. After this failed, Schultz discovered Ortmann's (1929) *The Physiological Mechanics of Piano Technique* and started to formulate his own principles based on Ortmann's work (Uszler et al., 2000). The result was *The Riddle of the Pianist's Finger and its Relationship to a Touch-Scheme* (1936), which, though based on many of Ortmann's principles, is more specific in that it is devoted almost entirely to the study of finger movement. Schultz described types of finger movements leading to key depression in detail and listed the advantages and disadvantages of each, narrowing down the list to the most practical movements for key depression. His methodical approach, though weighty reading at times, is well organized and thorough. The book also includes essays evaluating the work of Leschetizky, Matthay, Breithaupt, and Ortmann. The first three he criticized. Ortmann he lauded.

In addition to his main book, Schultz's (1996) article, "Physiological Mechanics of Piano Teaching," published in *American Music Teacher* in May of 1951 and reprinted in the same periodical in August/September of 1996, provides a short description of Schultz's ideas about hand and finger position in relation to teaching children.

William Newman

In his book, *The Pianist's Problems* (1950/1984), Newman stated that there are preferred answers to nearly all questions on piano technique that will be right for most pianists. He seeks to present these answers in non-technical language as a help for "both student and teacher who want to make the most of their talents" (p. 3). Newman formulated his answers to technical problems from the writings of Breithaupt, Ortmann, Leschetizky, Matthay, and Busoni, as well as from his own daily experience as a student, performer, and teacher. Newman detailed the workings of the various parts of the playing mechanism and advocated the use of the entire mechanism in addition to an emphasis on the development of finger work. Mindless repetition of exercises is denounced in favor of intellectual concentration as the key to progress at the piano. Newman

included a chapter describing and giving a favorable review of Leonhard Deutsch's *Guided Sight-Reading* approach, which advocated letting beginners start by playing pieces and waiting until later to refine their playing. In this way Newman showed that he is open to new approaches towards piano teaching. However, this view was tempered by his cautions concerning the *gestalt* approaches towards piano technique set forth by Whiteside, Bonpensiere, and Mackinnon. Newman urged teachers to integrate *gestalt* approaches to piano teaching with the detailed work necessary for solid learning at the piano.

Luigi Bonpensiere

Bonpensiere's controversial book, *New Pathways to Piano Technique* (1953), presents ideas relating the mind to the body in piano playing. He called this system of technical and musical development Ideo-Kinetics, which is the idea that thoughts control the movements of the body without the conscious effort of trying to make bodily movements. This is an extreme version of some of the ideas presented later by Kochevitsky regarding the relationship between the nervous system and the muscular system in piano technique. Bonpensiere has received criticism for his book because it places so much emphasis on the mind, almost to the exclusion of muscular practice. Yet much Bonpensiere said is useful for removing extraneous effort from the acquisition of piano technique.

Joan Last

Joan Last's *The Young Pianist* (1954/1972), *Interpretation for the Piano Student,* (1960), and *Freedom in Piano Technique* (1980) were written for beginning pianists and emphasize technical development. Three volumes of exercise books entitled *Freedom Technique* (1971) correlate with *Freedom in Piano Technique.*

Last (1980) took a neo-Matthay approach, referencing the theories of Matthay in her discussion of position, rotation, and weight technique. Adding to Matthay's teaching on relaxation, Last's specific contribution to understanding piano technique emphasized freedom at the piano through movement all over the keyboard, using the word "freedom" to replace

Matthay's word "relaxation." Last discussed all parts of the playing mechanism and concentrated on the basics necessary for development of good technique from the first piano lesson. In addition to her contributions to the technique literature, Last also composed pedagogical pieces for children, published in several sets, and wrote a piano method that exemplifies her ideas.

Last's method, *At the Keyboard* (1954), was designed to accompany her handbook, *The Young Pianist*. Technical exercises are to be taught by rote, beginning with a rotating exercise, three-note slurs, and harmonic sixths. Technique is therefore developed through exercises rather than through pieces. This method provides a technically difficult beginning for the student.

Józef Gát

Józef Gát's (1958/1980) book, *The Technique of Piano Playing,* explores Gát's technical system of piano playing in great detail. His ideas on technique centered around the concept of technique as inseparable from the musical concept. Gát coined terms, such as "synthesizing" (p. 31) and "adapting" (p. 33) movements, which are not clearly explained. However, the overall impression is that Gát's technical theory was based on finger activity through the "swing-stroke" (p. 33), choreographic assistance from the arms, and the idea of playing on the strings by means of the keys. Gát placed great emphasis on correct posture and on the intricacies of finger technique. One chapter includes gymnastic exercises, which Gát advocated for pianists of all skill levels. The last chapter, a detailed study on teaching technique to beginners, presents Gát's thought-provoking ideas on teaching music and technique to children at the piano.

George Kochevitsky

With the publication of his book, *The Art of Piano Playing: A Scientific Approach* (1967), George Kochevitsky opened a new realm in the study of the development of piano technique through his exploration of the role of the central nervous system in piano playing. Kochevitsky described a process whereby stimuli are processed by the brain and carried by the nerves to the playing apparatus. Topics such as proprioception, excitation and inhibition of the nervous

process, and conditioned reflexes are discussed, and practical strategies for integrating these concepts into piano teaching are presented.

Kochevitsky (1972; 1973) also published several articles that relate his technical approach to piano teaching.

Gyorgy Sandor

On Piano Playing: Motion, Sound, and Expression (1981) presents Sandor's unique views on piano technique. He believed that pianists should avoid strengthening the finger muscles and should instead coordinate the body to aid the weaker parts. The book is divided into three sections. Part 1 discusses the piano and its relationship to the human playing apparatus. In Part 2, the complexities of piano technique are reduced to five basic technical patterns: freefall; five fingers, scales, and arpeggios; rotation; staccato; and thrust. Part 3 relates the basic principles of technique to musical interpretation, with chapters on pedaling, tone production, practicing, memorization, musical diction, and performance.

Seymour Bernstein

Bernstein's book, *With Your Own Two Hands* (1981), provides readable, practical information about the basics of piano technique. Written for advanced pianists, the information and exercises are also applicable to beginning students. Bernstein's technical system centered on being aware of the physical sensations and choreographing the entire playing apparatus to each passage in a piece. Exercises at and away from the piano provide an understanding of Bernstein's approach to technique. One interesting aspect to Bernstein's technical system is his resurrection of Matthay's extreme ideas of rotation, which were also espoused by Dorothy Taubman. Chapters on practicing, concentration, and pulse are also included, and these topics are integrated with the physical mechanism to form a whole body response to the music.

20 Lessons in Keyboard Choreography (1991) is a book of lessons for all ages and levels of students leading to what Bernstein believed to be the ultimate pianistic achievement, "playing two tones legato" (p. xvi). The book begins with photos of ancient to modern keyboard instruments

and a description of the parts of the piano. The lessons consist of exercises both away from and at the piano that bring about a coordination of the entire playing apparatus. Chapters are included on various body parts and movements, including a significant discussion of the type of rotation first made famous by Matthay.

Seymour Fink

In his book, *Mastering Piano Technique: A Guide for Students, Teachers, and Performers* (1992), with its accompanying video by the same name (1994), Fink mentioned his indebtedness to Ortmann and Schultz. Fink's book "presents the basic biomechanics of playing, those uses of the body that are as fundamental to the beginner as to the professional" (1992, p. 12). The book explores various kinds of movements of the parts of the playing apparatus. Exercises and illustrations are included for integrating these movements into the pianist's kinesthetic vocabulary. Fink (1993; 2002 *Biomechanics*; 2002, *Musicality*) also wrote several articles relating his technical system to piano teaching.

Alan Fraser

Alan Fraser's book, *The Craft of Piano Playing* (2003), is a comprehensive, detailed study of piano technique that seems destined to become an important addition to the body of piano technique literature. Fraser aimed to reconcile the extremes of the Finger School and the Relaxation School by analyzing and systematizing the techniques of great pianists in an "intelligent reconstitution of piano technique in its highest form" (p. 3). In an attempt to link the Feldenkrais Method to piano technique, Fraser sought to help students refine their basic movements, which he believed would lead to a new level of command and skill in piano playing. Fraser's system of technique is based on natural movements linked with hand strength, as opposed to either arm weight (Relaxation School) or finger action (Finger School) alone. Each part of the playing mechanism is explored in detail in the book. Many exercises are given to help students integrate new sensations and knowledge into their technique, similar in style to the exercises found in Bernstein's (1991) and Fink's (1992) books. Over 300 pages of detailed

explanation of Fraser's technical system make this a book equal in scope, though different in content, to Ortmann's (1929) *Physiological Mechanics of Piano Technique.*

Literature Related to Teaching Technique to Children

Method Books

For the selection of the list of Elementary Level Technical Concepts to be used as an organizational framework for this study (see Table 4), 26 standard piano method series from 1937 to the present were analyzed to determine which technical concepts are commonly found in the elementary level books of a method series. The methods were also used as sources for literature directly related to teaching technique to children in Chapter V. The 26 methods surveyed were divided into groups based on the common reading approaches, because the reading approach dictates the notes to be played in the beginning of piano study, which determines to some extent the technical approach that will be used in that method. The common reading approaches were Middle C, Intervallic, Multi-key, and Eclectic. Another category, Innovative, was added for those methods that had an unusual approach to teaching the piano, both technically and in terms of reading. For a complete listing of individual method books within each method series used for this study, see Appendix L.

The Middle C Methods analyzed are:

- Thompson & Kaplan. (1937/1994). *Teaching Little Fingers to Play.*
- Fletcher. (1947). *The Leila Fletcher Piano Course.*
- Schaum. (1962/2003). *Making Music Method.*
- Schultz & Schultz. (1986). *Schultz Piano Course.*
- Agay (1987). *Learning to Play Piano.*
- Glover & Stewart. (1988). *David Carr Glover Method for Piano.*
- Noona & Noona. (1997). *Music Magic* and *Comprehensive Piano Library.*
- Vogt & Bates. (2001). Piano *Discoveries.*

Because of the Middle C reading approach, these methods are characterized technically by starting with the thumbs and expanding outward gradually until the 5th finger is added. Other characteristics include single note playing, legato touch, and the early introduction of single or double note contrapuntal accompaniments.

The Intervallic Methods analyzed are:

- Clark, Goss, & Holland. (1955/2000). *The Music Tree*.
- Chronister & Kraehenbuehl. (1980). *Keyboard Arts*.
- Olson, Bianchi, & Blickenstaff. (1983). *Music Pathways*.
- Albergo, Kolar, & Mrozinski (2002). *Celebrate Piano*.

In terms of technique, Intervallic Methods tend to begin with clusters or braced fingers. The Clark et al. (1955/2000) and Albergo et al. (2002) methods begin with a braced 3rd finger on single notes, with clusters added early. The Chronister and Kraehenbuehl (1980) method begins with braced 2nd fingers and clusters of all five-fingers. The Olson et al. (1983) method begins with clusters of all five fingers also. While Clark et al. and Albergo et al. used fingers 2, 3, and 4 first, the goal of the Chronister and Kraehenbuehl and Olson et al. methods is to form a good hand position through the interval of a harmonic fifth with fingers 1 and 5. Other technical characteristics of Intervallic methods include playing patterns all over the keyboard and the introduction of a non-legato before a legato articulation.

The Multi-key Methods analyzed are:

- Pace. (1961/1983). *The Way to Play*.
- Duckworth. (1963). *Keyboard Explorer*.
- Bastien. (1985). *Bastien Piano Basics*.

Technically, Multi-key Methods have a goal of playing a legato five-finger pattern as soon as possible. These patterns are then transposed to all keys. Movement around the keyboard is generally limited to a five-finger position. Legato is the first touch introduced. Triads and common cadences are introduced early to allow harmonization of five-finger melodies.

The Eclectic Methods analyzed are:

- Palmer & Lethco. (1971). *Creating Music at the Piano.*
- Faber & Faber. (1995). *Piano Adventures.*
- Kreader, Kern, Keveren, & Rejino (1996). *Hal Leonard Student Piano Library.*
- Finn & Morris. (1998). *Beanstalk's Basics for Piano.*
- Snell & Hidy. (2004). *Piano Town.*
- Alexander, Kowalchyk, Lancaster, McArthur, & Mier. (2005). *Alfred's Premier Piano Course.*

Eclectic Methods combine the reading approaches of the Middle C, Intervallic, and Multi-key approaches. These methods generally begin with fingers 2, 3, and 4 on the black keys with single notes, but quickly move to a five-finger position. It is characteristic for the five-finger position to be a Middle C position, but it can also be another five-finger position. Legato is the generally preferred touch but is not explicitly stated from the beginning in the black key pieces, which allows the teacher to choose the first articulation to be introduced. Legato is usually introduced when the student begins playing in a five-finger position on the white keys. Transposition of the five-finger patterns to other places on the keyboard is also frequently used.

The Innovative Methods analyzed are:

- Burr & Gillock. (1976). *Technic—All the Way!*
- Suzuki. (1978). *Suzuki Piano School.*
- George & George. (1980/2003). *Artistry at the Piano.*
- Tan. (1991). *The Well-Prepared Pianist.*
- Lowe. (2004). *Music Moves for Piano.*

Innovative Methods tend to give more in-depth technical explanations than the other method types. The Burr and Gillock (1976) method uses the rote approach to acquaint the beginner with the keyboard. Moving all over the keyboard is emphasized. The method begins with two and three black keys played with a legato articulation. Clear instructions are provided for how a piece or exercise should be played. This approach is much slower and more systematic in

leading the student towards technical proficiency than in other methods, because Burr and Gillock's method emphasizes technique, while other methods emphasize tuneful songs or reading ability.

The Suzuki (1978) method is also a rote approach, which, in an attempt to adapt the Suzuki Violin Method to the piano, begins with repeated notes with the thumb. The pieces progress quickly in difficulty, because they are designed to be taught by rote. Suzuki teachers receive training for teaching the technique of the method. The books in the series have no technical explanation, but are instead a series of repertoire books.

George and George's (1980/200) method emphasizes rote training and a foundation in rhythm, pitch, and technique away from the piano before beginning at the piano. Keyboard patterns are played all over the piano hands separately and then together, from the beginning of study. Accidentals, intervals and five-finger patterns are introduced early. This method seeks to integrate all aspects of playing, including theory, rhythm, eartraining, and technique. Checklists, explanations of good practicing, and a detailed pictorial explanation of good posture are included as well.

Jane Tan's (1991) method provides a guidebook for teachers that presents the most thorough technical explanation of all the methods surveyed. The method discusses each part of the playing mechanism and the role of the ear and mind, and also includes finger drills and keyboard topography drills throughout, leading to a thorough familiarity with the whole keyboard. Tan's goal was to first isolate the members of the playing mechanism; then to integrate them into the whole; and also to build a mental, visual, aural, and tactile library of keyboard shapes and patterns commonly used through each level of study. This guidebook is valuable for all teachers of beginners, regardless of what method they decide to use.

Marilyn Lowe's (2004) method is designed for 5 and 6-year-old children. Emphasis is on movement of the whole body, development of coordination, and gross motor movements laterally along the keyboard. Tonal and rhythmic patterns and singing are also very important to

the approach, making this method similar to Whiteside's (1955; 1969) theories on a rhythmic basis for technique. Students use a loose fist or one finger to play for a long time before playing with adjacent fingers. This new approach to teaching piano technique is very slowly paced and methodical, the goal being a tension-free technique that integrates the whole body as a playing mechanism.

Books and Dissertations

Charles Macklin's (1927) book, *The Pianist's Daily Dozen*, contains gymnastic exercises for pianists to practice away from the piano. The purpose of these exercises is to develop strength and flexibility of muscles, position of hand and arm, relief from fatigue, and general nerve control. Macklin's book, along with books by Gát (1958/1980) and Fielden (1949 *Science*), form the main sources for gymnastic exercises in the first half of the 20th century. Newer books by Seymour Bernstein (1991) and Alan Fraser (2003) may rekindle interest in gymnastic exercises.

Several teachers wrote books based on their own teaching experiences. These books include philosophical ideas on teaching as well as practical advice for dealing with common problems and for teaching specific skills such as musicianship, memorization, rhythm, and technique. Less complete than pedagogy texts because of their narrower focus, books of this type include Hetty Bolton's two books, *How to Practice* (1937) and *On Teaching the Piano* (1954); Victor Seroff's short book, *Common Sense in Piano Study* (1970); and Richard Collins' book, *Piano Playing: A Positive Approach* (1986).

Andor Foldes' book, *Keys to the Keyboard* (1950), could also be included in the category above, but this book differs in that it is geared toward the ambitious young student who is serious about becoming a pianist, rather than toward teachers. The chapters form a progression from starting the piano, which includes advice for parents on when to start their child and what to look for in a teacher; ideas on learning to read and listen; and chapters on technique, practicing, and memorizing.

A more recent book, *A Symposium for Pianists and Teachers: Strategies to Develop the Mind and Body for Optimal Performance*, edited by Kris Kropff (2002), is a compendium of chapters on various topics from beginning through advanced levels written by experts in the field of piano pedagogy and piano performance. Much of the book is devoted to technique, including the biomechanics and physiology of playing, the relationship between the mind and the body, and a section relating to physical fitness and injuries of pianists.

In a similar style to Kropff's (2002) book, *Creative Piano Teaching*, edited by Lyke et al. (1977/1996), also contains chapters by various authors on aspects of teaching elementary, intermediate, and advanced students. The chapter relating directly to this study is Chapter 11: "Technical Development for Elementary Students," written by Yvonne Enoch. This chapter includes Enoch's opinions on basic elements of piano technique, only slightly referencing past research. Other chapters of interest include Chapter 28: "Technical Development of the Intermediate Student" by Ian Hobson; and Chapter 32: "Music Medicine and Today's Piano Teacher" by Gail Berenson, which presents basic directions for elementary technique that leads to injury-free playing.

A helpful book on injury prevention and body coordination in piano playing is Thomas Mark's (2003) book, *What Every Pianist Needs to Know about the Body*. Its goal is to help pianists become aware of the body and how the muscles, joints, and bones function most naturally.

Another compendium of information relating to piano teaching is found in Frances Clark's (1992) book, *Questions and Answers*. However, Clark's book differs from books by Lyke et al. (1977/1996) and Kropff (2002) in that the information is generally more applicable to lower level students and is of a more practical nature due to the question and answer format. Topics cover myriad aspects of teaching children, from reading, rhythm, theory, composition, technique, transfer students, adult beginners, pedagogy programs, and the business of teaching. The technique chapter covers the basic elements of elementary technique, including posture, scales, technical patterns, etudes, and practicing. This book is a compilation of Clark's column, which

appeared monthly in *Clavier* magazine beginning in 1966, and is an essential reference for all piano teachers of children.

Four dissertations include useful information about teaching technique to elementary level students. Two, Norma Holmes Auchter's (1977) *A Study of Successful Pre-college Piano Teachers* and Laura Beauchamp's (1994) *Boris Berlin's Career and Contributions to Piano Pedagogy* focus on observations of excellent teachers. Auchter's study categorized data from observations of various teachers into four subject areas: preparation for teaching piano, motivating students, incorporating creativity in teaching strategies, and maintaining effectiveness as a teacher. In contrast, Beauchamp's study focused on one excellent teacher, Boris Berlin, detailing his publications and teaching approach through analysis of Berlin's works and interviews with his students.

Two other dissertations, Albergo's (1988) dissertation, *Objectives for Elementary Level Piano Instruction: A Survey and Comparison of the Objectives of Eight American Children's Piano Methods with the Objectives of Piano/Piano Pedagogy Teachers,* and Hester Sophia Rhoodie's (2002) dissertation from the University of Pretoria (South Africa) entitled *Piano Tuition for the Beginner: The Structuring and Teaching of the Basic Movements in Piano Playing,* are analysis studies that focus on piano methods.

Albergo (1988) surveyed the authors of eight piano methods and compiled a list of objectives for elementary level study in the following areas: Playing (includes technique), Listening, Creating, and Knowing and Understanding. Because many of the instructional objectives in piano methods are implied and not stated openly, this study provides valuable insight into what authors of well-known piano methods believed are reasonable objectives for elementary level study. Albergo then surveyed piano and piano pedagogy teachers who attended the 1986 National Conference on Piano Pedagogy to determine what objectives this population had for elementary level study. Results from the two surveys were compared. Albergo's study is useful to the current study in that it provides a guide for analyzing methods, as well as insight into

what authors of piano methods and piano teachers view as appropriate for the elementary level of piano study.

Rhoodie (2002) analyzed six beginning method books and uncovered a lack of sequencing in the teaching of basic movements at the piano. She found that methods fail to make a connection between sound and movement, and that use of the bigger levers of the playing mechanism is seldom mentioned. Rhoodie, after a scathing review of the methods analyzed, presented her own exercises in an effort to sequence the learning of basic movements for beginning students. Rhoodie analyzed the writings of Gát, J.W. Bastien, Last, Sandor, K.S. Taylor, and Conus and compared what these authors said about use of whole body, lower body, torso, upper arm, forearm, hand, and fingers. Piano methods analyzed are by Thompson, Pace, Burnam, Clark and Goss, Bastien, Waterman and Harewood, Schaum, and Palmer. Rhoodie showed her bias throughout the study, making it more of a forum for presenting her ideas about piano technique pedagogy rather than a study of comparisons between leading authors and method books.

Pedagogy Texts

Pedagogy texts have changed greatly since the beginning of the 20th century. The older books, such as Macklin's (1925) *Elementary Piano Pedagogy*; Beryl Rubinstein's (1929) short book, *Outline of Piano Pedagogy*; Victor Booth's (1946/1971) *We Piano Teachers*; and Ahrens and Atkinson's (1954) *For All Piano Teachers*, usually include succinct chapters on rhythm, theory, memorization, practicing, giving assignments, technique, and other topics related to piano teaching. The books typically make some mention of the controversies of the late 19th century and early 20th century between the Relaxation School and the emerging Contemporary Schools and for the most part seem to have been written for experienced teachers rather than for novices.

One unusual older pedagogy text is *The Oxford Piano Course, Teacher's First Manual* by Schelling, Haake, Haake, and McConathy (1929), which is an early example of a pedagogy text written for teaching group piano to children. The book describes a philosophy of class piano in

public schools, preparation of the teacher, the management of class instruction, and curriculum. A chapter on beginning technique is included, and advice for teachers is given for the 1st year's curriculum of the *Oxford Piano Course.*

Newer pedagogy texts, besides presenting chapters on similar topics to the older books, focus more on the sequencing of materials and usually include a listing of method books and supplementary repertoire, a component lacking in many of the older books. Also included are chapters relating to newer concerns in piano teaching, such as the business of teaching; working with adult learners, transfer students, and very young children; and the role of technology in piano teaching. While the older texts share similarities in content and style, the newer pedagogy texts vary greatly to target various audiences in the pedagogy field such as undergraduate students, graduate pedagogy majors, or experienced teachers. Summaries of the newer pedagogy books are provided below.

Besides being a prolific author of piano method books and supplemental music books, James Bastien's *How to Teach Piano Successfully* (1973/1995) has been a standard pedagogy text for 30 years. Bastien's views on piano pedagogy, though dogmatic, are nevertheless very helpful for the beginning teacher who may want to follow one clear path. The lists of what should be covered in the 1st, 2nd, and 3rd years of study, as well as the charts provided, help to dispel some of the confusion about instructional objectives and sequencing material in teaching young students. Bastien's technical approach focused more on *what* should be taught than *how* a concept should be taught. Hence, his focus for technical development was on the attainment of fundamental forms rather than on the process of building a free and comfortable technique. Photos of children's hands, though helpful in explaining Bastien's technical approach, sometime show a position that appears stiff and uncomfortable. The book deals with teaching young beginners and adults as well as school age and high school age children. Chapters by guest authors provide information on subjects such as technology, editions of music, ornamentation, and college level teaching. The

book concludes with interviews with pianists Nelita True, Rosina Lhevinne, and Adele Marcus concerning their perspectives on pre-college training.

Isabelle Yalkovsky Byman's (1978) pedagogy text, *The Piano Teacher's Art,* differs from other pedagogy texts in the detail with which the sequencing of beginning lessons is discussed. Plans for the first 10 lessons of a beginner's study are provided, which include small rote exercises for beginning technical development. Byman made some mention of hand gymnastics as being useful for technical development. Included at the end of each chapter is a suggested reading list of books relating to piano, music history, and educational psychology, as well as a summary of the main points of the chapter. The chapters on technical development make up a large part of the book. Other chapters dealing with the business of teaching, transfer and adult students, ornaments, interpretation, learning process, and practicing, among others, are also included. Repertoire lists for each level of advancement, though outdated, are quite exhaustive.

Although Suzuki-trained teachers attend training workshops, Bigler and Lloyd-Watts' (1979) book, *Studying Suzuki Piano: More than Music*, presents a general introduction to the Suzuki philosophy and teaching approach that is useful for all piano teachers, whether they use the Suzuki method or not. The Mother-Tongue approach, which is essentially a rote method of teaching piano, is explained in detail. The first three chapters discuss the benefits of this philosophy, attributes of a good teacher, and the teacher-parent relationship. The next three chapters detail the specifics of motivation in lessons, structuring of lessons, and technical development. The Suzuki system of technique is very specific, providing a systematic plan for teachers to follow based on the Suzuki method book pieces. This is useful in that it provides structure, but it leaves little room for teacher variance in what concepts are taught. The second half of the book offers teaching tips regarding technical and musical points for each piece in the six volumes of the *Suzuki Piano School* (1978).

Agay's two-volume text, *Teaching Piano*, (1981) presents a brief summary of piano technique from the Finger School through the Relaxation School. Agay said that today the

controversy between the two schools has nearly disappeared, as the two systems are "not incompatible" (Vol. 1, p. 13). Agay presented opinions of piano teachers on either side of often debated issues, such as when scale study should begin and the importance of playing exercises, and he often inserted his own perspective. Only a small portion of the book is devoted to teaching technique.

Besides containing the most up to date survey of the history of piano technique and piano pedagogy, Uszler's et al. (2000) book, *The Well-Tempered Keyboard Teacher*, includes a brief survey of American piano methods from 1892 to the present that shows the evolution of technical instruction. Instead of dogmatically presenting their own views on pedagogy, the authors provided several answers to each teaching problem based on the technical theories of past writers and current thought among piano teachers and method books.

Wesley Schaum and Joan Cupp's (1994) book, *Keyboard Teaching with Greater Success and Satisfaction,* provides an incomplete overview of concepts related to teaching piano to children in the private studio setting. Presentation of technical concepts is very brief and leans toward the Finger School in philosophy. No mention is made of the origin of the technical rules presented. The book was written to correlate with the Schaum (1962/2003) piano method books. This book is evidence that the Finger School still lives on over 100 years after it had fallen by the wayside in mainstream technical thought.

Martha Baker-Jordan's (2003) recent pedagogy text, *Practical Piano Pedagogy*, is an ideal text for undergraduate students who have never taught. Many sample forms, illustrations, and questions to think about are provided throughout each chapter. Besides the usual chapters on philosophy of teaching, beginning method series, and the business of teaching, Baker-Jordan also included informative chapters by guest authors on such topics as technology, teaching jazz, and learning styles. The chapter on technical development is brief and presents Baker-Jordan's ideas on technique that she developed throughout her teaching career.

The newest pedagogy text available is Jeannine Jacobson's (2006) book, *Professional Piano Pedagogy*. The book features an amalgamation of the most important ideas from past pedagogy texts. The book focuses on the elementary level of teaching and therefore provides a more complete treatment of the subject than is available in other pedagogy books, which often also include information about teaching of intermediate and advanced students. The relevant information contained in this book shows Jacobson's knowledge of the most practical skills necessary for beginning teachers. Besides a listing of technical skills necessary at the elementary level, the chapter on teaching technique presents several ways to approach each concept presented. This book can be used with novice teachers as well as those who have some experience with teaching, as Jacobson included various project assignments for new and for experienced teachers at the end of each chapter.

Journal Articles

Hundreds of articles have been written on various subjects relating to piano technique in the periodicals that today's piano teachers read. These articles, like the books mentioned above, are most often based on one teacher's experiences and observations and therefore reflect conflicting opinions. They present a practical, rather than a scientific, approach to the study of piano technique. However, the articles are a good source of information on contemporary thought on teaching technique to elementary level students.

Frequent topics in the articles include posture, fundamental forms, technique regimens, exercises, finger training, small hands, injury prevention, tension and relaxation, and solutions to common problems. Periodicals surveyed include *American Music Teacher, Clavier, Junior Keynotes, Keyboard Arts, Keyboard Companion, Music Teacher, Piano and Keyboard, Piano Guild Notes, Piano Quarterly, The Piano Teacher, Proceedings from Pedagogy Saturday,* and *Suzuki World.*

The most prolific authors include the following pedagogues. Celia Mae Bryant (1962; 1964; 1965) Richard Chronister (Darling, 2005), and David Kraehenbuehl (1986; 1987) were pioneers in writing about beginning technique. Yvonne Enoch (1983) wrote a series of articles for

Music Teacher related to teaching technique to beginners. Brenda Wristen (2000), Barbara Lister-Sink (1994; 1999), and Kathleen Glaser (1993; 1994; 2003) wrote about injury-prevention or basic concepts of posture. Steven Roberson (1990) and Scott McBride Smith (1993) wrote articles on technique, and both became editors of the Technique column of *Keyboard Companion*, Roberson in 1990 and Smith in 1993, which provided a forum for many teachers from around the country to express their opinions and successes in the teaching of technique. Robert Strangeland (1980-1982) was one of the few to incorporate the research of famous authors of the past, including Matthay, Ortmann, Gát, and Newman, into his pedagogy articles.

One of the most significant articles on technique is "Harmful Practices that Cause Injuries," (McCray, 1994) from *Clavier*. Questions are posed by McCray and answered by pianists such as Abbey Simon and Paul Pollei; pedagogues such as Emilio del Rosario, Nelita True, Phyllis Lehrer, and Jane Magrath; and experts on anatomy such as Alice Brandfonbrener and Dorothy Taubman. The article presents information and consensus on what movements are harmful in piano playing. The variety of backgrounds and career focuses of the respondents provides a wide perspective on the issue.

Several compendiums of articles have been published. *The Piano Teacher's Companion,* compiled by Lois Maier (1963), contains articles from *Etude* magazine written by Guy Maier. Divided into three parts, "The Technic," "The Teacher," and "The Music," the articles discuss teaching beginning through advanced pianists.

The Challenging World of Piano Teaching (1986) by Bernard Kirschbaum contains articles spanning a 20-year period and relating to various aspects of piano teaching. Articles are from *The American Music Teacher*, *Clavier, Music Journal, and Piano Guild Notes.*

A Piano Teacher's Legacy (2005), edited by Edward Darling, is a compendium of articles by Richard Chronister, one of the most respected pedagogues of the 20th century. Chronister founded *Keyboard Arts* and *Keyboard Companion* magazines. This book presents articles regarding various topics related to teaching children, both in terms of the philosophy of teaching and

practical advice. The chapter on technique is devoted to elementary level teaching of piano technique.

Very few scientific research articles have been published in the area of elementary level piano technique. Research articles related to children studying piano and found in the *Bulletin of the Council for Research in Music Education* and the *Journal of Research in Music Education* are most often related to motivation (Costa-Giomi, 2004; Duke, Flowers, & Wolfe, 1997) or studies of teacher success (Benson & Fung, 2004; Siebenaler, 1997; Speer, 1994). One exception is an interesting article related to the development of piano technique from *Journal for Research in Music Education* and entitled "Piano Learning and Programmed Instruction" (Wagner, Piontek, & Teckhaus, 1973). The researchers attached a piano keyboard to a computer and had adult subjects play a passage, aiming for evenness in tone and rhythm. The computer feedback instantly told the pianists how close they had come to playing perfectly evenly. The researchers concluded that this kind of technology can help students at the beginning stages who may have problems listening critically by providing them with a visual representation of their performance at the piano.

The journal *Medical Problems of Performing Artists* contains articles that are more applicable to the current study, including research studies relating to biofeedback, injury-prevention, and retraining of pianists.

One article in this journal by Redmond & Tiernan (2001) surveyed 149 independent piano teachers in Washington to determine whether teachers had knowledge about injury-prevention and to learn where they had received their information. The results showed that teachers did have some knowledge of this topic, which they had gained through their own teachers, colleagues, workshops, and medical practitioners.

Another article related to technical training, similar to the Wagner et al. (1973) article, is entitled "The Use of Multimodal Feedback in Retraining Complex Technical Skills of Piano Performance" by Riley, Coons, and Marcarian (2005). In this study, MIDI recording and play back, video recording and motion analysis, and surface electromyography provided biofeedback

that was used to show students differences in the overlap of notes in a five-finger passage visually and to monitor the muscular tension found in the hands and forearms, which is invisible to the eye. The results showed that the use of this technology is beneficial in helping students diagnose and solve problems related to hand position in their technique.

Sakai, Liu, Su, Bishop, and An (1996), in their article, "Motion Analysis of the Fingers of the Wrist of the Pianist," sought to develop a way to monitor finger and wrist motion in the playing of a five-finger pattern and of a sequence of triads. Markers were placed on various parts of the hands of the study subjects, and their movements were recorded using the ExpertVision System, which consists of a keyboard attached to a series of computers. The authors concluded that although it would be "a great challenge, if possible, to establish a standardized model for the motion of the hand on the keyboard" (p. 29), the method developed in the study could help provide more information concerning the complexities of movement at the keyboard.

Tubiana, Chamagne, and Brockman (1989), in their article, "Fundamental Positions for Instrumental Musicians," offered physiological and mechanical reasons for optimal postures.

Wristen (2000) outlined a series of qualitative checklists to help identify and correct faults in technique in her article, "Avoiding Piano-related Injury: A Proposed Theoretical Procedure for Biomechanical Analysis of Piano Technique." She provided information on using qualitative research in the study of piano technique as well as a general list of motions to avoid in piano playing.

Sources Used for Research Design

Kuo-Liang Li's (2004) dissertation, entitled *Usage and Development of Piano Method Books in Taiwan: Interviews and Observations with Piano Teachers,* is useful in its similar research design to the current study. Li's is a qualitative study that includes an analysis of method books, interviews with teachers, and observations of student lessons for each teacher. The review of the literature contains descriptions of other studies that include teacher interviews and observations.

Duke's et al. (1997) article entitled "Children who Study Piano with Excellent Teachers in the United States" provides a model for the selection of expert teachers. As a recruitment strategy for their study, the researchers asked one hundred pedagogy teachers from around the country for recommendations of excellent teachers in their geographic areas.

The textbooks, *Introduction to Research in Education* by Ary et al. (2002) and *Qualitative Research for Education* by Bogdan and Biklen (2003) were used as reference for information regarding procedures for conducting this qualitative research study.

Publication Manual of the American Psychological Association, 5th edition (2001), was used in the preparation of the text of this dissertation.

CHAPTER III

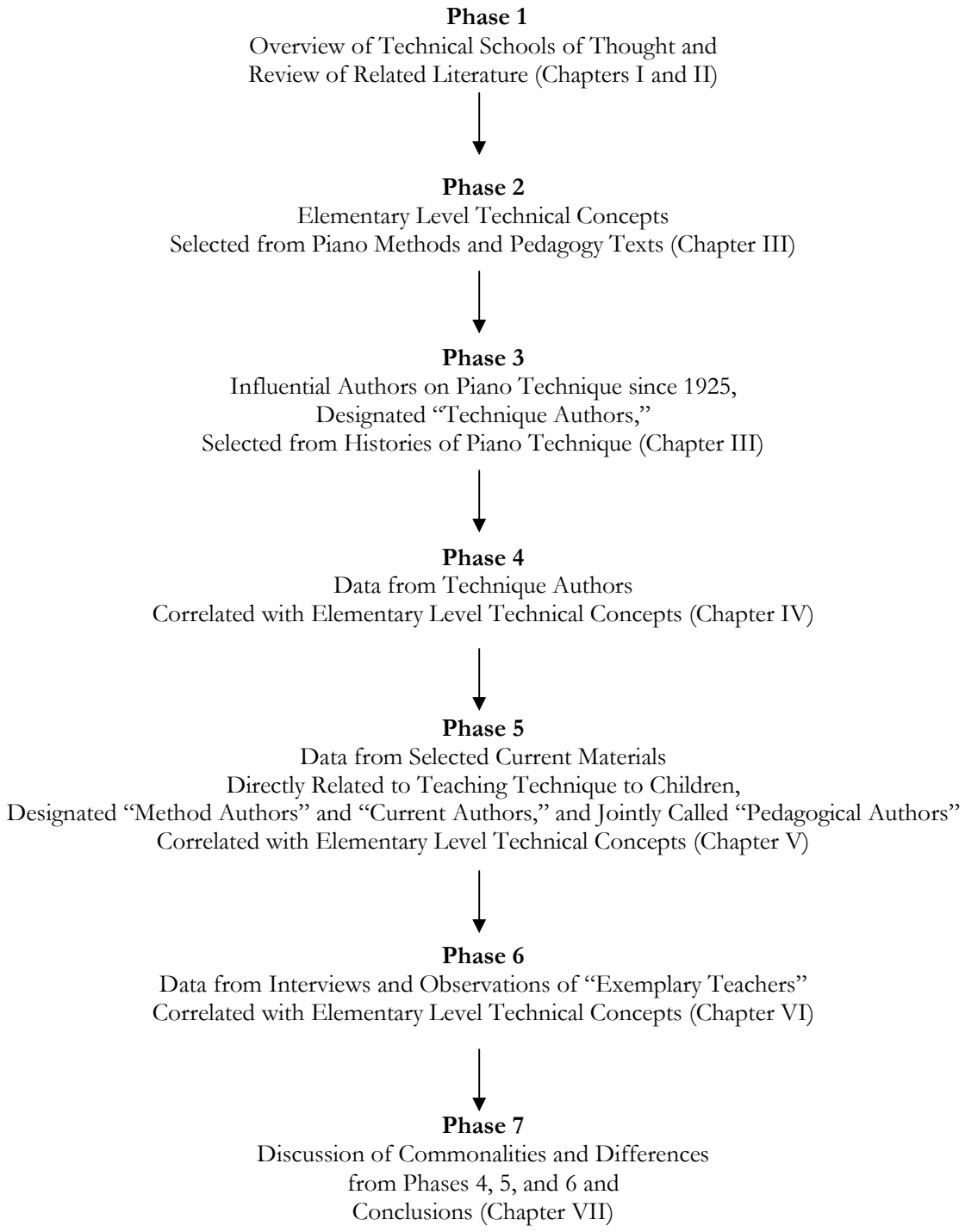
PROCEDURES

This qualitative research study was designed to analyze what influential writers of the past and present wrote regarding the teaching of technical concepts and to discover what strategies, methods, and materials excellent teachers of 5- to 11-year-old elementary level piano students use to develop a solid technical foundation that will prepare their young students to be capable of playing advanced works from the piano literature once they reach the high school and college levels. Results from the writings that were analyzed and the teachers and students that were observed formed the basis for a grounded theory regarding teaching elementary level piano technique. This grounded theory is presented in Chapter VII in the form of 107 Technical Principles.

Chapter III sets forth the procedures and methodology used in this study, which has been divided into seven phases as outlined in Illustration 2. Beginning with a broad review of the literature related to teaching elementary level technique, the focus was gradually narrowed to encompass an analysis of a set number of texts, which were categorized as Technique Authors (described in Chapter IV) and Pedagogical Authors (the latter consisting of the sub-categories of Method Authors and Current Authors, described in Chapter V). After study of the chosen texts, interviews and observations of Exemplary Teachers were completed to gain another perspective on the subject of piano technique (described in Chapter VI). In this chapter, the procedures for each phase are described.

Illustration 2

Procedures Flow Chart



Phase 1

Phase 1 consisted of studying all the available books and writings on piano technique to gain a general understanding of the topic. Writers and books surveyed were then divided into categories: Finger School, Relaxation School, Contemporary Schools of the 20th century, pedagogy texts, books and articles written specifically on teaching technique to children, and piano method series.

After completing this survey of available literature, the principal investigator narrowed the topic to a study of the technical writings from the 20th century to the present, beginning with Otto Ortmann's seminal works, *The Physical Basis of Piano Touch and Tone* (1925) and *The Physiological Mechanisms of Piano Technique* (1929). In analyzing the history of piano technique, Ortmann's study of piano technique using scientific methods was seen as the culmination of technical thought up to that time. Reginald Gerig (1974), in his comprehensive history of piano technique history, titles his lengthy chapter on Otto Ortmann, "Ortmann: Piano Technique Comes of Age" (p. 407) and calls Ortmann's 1929 book, *The Physiological Mechanics of Piano Technique,* "the most valuable source book on piano technique ever written" (p. 411). Ortmann's groundbreaking work affected all technical writers after him by raising the standard of research in piano technique. Because of Ortmann's central position in the history of piano technique, this study will be limited to the most respected technical writers from 1925 to the present.

Phase 2

In Phase 2, current pedagogy texts and piano method series were analyzed to establish a list of the Elementary Level Technical Concepts, or technical concepts that should be mastered during the years of elementary study. See Appendix L for a complete listing of the piano method books within each series that were analyzed. Pedagogy Texts and Method Series surveyed for selection of the Elementary Level Technical Concepts are listed in Tables 2 and 3, respectively.

Table 2

Pedagogy Texts Surveyed

Author	**Title**
Bastien (1973/1995)	*How to Teach Piano Successfully*
Lyke et al. (1977/1996)	*Creative Piano Teaching*
Agay (1981)	*Teaching Piano, V. 1*
Camp (1992)	*Teaching Piano*
Uszler et al. (2000)	*The Well-Tempered Keyboard Teacher*

Table 3

Method Series Surveyed

Authors (Date)	**Title of Method Series**
Thompson and Kaplan (1937/1994)	*Teaching Little Fingers to Play*
Fletcher (1947)	*The Leila Fletcher Piano Course*
Clark et al. (1955/2000)	*The Music Tree*
Pace (1961/1983)	*The Way to Play*
Schaum (1962/2003)	*Making Music Method*
Duckworth (1963)	*Keyboard Explorer*
Palmer and Lethco (1971)	*Creating Music at the Piano*
Burr and Gillock (1976)	*Technic—All the Way!*
Suzuki (1978)	*Suzuki Piano School*
Chronister and Kraehenbuehl (1980)	*Keyboard Arts*
George & George (1980)	*Artistry at the Piano*
Olson et al. (1983)	*Music Pathways*
Bastien (1985)	*Bastien Piano Basics*

Schultz and Schultz (1986)	*Schultz Piano Course*
Agay (1987)	*Learning to Play Piano*
Glover and Stewart (1988)	*David Carr Glover Method for Piano*
Tan (1991)	*The Well-Prepared Pianist*
Faber and Faber (1995)	*Piano Adventures*
Kreader et al. (1996)	*Hal Leonard Student Piano Library*
Noona and Noona (1997)	*Music Magic* and *Comprehensive Piano Library*
Finn and Morris (1998)	*Beanstalk's Basics for Piano*
Vogt and Bates (2001)	*Piano Discoveries*
Albergo et al. (2002)	*Celebrate Piano*
Lowe (2004)	*Music Moves for Piano*
Snell and Hidy (2004)	*Piano Town*
Alexander et al. (2005)	*Alfred's Premier Piano Course*

Before a list of Elementary Level Technical Concepts could be compiled, it was necessary to define the term "Elementary Level." This definition was formulated by an examination of pedagogy texts, method books, and standard repertoire. From pedagogy sources, Bastien (1973/1995) stated that the 3rd year of study is the juncture between elementary and intermediate levels, and Albergo (1988) defined the elementary level as "the first two to 4 years of study for children ages 6 through 11 (approximately)" (p. 4). She arrived at this definition through interviewing the authors of eight piano methods. In her survey of piano methods, Baker-Jordan (2003) provided a list of books from each method that should be completed in the first 2 years of study, implying that the first 2 years of study constitute the elementary level of piano study.

Also, for most method series it will take students 2 to 3 years to cover the Primer Level through Level 3 material. Intermediate level method books, usually Level 3-4 of a series, contain

standard literature beginning with Level 3 as defined by Magrath's (1995) *Pianist's Guide to Standard Teaching and Performance Literature.* Albergo (1988) stated that at the end of the elementary level, students will be ready to begin studying repertoire equivalent to Level 3-4 of Magrath's leveling system. This further substantiates the change from elementary to intermediate levels as being at Level 3 of standard literature.

Based on these sources, the Elementary Level was defined as the first 3 years of study, corresponding to Primer Level through Level 3 of a method book series, or standard piano repertoire at Level 3 or lower according to leveling guidelines standardized by Magrath (1995).

After a definition of Elementary Level was formulated, the pedagogy texts and piano methods, listed in Tables 2 and 3, were analyzed for the most frequently occurring technical concepts relating to the elementary level. From this analysis, a list of Elementary Level Technical Concepts, divided into six categories, was compiled (see Table 4).

Table 4

Elementary Level Technical Concepts

Category	**Technical Concepts**
I. Philosophy	- Philosophy of technique. - Philosophy of teaching.
II. Basic Components	- Posture. - Hand position. - Tone production through key depression. - Use of playing mechanism: Muscles, body, ear, torso, shoulder and upper arm, elbow and forearm, wrist, hand, fingers, thumb, feet, and breathing. - Relaxation. - Mind/Body relationship.
III. Exercises	- Gymnastic exercises. - Exercises. - Etudes.
IV. Movement at the Keyboard	- Physical movement. - Lateral movements. - Hand expansion. - Keyboard topography.

V. Fundamental Forms	- Five-finger patterns. - Rotation. - Scales. - Chords (triads and inversions).
VI. Basic Musical Inflection	- Articulation: non-legato, legato, staccato, and mixed articulation. - Rhythm. - Dynamics and tonal control: *pp* to *ff*, *crescendo*, *diminuendo*, accent, tonal control, including balance of voices in one hand and between hands. - Tone quality. - Tempo.

Phase 3

In Phase 3 a list of the most often mentioned writers on piano technique from 1925 to the present was compiled based on histories of technique found in books and dissertations (see Table 5).

Table 5

Histories of Piano Technique

Author (Date)	**Title**
Boardman (1954)	*A History of Theories of Teaching Piano Technic*
Kochevitsky (1967)	*The Art of Piano Playing: A Scientific Approach*
Norman (1969)	*A Historical Study of the Changes in Attitudes Toward the Teaching of Piano Technique from 1800 to the Present Time*
Goldreich (1969)	*References to Psycho-Physical Relationships in Piano Technique as Reflected in 20th-Century Writings about Piano Pedagogy*
Gerig (1974)	*Famous Pianists and their Technique*
Camp (1977)	*An Instructional Approach to Piano Study Referenced to Selected Learning Theories*
Camp (1981)	*Developing Piano Performance*
McArthur (1987)	*An Application of Instructional Task Analysis and Biomechanical Motion Analysis to Elementary Cognitive and Psychomotor Piano Learning and Performance*

Royer (1988)	*An Evaluation of the Piano Examination Objectives of l'Extension de l'enseignement de l'ecole de musique de l'universite Laval.*
Chan (1992)	*The Development of Technique for Playing the Waltzes of Frederic Chopin*
Uszler et al. (2000)	*The Well-Tempered Keyboard Teacher*
Rhoodie (2002)	*Piano Tuition for the Beginner: The Structuring and Teaching of the Basic Movements in Piano Playing*

These books and dissertations containing histories of piano technique were analyzed to find the names of technical writers mentioned in each source. After the list was compiled, those authors who were listed at least five times among the sources (see Table 6) were included in the final list of important post-1925 writers on piano technique in Table 7. To this list were added the books of Seymour Bernstein (1981; 1991), Seymour Fink (1992), and Alan Fraser (2003). These books are more recent and therefore were not yet included multiple times in the histories of piano technique. Yet they were deemed important to an understanding of recent thought on the development of piano technique. This final list of post-1925 authors was designated "Technique Authors" for this study, and their systems of technique are described in Chapter IV.

Table 6. *Most Frequently Occurring Writers on Technique in Histories of Piano Technique*

Histories Authors Mentioned	Boardman 1954	Kochevitsky 1967	Norman 1969	Goldreich 1969	Gerig 1974	Camp 1977	Camp 1981	McArthur 1987	Royer 1988	Chan 1992	Uszler et al. 2000	Rhoodie 2002	Total Times Mentioned
Matthay	X	X	X	X	X	X	X	X	X	X	X	X	12
Ortmann	X	X	X	X	X	X		X	X	X	X		10
Kochevitsky				X	X	X	X	X	X	X	X	X	9
Ching		X		X	X		X			X	X	X	7
Gát		X		X	X				X	X	X	X	7
Newman			X	X	X	X			X	X	X		7
Bonpensiere		X		X	X		X		X		X		6
Whiteside	X				X	X			X		X	X	6
Schultz			X		X			X	X		X	X	6
Fielden	X		X	X	X						X		5
Last					X	X	X				X	X	5
Sandor								X	X	X	X	X	5

Table 7

List of Technique Authors

Name	**Dates Active Publishing**
Tobias Matthay	1903-1947
Thomas Fielden	1924-1949
Otto Ortmann	1925-1929
James Ching	1929-1962
Abby Whiteside	1929-1969
Arnold Schultz	1936
William Newman	1950-1984
Luigi Bonpensiere	1953
Joan Last	1954-1980
Józef Gát	1958-1980
George Kochevitsky	1967-1972
Gyorgy Sandor	1981
Seymour Bernstein	1981-1991
Seymour Fink	1992-1993
Alan Fraser	2003

Phase 4

In Phase 4, the technical systems of each the Technique Authors were described as related to the Elementary Level Technical Concepts (See Chapter IV).

Phase 5

In Phase 5, literature directly related to teaching elementary level piano technique to children was analyzed. Sources included the piano method series and pedagogy texts used in Phase 2 as well as other recent books and articles related to teaching piano to children. Because

the literature is so vast, the articles and books chosen to be included in Phase 5 met the following criteria:

- The source was published (or revised) after 1980, and
- The source directly addressed the topic of teaching piano technique at the elementary levels, and
- The author was prolific or is well-known in piano pedagogy circles, or
- The source appeared in a scholarly journal.

Authors from Phase 5 were designated "Pedagogical Authors" and were divided into two groups: "Method Authors" are the authors of the piano method series that were analyzed. "Current Authors" refers to the authors of books and articles in Phase 5. Information from these sources was correlated with the list of Elementary Technical Concepts and described in Chapter V.

Phase 6

In Phase 6, four "Exemplary Teachers" were chosen for focused interviews and lesson observations to discover current teachers' strategies for developing piano technique in children at the elementary level of study. The principal investigator sought out teachers known for their success in teaching pre-college students ages 5 to 11. Teachers were chosen to participate in the study based on recommendation by professors of piano pedagogy at the University of Oklahoma and other schools.

Other required criteria were:

1. The teacher has students who are ages 5 to 11 and who are playing at the elementary level.
2. The teacher agreed to be identified by name in this study.

It is assumed that teachers would want their names to be included, as they are being selected by virtue of their reputations as Exemplary Teachers.

Teachers who met the criteria above were contacted by email (see Appendix B for Initial Teacher Email Script). Those teachers who responded and agreed to participate were asked to sign the Teacher Consent Form (Appendix A). The teacher then selected three students at the elementary level, and the principal investigator contacted the parent/legal guardian of each child by email or regular mail to invite them to participate in the study (see Appendix C). If the parent/legal guardian and child both agreed to participate, the parent/legal guardian signed the Parent/Legal Guardian Permission Form (Appendix C), and the child completed the Student Assent Form (Appendix D). The teacher and principal investigator scheduled the interview and observation times at mutually convenient times. The four teachers and their students who agreed to participate in this study were interviewed and observed in the following places at the following times.

- Marvin Blickenstaff. Collegeville, PA. June 21, 2006
- Mary Craig Powell. Columbus, OH. September 19, 2006
- Carolyn Shaak. Denver, CO. September 22, 2006
- Ted Cooper. Washington DC October 7, 2006

After teacher selection and scheduling were completed, the research in Phase 6 was conducted in six steps.

Step 1. The principal investigator conducted an interview with each teacher regarding teaching philosophies, materials used, and problem solving strategies. (See Appendix E for Interview Protocol and Appendixes F, G, H, and I for Teacher Interview Transcripts.)

Step 2. The lessons of three students of each teacher were videotaped. The lesson observations allowed the principal investigator to discover how the teachers applied their philosophies, materials, and problem solving strategies to lessons. The principal investigator kept a Field Journal to record her impressions of the lessons, which were included as Observer's Comments in the transcriptions of interview and lesson videotapes. In the cases of visits to

Carolyn Shaak and Ted Cooper, the teacher interview was conducted after the lesson observations due to scheduling difficulties.

Step 3. The video recordings of interviews and lessons were transcribed verbatim and color coded (see Appendix J for an example of coding) according to topics relating to the Elementary Level Technical Concepts from Phase 2. Teacher names were used, and students were assigned a pseudonym to protect their confidentiality.

Step 4. A draft of the section about a teacher's interviews and observation as related to the Elementary Level Technical Concepts was written and sent to the teacher for corrections and comments. This member checking allowed the teacher to clarify anything not fully explained in the interviews. The written summaries of the interviews and observations for each teacher are found in Chapter VI.

Step 5. Transcripts from interviews and observations from all teachers were analyzed using the constant comparative method, with the transcripts being compared with each other to find commonalities and differences. This comparison was included as the Discussion of Chapter VI.

Step 6. Discussions and transcripts were sent to a colleague for peer review in order to guard against bias by the principal investigator.

Credibility was established in this research study in four ways, as summarized in Table 8.

First, two methods were used to study the same teacher: focused interviews and lesson observation. This allowed the principal investigator to gain two perspectives on the teaching techniques of the teachers.

Second, member checking was used to check for accuracy by the Exemplary Teachers.

Third, thick description, or detailed description of the people and places where the observations took place, was used based on the observations from the principal investigator's Field Journal. This served as a reflexive journaling strategy for the principal investigator to monitor thoughts and assumptions and to develop theme areas.

Fourth, two of the principal investigator's colleagues agreed to serve as peer debriefers to guard against principal investigator bias. These peer debriefers reviewed the lesson and interview transcripts and the Discussions written about each teacher and provided feedback about the Discussions. Each peer debriefer reviewed two teachers' materials.

Table 8

Research Strategies to Ensure Credibility and Validity

Research Tool	**Strategy**
Interview	- Perspective 1 - Interview - Field Journal. Thick Description
Lesson Observations	- Perspective 2 – Observation - Field Journal. Thick Description
Analysis of Data	- Verbatim Transcription - Coding and Constant Comparative Method - Thick Description
Follow Up with Teacher	- Perspective 3 - Member Checking
Peer Review	- Perspective 4 - Peer Debriefing

Phase 7

In Phase 7, data from Phases 4, 5, and 6 was compared in a Discussion that drew conclusions about similarities and differences among the Technique Authors (Phase 4, Chapter IV), Pedagogical Authors (Method Authors and Current Authors) (Phase 5, Chapter V), and Exemplary Teachers (Phase 6, Chapter VI). These conclusions were listed as 107 Technical Principles that form the foundation of a grounded theory relating to teaching elementary level piano technique. The Phase 7 Discussion is found in Chapter VII, along with Practical Advice for Teachers and Recommendations for Further Research.

CHAPTER IV

TECHNIQUE AUTHORS

In this chapter, the technical systems of each of the 15 Technique Authors will be described using the structure of the Elementary Level Technical Concepts (see Table 4). These 15 authors were selected due to the frequency with which they were mentioned in the Histories of Piano Technique, as described in Chapter III under Phase 3 (see Table 6). Authors are discussed in chronological order of their publication dates (see Table 7). Each author's system is described without comparison to other authors. Similarities and differences among the Technique Authors is found in the Discussion section at the end of this chapter, and a historical perspective about general trends among the authors is found in Chapter VII, Table 73.

Tobias Matthay

Sources

The Act of Touch in all its Diversity (1903).

The Nine Steps toward Finger Individualization through Forearm Rotation (1923).

The Slur or Couplet of Notes (1928).

Piano Fallacies of Today (1939).

The Visible and Invisible in Pianoforte Technique (1932/1947).

Lassimonne, D. *Tobias Matthay's Technical Teaching Simplified* (1983).

Note on the Sources: Matthay's writings span the 1925 start date of this study. His main work, *The Act of Touch in all its Diversity,* was published in 1903, and yet he continued to advocate this approach, with some modifications, throughout his life. His work continues to exert a tremendous influence on piano teaching in England and abroad. His later books will be the main focus for this study. However, Matthay's 1903 book was consulted for a basic understanding of his technical system, and then this information was checked for updates with his later books and with his student Denise Lassimonne's (1983) book, *Tobias Matthay's Technical Teaching Simplified*, in order to present the most recent version of his technical ideas.

I. Philosophy

Philosophy of Technique

Technique implies knowledge, judgment, and imagination (Matthay, 1903). It is useless to try to acquire technique dissociated from its purpose, which is to express music. From the very first experiments at the piano, the pianist should never make a technical movement without a definite rhythmic and tonal purpose, which means that the pianist must inwardly hear the sound before producing it (Matthay, 1932/1947).

There are two branches of education at the piano, instrumental education and muscular education. In instrumental education, the pianist learns about the workings of the instrument in order to understand what kind of key treatment is necessary for each particular sound. In muscular education, the pianist learns about the muscular conditions of activity and relaxation to discover how best to execute varying key treatments (Matthay, 1903).

Matthay's organized system of technique that outlines such topics as species of touch, finger attitude, and methods of key depression, shows that Matthay (1903) believed in a completely systematized approach to technical theory and instruction. The pianist must learn the physical laws involved in technique in terms of the act of tone production, since this forms the whole foundation of piano playing. Then these physical laws must be relegated to the subconscious to enable the pianist to play with a purposeful, musical performance (Matthay, 1932/1947).

Philosophy of Teaching

Matthay (1932/1947) said that often, gifted pianists are not good teachers of technique, because they find it difficult to analyze how they achieve such excellent technical results. A capable teacher is a musical pianist who has achieved technical mastery, but is at the same time gifted with powers of analytical and mechanical reasoning and therefore understands what it feels like physically both to play correctly and incorrectly.

Teachers must realize that technique cannot be diagnosed by means of the eye, because most of the necessary tasks involved in technique are invisible (Matthay, 1939). It is important to understand the various stresses and relaxations required for the various portions of the playing apparatus. This knowledge is gained through analysis of the sensations experienced by actually producing the desired effects. By recalling these sensations, the pianist can then reproduce the effects repeatedly in order to acquire right habits and can teach others to acquire them as well (Matthay, 1932/1947).

Matthay (1939) believed that agility can be acquired by anyone who wants to put in the hard work necessary to attain it. Since tone production depends on accurate obedience to mechanical, physical, and psychological laws, these laws apply to all players, no matter how much they may differ muscularly or musically. The two processes of artistic-perception and artistic-execution are distinct accomplishments. Artistic judgment is necessary, which is gained through listening to good pianists, experimenting at the piano, and taking advantage of the guidance of a teacher (Matthay, 1903).

According to Matthay (1930), the order of study in piano technique should be as follows:

1. Because the act of touch is so important, a student needs to understand the process of tone production before attempting to play pieces or even technical exercises. Also, children should be made to understand that a definite musical sound is required, not merely a putting down of the keys (Matthay, 1903).
2. Once the basic foundation of tone production is learned, sequences of sounds can be learned by rote, including portions of musical material, scales, and simple tunes (Matthay, 1903).
3. Then, as the child progresses, the practice of real music should accompany the study of tone production to help the student develop a musical sense (Matthay, 1903).
4. Reading can be taught later. "The attempt to teach or to learn the readings of pieces of music before the means of rendering them has been mastered is quite a great absurdity"

(Matthay, 1903, p. 1). Matthay said that incorrect muscular habits and wrong ways of looking at piano playing that are formed in childhood are difficult to eradicate afterward and can usually be traced to a teacher who expected a child to learn to speak, read, and even write music concurrently.

II. Basic Components

Posture

If the muscular conditions are right, the position of the body will take care of itself. "To stress Position calls attention to *results* instead of to the *causes* of the desired results" (Matthay, 1932/1947, p. 105). The individual pianist's body proportions will influence the ultimate choice for a correct posture. Moreover, a correct position does not guarantee that the fundamentals of technique are correct, nor does good posture cause good technique (Matthay, 1903). The visible elements of technique such as position and movement are insignificant compared with the invisible elements of muscular activity and relaxations. Supplying a correct balance between action and reaction will lead to a naturally acquired position (Matthay, 1932/1947). Matthay provided the following specific guidelines for posture:

- The bench faces the center of the keyboard in front of middle E (Matthay, 1903).
- The student sits at a distance where the elbow can be moved in front of the body so that the extremes of the keyboard can be easily reached. The upper arm slopes slightly forward in order to allow its weight to be used (Matthay, 1932/1947).
- The student sits at a height where the elbow is level with the keys. People with long upper arms may feel the need to use a higher seat than those with short upper arms. However, if the pianist uses the correct muscular conditions, all passages can be played in spite of an exaggeratedly high or low arm position (Matthay, 1932/1947)
- The feet rest on the floor. The left foot is slightly back from the right foot with the sole of the foot touching the floor, and the toe of the left foot is almost as far back as the heel

of the right foot. This allows for balance in moving laterally across the keyboard (Matthay, 1903).

- The back is erect (Matthay, 1932/1947).
- The elbow is neither fixed against the side of the body nor held away from the body. It assumes its correct position if there is freedom in the upper arm (Matthay, 1932/1947).

Hand Position

A hand position is a personal thing because no two hands are alike (Matthay, 1932/1947). However, the following guidelines are given:

- The knuckles are raised to form a hollow hand. If the bridge knuckles collapse when playing, it may be because the fingers are not exerting their energy sufficiently, or because there is too much down force from the hand and arm relative to the fingers' reaction upward from the key. To keep the knuckles firm, the balance must be correct between finger exertion and hand and arm exertion. If the nail joints collapse, the 3rd phalanx should be exerted more relative to the rest of the finger. Also, this collapse may be a physical defect, in which case it should not be changed. Collapsing nail joints are of little importance (Matthay, 1932/1947).
- The level of the wrist is a result of the position and condition of the hand. It is generally in line with the knuckles or a little lower (Matthay, 1932/1947).
- When the fingers are on the white keys, the middle finger reaches its key close to the edge line of the black keys, with the other fingers slightly behind this point (Matthay, 1903).
- The 3rd finger is in a straight line with its key (Matthay, 1903).
- The thumb is curved, with its 3rd phalanx in a straight line with the key (Matthay, 1903).
- Each finger reaches the center of its key (Matthay, 1903).

- The hand is held level and must not slope down toward the 5th finger. This is easiest if the wrist is turned outward (Matthay, 1903).

Finger Attitudes

Matthay's system of technique includes two attitudes of the finger, the flat (clinging) and bent (thrusting) positions.

The distinctions between flat and bent fingers are manifested mostly when the finger is raised, because the curvature of the finger when the key is depressed may be the same with bent and flat finger positions. In both attitudes, it is the 2nd and 3rd phalanges that differ (see Illustration 1), while the 1st phalanx does the actual work of key depression (Matthay, 1903).

The flat (clinging) finger straightens as it is raised. Then it either remains straight during descent toward the key or tends to bend, playing on the fleshy part of the finger (Matthay, 1903). This is the most naturally useful finger attitude at the piano and is the same action used in daily life when gripping an object (Matthay, 1932/1947).

The bent (thrusting) finger is more curved when it is raised, opening slightly as it descends to the key. However, the 3rd phalanx remains vertical throughout. This action of the finger is more artificial and complex than the flat finger attitude (Matthay, 1932/1947).

When descending toward the key, the thumb tends to unfold in bent touch and flex inward in flat touch. This movement is slight. The thumb should be given ample freedom of movement and should never be held against the hand tightly with the thumb tip turned out (Matthay, 1903).

Tone Production

Basic Process in Relation to the Key

Matthay's (1928) supreme law of technique is to produce a desired musical effect through close attention to key resistance. The basic process of tone production with relationship to the key can be described in the following steps:

1. The key must be felt and used rather than struck or hit. It is the same feeling as picking up a glass, where instead of slapping a glass of water, a person comes upon it gently and feels contact with the glass before lifting it (Matthay, 1939). The key is a tool used to impart the appropriate speed to the string. The pianist should not try to play the keys at all, but should instead endeavor to play the strings by means of the key (Matthay, 1903).
2. The resistance of the key is felt, in order to supply the required force. (Matthay, 1932/1947). The requirements of the keys differ on every instrument and among various portions of the same instrument. Each key must be weighed before it is played (Matthay, 1903). The pianist listens for the beginning of the sound so that the force may be timed and applied accurately. Therefore, tone production is both an aural, tactile, and rhythmical process (Matthay, 1932/1947).
3. After coming upon the key gently and sensing its resistance, the pianist follows through with an active pressure of the fingertip that increases during key descent (Matthay, 1939). This is called "added impetus" (Matthay, 1903, p. 138).
4. Once the key has been depressed, the pianist cannot modify the sound. Because of this fact, no tone, whether staccato or legato, ever takes longer to produce than it takes to produce a *staccatissimo* tone (Matthay, 1903).
5. Two forms of resting after tone production allow for holding down a key or for a staccato articulation. The staccato form of resting does not use arm weight, but rather applies the weight of the hand, which remains quite passive and loose on the keys, as if it were hanging from the wrist joint with the fingers gently supported on the keys at surface level. Its weight is necessary for staccato, but will not cause the keys to remain depressed. The second form of resting, *tenuto* resting, is slightly heavier and overbalances the key by a slight lapse of the whole arm, keeping the key depressed for holding a note or for legato connection (Matthay, 1903).

6. At times it is useful to add a little more pressure on the keybed than is actually necessary to hold the notes down, because this gives a sense of comfort. This does not constitute keybedding, which is an ill-timed application of force that drives too far into the keybed (Matthay, 1932/1947).

Classes of Touches

Matthay (1932/1947) classified touches in terms of the playing unit used. These three touch forms must be learned separately, but then they are combined, since most playing involves hybrids of these touch forms.

- First species is finger touch.
- Second species is hand touch.
- Third species of is arm touch.

The difference between the three species of touch is solely a question of timing and power in favor of one of the playing units over the others, since all the playing units are involved to a degree in all three touch forms (Matthay, 1939). When the finger provides the movement, the touch is called finger touch, although the action requires the exertion of both the finger and the hand. The finger exertion is visible and the hand exertion is invisible. In the same way, if the hand provides the movement, this is called hand or wrist touch. And if the arm shows movement, the touch is called arm touch, even though the hand and fingers must also be exerted. The type of touch employed depends on the speed and tonal level of the passage (Matthay, 1932/1947).

The following discussion of the three touch species begins with third species, because a third species touch of quiet intensity is recommended as the first touch form to be taught, since it is the easiest muscular combination to master. Second and first species follow (Matthay, 1903). For further information on teaching tone production to children, see the section on Rotation.

Third Species. Arm Touches

Whole Arm Weight Touch. Weight touch is not produced only by a lapse of arm weight onto the key. The finger and hand must be exerted as well (Matthay, 1939). The weight is never

dropped onto the key in a freefall, because key descent will be uncontrolled (Matthay, 1932/1947). Instead, the weight is controlled as in a *glissando*, with a poised arm and just the right amount of weight released (Lassimonne, 1983).

In whole arm weight touch, the whole arm is lapsed onto the keys as a basis for finger and hand action. The pianist can conceive of weight touch in two ways: either prompting the lapse of arm weight and allowing the finger and hand to respond, or prompting the finger and hand exertion and allowing arm lapse to respond (Matthay, 1939). Timing of the weight is crucial. The pianist must think about the key and its needs and release the right amount of weight at the precise moment it is required (Matthay, 1932/1947).

The whole arm weight touch is used for producing *cantabile* tone in single notes and chords and is capable of all varieties of tone quantity and quality. Its only disadvantage is in speed across the keyboard, which is lessened because the arm weight must be released and then taken up again after each lapse (Matthay, 1932/1947; Matthay, 1903).

Upper Arm Weight with Forearm Down Exertion. For the loudest tones, whole arm weight combined with a down exertion of the forearm is used. The upper arm must not drive forward when the down exertion of the forearm is made, as this causes bad tone (Matthay, 1932/1947).

Forearm Weight Touch. In this touch form, the weight of the forearm is set free as a basis for the exertions of the finger and hand. This lapse of weight is not necessarily manifested as a fall or movement. Instead, the arm is left unsupported so that the weight, which is countered by the exertion of the hand and fingers, can serve as a basis for action. This touch is suitable for light chords (Matthay, 1932/1947).

Second Species: Hand Touch

Hand Touch. Second species is necessary when greater speed is required than is possible with third species touch. Since there is not enough weight in the hand to produce the required amount of tone, this touch is produced muscularly. Finger and hand force exert against a self-supported arm. The arm carries the loosely lying hand and fingers across the keyboard to the

notes, which are then depressed by the combined action of the hand and finger. The hand should not be raised more than necessary. Movement is easiest when the hand is moved in the middle of its range (Matthay, 1903).

First Species: Finger Touch

Finger Touch. There is no such thing as tone production solely by finger exertion. Finger touch must always work in conjunction with the hand and arm (Matthay, 1932/1947). The self-supported arm hovers over the keys and carries the hand to the proper position. The hand lies passively on the keys and is supported by the fingers, which are individually exerted against the keys (Matthay, 1903).

Preliminary raising movements of the fingers are healthy as long as they are not excessive and do not lead to hitting the key. However, the raising must not be looked on as an object to be attained, but rather as an accompaniment to the free action of the fingers (Matthay, 1932/1947). Therefore, there should be no percussion against the key surface, since the resistance of the key is sensed ahead of time through weighing the key (Matthay, 1903). Although the fingers of an expert pianist may seem to descend on the key swiftly, as if hitting the keys down, the exertion on the key is always a thing added after contact with the key (Matthay, 1932/1947).

There is always an action and reaction in tone depression. When the fingertip is exerted against the key downwards, there is an equal reaction upwards at the knuckle, the other end of the finger lever. This reaction must be countered at the knuckle by supplying a sufficiently stable base for the desired finger action. This base is created by a downward exertion of the hand at the knuckle, which should be used with each finger during the moment of the key descent. No movement of the hand need be visible (Matthay, 1932/1947).

Finger touch is for fast passages of quiet intensity (Matthay, 1903). For passages that are fast and loud, use the bent attitude of the finger.

Table 9

Advantages and Disadvantages of Touch Forms

Touch Form	Visible Playing Unit	Advantages	Disadvantages
1st Species	Finger	- Fast speeds.	- Quiet intensity, unless the bent attitude of the finger is used.
2nd Species	Hand	- More speed than 3rd Species.	- Tonal intensities that are quieter than 3rd species produces.
3rd Species	Arm	- All varieties of tonal intensities and qualities.	- Speed.

Matthay's system of tone production can be summarized in the following steps:

1. Choose a touch form based on the speed and dynamics of a passage (see Table 9).
2. Choose a finger attitude, bent (thrusting) of flat (clinging), based on tone quality and tempo (Discussed under Hand Position).
3. Based on the type of touch and the tonal intensity of the passage, choose muscular exertion or weight touch.

Playing Apparatus

Muscles

It is not necessary to learn the locality and nomenclature of the muscles, because it is physiologically and psychologically impossible to directly provoke a muscle into activity by thinking of it. Muscles can only be made to act through willing a particular limb movement or exertion (Matthay, 1932/1947).

It is important to realize that the body possesses two distinct sets of muscles for the same limb action, one that does the majority of the work, and the other which does the light work. For instance, to press a key requires the long finger muscles in the forearm, but to maintain its weight

on the keybed requires only the light *lumbricales* muscles in the hand (see Illustration 7) (Matthay, 1932/1947). Also, movements of one limb are produced in the adjacent limb. For instance, movements of the forearm originate in the muscles of the upper arm and shoulder. Movements of the fingers are produced in the forearm, etc. (Matthay, 1903).

For every muscle that can be activated in one direction, there is a corresponding muscle that is activated in the opposite, or antagonistic direction. If both these muscles are contracted at the same time, stiffness results. Therefore, simultaneous contraction of antagonist muscles should be avoided (Matthay, 1932/1947).

Body

To understand playing actions, the student needs some elementary knowledge of the mechanics of the limbs in terms of the actions, reactions, and interactions of the sets of levers of the four parts of the playing apparatus: the upper arm, forearm, hand, and fingers (Matthay, 1932/1947).

Ear

It is extremely important for the pianist to listen to the beginning of the tone in order to time tone production correctly. Therefore, the muscles are guided by the ear. However, there is a great difference between merely hearing and really listening. It is the distinction between just sounding the notes automatically and sounding them with a musical purpose (Matthay, 1903).

Fingers

Matthay (1939) compliments Schultz's discussion of the small muscles of the fingers in his book, *The Riddle of the Pianist's Finger and its Relationship to a Touch-Scheme* (1936), saying that this book is "certainly a step in the right direction, for…there are duties which are best fulfilled by [the] small muscles" (p. 35). The fingers can be exerted either by the small muscles alone or by the strong flexing muscles in the forearm (Matthay, 1932/1947).

Contraction and Relaxation

"Relaxation in playing, certainly and positively and emphatically, does *not* lead to Flabbiness" (Matthay, 1939, p. 1). It does not imply the omission of the exertions needed in playing, but simply calls for the exclusion of actions that may impede the full use of the necessary muscles. A slight residue of tension always remains in the form of muscle tone. Pianists must be in good health in order to play with the greatest possible freedom from stiffness. Matthay discussed three kinds of relaxation:

- Relaxation to uphold the muscles of the arm when its weight is required as a basis for the hand and finger exertions (Matthay, 1939).
- Relaxation in the sense of cessation from all work the moment the exertions have fulfilled their purpose (Matthay, 1939). Moving the wrist up and down is a good test for freedom of the muscles (Matthay, 1932/1947).
- Relaxation of the antagonistic muscles as far as possible. Matthay (1939) called antagonistic contraction "The Very Devil" (p. 33), because it disturbs the production of free and easy piano playing.

Mind/Body Relationship

A musical purpose in the mind is necessary before choosing the requisite force and timing of tone production. The mind directs the required limb conditions of activity and inactivity. It is important to learn how to mentally supply the required exertions without interference from undesirable ones (Matthay, 1932/1947).

III. Exercises

Gymnastic Exercises

Matthay (1903) provided gymnastic exercises for explaining certain concepts and for preliminary practice before applying a movement to the piano. He also recommended calisthenics for keeping muscles in a healthy condition. These exercises are done not with force, but with

perfect freedom. There should be no strain or friction, because this will lead to stiffness. See Appendix K for specific gymnastic exercises.

Exercises

Matthay (1939) said that in the early years of piano study, some practice of five-finger exercises and scales is essential, because it is a convenient vehicle for applying learned technical knowledge and transforming it into technical habit. Practice of these fundamental forms also helps in matters of acquiring a sense of tonality, rhythm, and fingering shapes. How much of this practice is necessary depends on each person. After the scale and arpeggio fingerings have been learned for the second and third examination grades (according the examination system in England at Matthay's time), Matthay said that further scale and arpeggio examinations in the higher grades is a waste of time. In these later stages, a few occasional exercises may be helpful at times for overcoming difficulties, for warming up cold fingers, or for adjusting to a new piano, but beyond this, technique should be studied in relation to the repertoire. A certain amount of time spent on technical studies is desirable, but it must be practiced only with the purpose of implementing and applying correct habits and conditions.

IV. Movement at the Keyboard

Physical Movement

Do not sway the body and arms unnecessarily, as this wastes energy and lessens a sense of security (Matthay, 1932/1947).

Lateral Movement

With lateral skips of less than two octaves, it is best not to move the elbow and upper arm, but to keep them stationary. To do this, before beginning the skip, the elbow must be out far enough to reach the furthest note (Matthay, 1932/1947).

For lateral skips greater than two octaves, a movement of the upper arm is necessary. Pianists should find the key first and then play it, so that the hand is over the key before it is played and can depress it vertically (Matthay, 1932/1947).

V. Fundamental Forms

Five-Finger Patterns

When playing a five-finger pattern moving outward from center, the thumb must make a rotary exertion inward during the descent of the key. Then the rotary motion reverses for the 2nd finger, which rotates outwards. For the 3rd finger, the 2nd finger serves as a pivot from either the surface or from the depressed level of the keybed, with the rotation again outwards. The same applies to the 4th and 5th fingers. For the five-finger pattern moving in toward center, the rotation impulses are opposite from ascending. When played slowly, these rotations manifest in actual movements, with a double rotation to prepare for each note. In fast passages, the rotational stresses become invisible and are replaced by finger movements (Matthay, 1932/1947).

Rotation

Rotation is used constantly in Matthay's technical system for all playing.

Rotation is needed to place and keep the hand into playing position (Matthay, 1939). Without this rotary exertion, the hand would stand upright on the keyboard with the thumb pointing up (Matthay, 1932/1947).
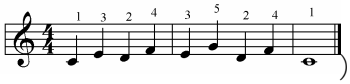
Forearm rotary exertions and relaxations must be used for single notes, octaves, chords, fast and slow passages, loud and quiet playing, and staccato or legato articulation. In short, rotation must be used for all playing, and Matthay (1932/1947) said, "Most ruined playing is to be traced to ignorance of its inexorable laws" (p. 31). An understanding and mastery of rotation is usually the solution to most problems of finger work.

The forearm, not the upper arm, rotates, because the upper arm is too clumsy for rotation at the piano. The fingers must be exerted along with the rotary action. Finger passagework consists of "individually applied forearm-rotation impulses transmitted to the keyboard by the obedient exertion of the finger and hand for each note" (Matthay, 1932/1947, p. 64, emphasis omitted).

The rotary impulses needed to assist each finger are usually invisible and are always in the direction from the last finger and toward the next finger. If the same finger is repeated, the repetition is made rotarily in the same direction (Matthay, 1939). The pianist should note that when a passage is played in parallel motion, the rotary exertions will be the opposite in the hands (Matthay, 1932/1947). Forearm rotation applied freely in the correct direction for each finger spares the pianist from "much technical misery" (Matthay, 1939, p. 26), because it furnishes the sensation of playing easily and without technical restraint.

The axis of rotation in the hand is between the 4th and 5th fingers. However, any of the fingers can serve as an axis of rotation through adjustment of the wrist laterally. With adjustment of the axis, rotary impulses are beneficial because they make every finger equally strong on the keyboard. In this way, even the 4th finger becomes as strong as the other fingers. The thumb also, which is really the weakest finger at the piano since it has to be applied sideways, can become the strongest finger with forearm rotary help (Matthay, 1939).

Matthay believed in the importance of mastering rotation at the beginning of study, and he provided the following advice for practicing rotation.
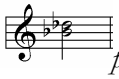
- When first learning to apply rotation, it is helpful to practice with actual rotational movements, which later are reduced to invisible impulses (Matthay, 1939). These rotational movements may always be used in slow passages. However, in faster passages they will become a hindrance and should be substituted with finger movements, but without losing the benefit of the rotational help for each note (Matthay, 1932/1947).
- Coordination between forearm rotation and fingers should first be studied in passages that need a rotational reversal from left to right moving from note to note (for instance, playing 

) (Matthay, 1932/1947).
- When practicing hands together, rotation should first be practiced in contrary motion (Matthay, 1932/1947).
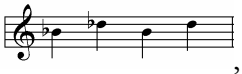
- Repertoire and sightreading examples should be chosen that exemplify the two points above and should be practiced for an extended period by the beginner (Matthay, 1932/1947).
- Practicing a passage slowly with exaggerated rotational movements will impress upon the mind the correct direction of the rotational help. The passage then can be practiced without actual rotational movements, but still with the rotational stresses for every note (Matthay, 1932/1947).

Steps for Beginning Children

Matthay correlated his technical theories to teaching children. The following steps for teaching children in their first lessons are taken from *The Nine Steps toward Finger Individualization through Forearm Rotation* (1923). This book is a condensed version of the 21 steps presented in an earlier book, *The Child's First Steps in Pianoforte Playing* (1912). In these 9 steps, Matthay (1923) gives the following instructions for beginning students.

Step 1. Play  *pianissimo*, with the fist sideways on the black keys, with the thumb pointing up. Use a release of the whole arm to teach key attention and release of weight.
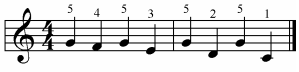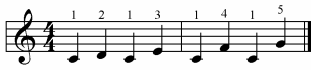
Step 2. Repeat Step 1, but with the fist in the horizontal, piano playing orientation. This requires a slight rotational exertion toward the thumb, but the arm should feel as free as before.
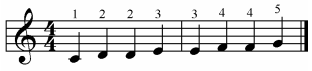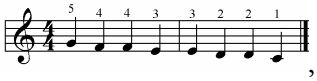
Step 3. Rock from side to side playing , still using the fist and playing *pianissimo*. The passing on of weight must happen at surface level before the key is allowed to descend.

Step 4. For more advanced players, repeat Step 3, but do not allow the keys to descend. This illustrates the form of resting required for staccato and for light agility passages.

Step 5. Repeat Step 3, except add a jerk for each key descent using forearm rotation only. This will make the sound louder. Rock side to side faster and faster, until *tremolo* is attained.

Step 6. Use finger pairs 1 3, 2 4, and 3 5 to produce the rocking between Bb and Db.

Step 7. Play  and  hands together in contrary and parallel motion. Not that when playing in parallel motion, note that the rotation is opposite in the hands.

Step 8. Play sets of adjacent fingers,  and , still with rotational exertions.

Step 9. Practice complete five-finger exercises using forearm rotation with visible rotational movements, and then reduce the movements to invisible rotational impulses.

Scales

In playing a scale in either ascending or descending directions, the pianist should keep the hand turned inwards with the wrist turned outwards in order to reduce unnecessary horizontal movements (Matthay, 1932/1947). Perfect rotary adjustment of the forearm combined with ease in hand and wrist motions in assisting the turning of the fingers over the hand and the passing of the thumb under the hand ensures that the pianist is prepared vertically over every note before it is played (Matthay, 1903).

When passing the thumb under the hand in a scale moving out from center (right hand ascending, left hand descending), a sideways movement of the wrist and forearm will be necessary (Matthay, 1932/1947). However, unnecessary lateral movements should be avoided. The fingers will not be in line with their keys, but will be at an angle with them, with the thumb extended and the hand turned slightly inward so that forward and backward movements of the hand twice during each octave will not be necessary. The middle finger remains close to the edge of the black key (Matthay, 1903).

For example, in a C major scale, after the thumb has played C, it moves toward F while the 2nd and 3rd fingers play D and E. The whole arm travels in the direction of the scale, with the wrist slightly outwards so that the hand does not have to move outward when the thumb reaches F. While the thumb plays F, the arm travels further to allow the 2nd finger to be ready over G before playing it. The 2nd finger is therefore always in position not because the hand is turned, but because the wrist and arm are carried along the keyboard (Matthay, 1903).

In a scale moving in toward center, the wrist turns outwards away from the body to allow the fingers to turn over the thumb without disturbing the relative position of the wrist and forearm. This allows the 3rd phalanx of the thumb to remain in a straight line with its key (Matthay, 1932/1947). When any finger is passed over the thumb, it is helped by rotation toward the 5th finger side of the hand rather than toward the thumb, as might be thought. Lack of understanding of this fact is the cause of unevenness in scale playing (Matthay, 1939).

VI. Basic Musical Inflection

Articulation: Legato

In terms of tone production, Matthay (1903) said that there is no difference between legato and staccato. What happens after tone production determines the articulation. In legato, the key is held down after tone production with just enough exertion to keep it down and to allow the sound to continue. In staccato the key is allowed to rebound instantly.

Matthay described two types of legato.

Natural, or compelled, legato is obtained by transferring weight from one key to the next. One finger holds a key down until relieved by the next finger, thereby compelling the finger to stay down until the weight is transferred (Matthay, 1932/1947). The weight is passed from the bottom of one key to the top of the next. Matthay (1903) likened this type of legato to walking, where the weight of the body is transferred from leg to leg. This type of legato is used, for example, in the final note of a slur. The new finger is prompted into action by the carefully timed

cessation of the previous finger's action without any individualized action of the new finger or of the hand (Matthay, 1932/1947).

Artificial, or uncompelled, legato is obtained without weight. Instead, the small muscles of the hand, those employed in the light form of resting, hold the keys down by the will rather than by weight. The keys ascend the moment the light holding action of the finger is released. This could therefore be termed as finger legato, since the fingers, rather than the weight of the arm, hold the keys down. Artificial legato is the most often employed type of legato and is used for inflections in Bach, for *cantabile* playing, and for *legatissimo* playing (Matthay, 1932/1947).

Natural legato is the easiest type of legato to learn. However, artificial legato should be mastered as soon as possible, because both types are often used simultaneously (Matthay, 1932/1947).

Articulation: Staccato

Staccato with the arm, hand, and finger are all possible (Matthay, 1903). Staccato is obtained by allowing the key to spring up as soon as the act of tone production is completed. Another way to state this is to say that during staccato, the pianist should rest no more heavily on the keyboard than the keys will bear at surface level. This is what Matthay (1932/1947) referred to as the staccato form of resting. The key cannot be compelled to rise. It can only be allowed to rise.

An abrupt staccato is more likely to be produced with bent (thrusting) finger attitude than with flat (clinging) finger attitude (Matthay, 1932/1947). In staccato with a bent finger attitude, the finger bounces back in the same line as it descended or may even unbend slightly forward and outward. In the flat finger staccato, there will be a slight inward pull of the end two phalanges accompanying the rebound of the finger. Therefore the finger assumes a more rounded position as it rises than it had when it descended. These movements should be very slight (Matthay, 1903).

Rhythm

There are four kinds of rhythmic progression in Matthay's technical system:

- The swing of the key downwards to the point of sound production.
- The movement of small groups of notes toward the next pulse, from weak to strong.
- The growth or progression of the phrase toward its rhythmical climax at the end of a phrase.
- The accumulation of phrases leading to the main climax in a large section of a piece (Matthay, 1932/1947).

Dynamics and Tonal Control

The strength of the tone does not depend on a large outlay of force as much as on the way the pianist manages the key and the muscular apparatus (Matthay, 1939). The greater the speed of key descent, the louder the resulting tone. Only by making the key move quickly can a loud tonal intensity be produced. There is no other way to vary dynamics (Matthay, 1932/1947). Matthay made the following observations about various degrees of tonal control.

- For loud tones, a separate lapse of the upper arm produces the most sound. For *fortissimo*, down exertion must be added to the lapse of the weight of the upper arm (Matthay, 1932/1947).
- A slight stiffening of the finger is helpful when playing softly (Matthay, 1939). For playing *pianissimo*, the pianist must slowly feel the way to the point of key descent where the hopper releases. After feeling this slight impediment, a tone-producing impulse can be made to overcome this impediment and to create a very soft sound (Matthay, 1932/1947).
- It is difficult to give each note of a passage a different tonal intensity in weight transfer legato. All that is available is swirls of *crescendo* and *diminuendo* produced by gradual increases or decreases of the weight. Therefore, weight transfer touch should be avoided

for all melodic passages where each note needs to be dynamically individualized (Matthay, 1932/1947).

- Voicing in one hand is executed by rotating toward the finger that is to be brought out (Matthay, 1903).

Tone Quality

Although tonal intensity depends on key speed, Matthay (1932/1947) believed that tonal control and tone quality depend on how that speed is produced. Good tone, ease of production, and tonal control can only be obtained by gradually pressing the key into motion. Bad tone and a lack of tonal control result when the key is jerked down by an added impulse that is too sudden.

According to Matthay (1903), tone quality is also determined by touch. A tone initiated by muscular exertion creates a tone quality that is harsh, whereas a touch initiated by a partial or complete lapse of whole arm weight produces a more gradual increase in the speed of the key during key descent, generating a tone quality that is rounder and fuller. Matthay called this a "sympathetic" (p. 50) tone quality. In terms of finger attitude, a bent finger tends to make the tone harder and more brilliant, while a flat finger tends toward a more *cantabile* tone quality.

Matthay (1903) said that the way the key is approached also influences tone quality. If the key is hit down, the percussion will lead to a harsh noise with no carrying power. When the key is taken hold of and weighed before being used, a beautiful, singing tone results.

Tempo

Slow practice is important. At a sufficiently slow tempo, conscious attention can be directed to each note beforehand, which allows for a conscious choice of the proper movement for each tone (Matthay, 1903).

The attainment of speed and agility is governed by the following laws:

- Exertion in tone production for each note must always be as short lived as for *staccatissimo* so that effort is not wasted on the keybeds (Matthay, 1939).

- The arm must be self-supporting so that it does not unduly bear down on the hand and fingers (Matthay, 1939).
- There must be individualized hand exertion to complement individualized finger action, except in weight transfer touch (Matthay, 1939).
- Forearm rotation on every note is necessary for ease and evenness in passagework (Matthay, 1939).
- There must be freedom from all antagonistic contractions to prevent the stiffening of the fingers, hand, and arm (Matthay, 1939).
- Tone must be timed so that tone production does not begin too late in the key descent, which leads to keybedding (Matthay, 1939).
- Recognition of key resistance is necessary so that the force of each note may be chosen correctly (Matthay, 1939).
- The hand and wrist must be free laterally so that the different hand positions may be joined successfully (Matthay, 1939).
- The smallest lever, the finger, must be used for the fastest passages, since a small lever can be reiterated more easily than a larger lever. Larger levers may be used for slower passages (Matthay, 1932/1947).

Table 10

Elementary Level Technical Concepts According to Matthay

Elementary Level Technical Concepts	**Tobias Matthay**
I. Philosophy	
Philosophy of Technique	- Technique unites the physical action with a musical purpose. - Every sound should be made with a definite rhythmic and tonal purpose that is first imagined inwardly. - Instrumental education – learning about the instrument. - Muscular education – Learning about muscle conditions that fulfill the needs of the key.

	- Systematic approach to technique. Learn the laws, and then relegate them to the subconscious.
Philosophy of Teaching	- Gifted pianists are not always good teachers. - Diagnose by ear rather than by eye. - Anyone can acquire technique through hard work. - Understand the process of tone production before playing. - Start by playing by ear and by rote. - Reading can be delayed.
II. Basic Components	
Posture	- Correct muscular conditions will lead to proper posture. - Body proportions influence the body position. - Correct posture does not mean correct technical means. - Invisible elements are more important than visible elements. - Bench is in front of middle E. - Distance from the piano allows the elbow to be mobile in front of the body. - Height is such that the elbow is level with the keys. - Back erect. - Free elbow, not too close or too far from the body. - Feet rest on the floor, with left foot slightly back from the right foot.
Hand Position	- Hollow hand with high bridge. - Collapsing nail joints are not detrimental. - Wrist in line with the bridge or a little lower. - Middle finger close to the edge of black keys, with other fingers slightly behind this point. - 3rd finger in a straight line with its key. - Thumb curved with 3rd phalanx in a straight line with its key. - Fingers play in the center of the key. - Hand is level, not sloping down to 5th finger. - Bent (thrusting) and flat (clinging) finger attitudes.
Tone Production	- Key is felt and weighed before being depressed. - Then use pressure as an added impetus to depress the key. - Two forms of resting: staccato and *tenuto*. - First species – Finger touch. - Second species – Hand touch. - Third species – Arm touch. - Weight or muscular exertion can be used.
Playing Apparatus	
- Muscles	- It is not necessary to know the names of the muscles,

	since they cannot be made to work by thinking about them. - There are two distinct sets of muscles for a limb action. - Simultaneous contraction of antagonistic muscles should be avoided.
- Body	- Knowledge of limbs and mechanics is necessary. - Four parts of playing apparatus: upper arm, forearm, hand, and fingers.
- Ear	- Listen for the beginning of a tone. - Muscles are guided by the ear.
- Fingers	- Can be exerted by small muscles in the hand or by large muscles in the forearm.
Contraction and Relaxation	- Contraction is needed, but unnecessary contractions should be avoided. - Muscle tone is always present. - Healthy muscles are important in order to avoid stiffness. - Three kinds of relaxation.
Mind/Body Relationship	- A musical purpose directs limb activity.
III. Exercises	
Gymnastic Exercises	- For explaining concepts. - For maintaining a healthy muscle condition.
Exercises	- Some practice of five-finger exercises and scales is necessary in the early years. These are less crucial later.
IV. Movement at the Keyboard	
Physical Movement	- Do not sway unnecessarily.
Lateral Movement	- For skips of less than two octaves, keep the elbow and upper arm stationary. - For skips of more than two octaves, the upper arm will move. - Be over the key before playing it vertically.
V. Fundamental Forms	
Five-Finger Patterns	- Use rotational movements or impulses on every note.
Rotation	- Needed to place the hand in playing position. - Needed in all playing. - Makes every finger strong. - Any finger can serve as the axis, which is normally between the 4th and 5th fingers.

	- Usually invisible, but visible movements can be used at first or at a slow tempo. - Start with rotating passages in contrary motion. - Nine steps for beginning children.
Scales	- Hand is turned inwards. - Rotary adjustment of the forearm combined with hand and wrist motions assist in turning the fingers over the hand and the thumb under the hand.
VI. Basic Musical Inflection	

Articulation: Legato	- Two types:
	  - Natural (compelled) – Transferring weight from key to the key.
	  - Artificial (uncompelled) – Finger legato.

Articulation: Staccato	- Arm, hand, and finger staccato are all possible. - Allow the key to spring up immediately. - Bent finger attitude will give a more abrupt staccato.
Rhythm	- Rhythmical progression of notes, phrases, and the whole piece.
Dynamics and Tonal Control	- The greater the speed of key descent, the louder the tone. - For loud tones, use arm weight. - For soft tones, stiffening the finger is helpful. - Weight transfer touch makes control of dynamics on individual tones difficult. - Voicing in one hand is executed by rotating toward the finger to be brought out.

Tone Quality	- Determined by:
	  - Gradual pressing of the key into motion, which brings about good tone.
	  - Touch. Use weight rather than muscular exertion for a good tone.
	  - Percussiveness.

Tempo	- Slow practice is important to allow time for conscious choice in each movement.
	- Agility determined by:
	  - Not bearing down on the keys.
	  - Forearm rotation on every note.
	  - No unnecessary stiffening.
	  - Well-timed tone production.
	  - Use small playing units for fast speeds.

Thomas Fielden

Sources

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A New Approach to Scales and Arpeggios (1949).

I. Philosophy

Philosophy of Technique

Fielden (1949 *Science*) defined technique as, "The acquired skill in physical craft which an artist brings to bear in expressing his own spiritual individuality" (p. 162). Although Fielden admitted that in his book the subject of interpretation is avoided, he firmly believed that technique and interpretation should never be separated, since a good interpretation is impossible without adequate technique. He even went as far as to say, "There can never be too much attention paid to [technique]" (p. 164).

Fielden (1949 *Science*) believed that technique should be natural, not artificial, and that it can be achieved by the application of physical and mechanical laws to finger and arm studies. He did not believe in pure mechanical exercises for fingers alone, but in the use of the brain to apply known scientific laws to the development of technique through the study of both exercises and compositions.

According to Fielden (1949 *Science*), there are three important factors in technique: the mental factor, the nervous factor, and the muscular factor. These factors relate and coordinate with each other and should therefore all be developed concurrently. The brain conceives the movement, the nerves communicate it to the muscles concerned, and the muscles execute the orders.

Fielden (1949 *Science*) said it is necessary for the teacher to possess a detailed knowledge of the workings of technique, especially that of the muscular system, in order to be able to diagnose the technical and physical problems of students. Regarding the training of beginning students, Fielden believed that the development of the hands should be the primary consideration

in teaching children, since other facets of training cannot be achieved without some technical ability.

Philosophy of Teaching

Fielden (1949 *Science*) stated that the tendency of educational methods in his time was to avoid rigid discipline and lighten tasks for students. In piano technique, he believed that this philosophy results in the standard of playing being distinctly lowered. Fielden blamed this problem on the decline of mental, moral, and physical effort. Daily practice of technique is necessary, because "Utmost achievement only comes from utmost discipline and effort" (p. 84). Fielden believed that all piano students can be successful and that even the slow student can acquire technique with the proper knowledge, and "will probably harness [technique] with more certainty than the genius" (p. 68).

It is expected that teachers will also hold high standards for themselves. Fielden (1949 *Science*) said, "Abundance of knowledge and faculty for teaching will always find a plan for laying a sure foundation for [a teacher's] pupils" (p. 133). Personality is also a large part of good teaching. Fielden said,

> The method of teaching then depends on the personality of the teacher, not on any panaceas which are his alone... Just as the great pianists of the world are such on account of their own inherent greatness, and not because they were pupils of any particular school, so the great teachers have been what they were because of their genius for instruction rather than because of any particular method which they taught (p. 143).

II. Basic Components

Posture

The best sitting position is one in which the forearm, from elbow downwards, is exactly parallel with the ground and level with the keyboard. This is the best position for achieving the point of contact with the tone-producing mechanism and for allowing the free play of the wrist up and down. The general feeling of the body is one of active poise and balance, like a cat that is apparently relaxed but in reality is perfectly balanced with great speed and swift reaction (Fielden, 1949 *Science*).

Tone Production

According to Fielden (1949 *Science*), tone production depends on perfect timing of muscular movement. Understanding the details of tone production is important because, "…no co-ordinated movements can ever be swift and efficient unless the details of which they are made up are grappled with and mastered" (p. 62).

Arm Touch

Fielden (1949 *Science*) said that the pianist should start with the whole arm stroke when learning tone production for the following reasons:

1. The deltoid is a big muscle and is easily felt;
2. The swing of the arm in the shoulder conveys the feeling of freedom in the hands and arm;
3. The use of the weight is more easily realized in the whole arm; and
4. The feeling of balance from the shoulder anchorage, which is the basis of all technique, is grasped from the beginning.

Fielden (1949 *Science*) divided the act of tone production into three phases: the approach toward the point of contact, the point of contact, and the departure from the point of contact.

The factors of the approach to the point of contact are:

1. The use of the weight of the arm;
2. The use of muscular effort, both independently of the weight and in combination with it; and
3. Balanced fixation among the joints involved (Fielden, 1949 *Science*).

At the beginning of the approach to the point of contact, the forearm is slightly extended above the keys by the gradual and uniform contraction of the triceps, and the hand is at the same time raised from its hanging position to a horizontal position so that the point of contact of the arm will be flatter, thus allowing the flexing muscles to give at the point of contact, which results in a better tone quality. A sudden relaxation of the contraction causes the arm to fall. The speed

of the descent of the arm is governed by the degree of control, whether gradual or sudden, exercised by the controlling shoulder muscle (Fielden, 1949 *Science*).

The arm cannot always be raised to a sufficient height to secure power for momentum. Two solutions are given to this problem: either the forearm is used instead, with the elbow as a fixed anchorage; or muscular action is used to move the weight of the whole arm, with the hand held much closer to the keyboard. The forearm is used for quick repeated movements, while muscular action is used for single movements or for slow, repeated movements. The more relaxed the muscles are in the approach to the point of contact, the more sensitive they are to the correct timing of key depression. Any spasmodic checking or snatching of any part of the arm not only interferes with the original impulse, but causes friction in the muscles and restricts the freedom of descent (Fielden, 1949 *Science*).

During the next phase, the point of contact, the free descent of the arm is arrested by the hand coming in contact with the keyboard. Obtaining tone involves weight plus power, and power involves the use of momentary fixation at the moment of contact. Fielden (1949 *Science*) warned that the muscles are never fully contracted until the point of contact is reached. All is in a state of nervous preparation for that point. Stiffness arises from too much contraction beforehand. On the other hand, too much relaxation at the point of contact leads either to flabbiness or to a hard, thumping tone. True suppleness lies in securing the full contraction at the right moment, neither too soon nor too late. The muscles act as a support for the weight of the arm, and therefore they must be in a state of contraction, but one of the shortest possible duration. To provide this contraction, the limb must be fixed from the joint of origin downward to the fingertip so that it is in one piece and can withstand the weight of the arm and can transfer the power into the key. Proper understanding and management of this contraction is the cause of good tone production.

The pianist must imagine that the keyboard opposes the downward thrust by an equal upward thrust. At the meeting place of these two forces, the energy of the arm (whether muscular

or by use of relaxed weight) and the upward thrust of the keyboard, is the point where the hammer hits the string. This point is not the keybed, but a point just before the keybed is reached. Along with the contraction at the point of contact, there must also be resiliency in the wrist and knuckles to catch the weight of the arm (Fielden, 1949 *Science*).

In the third phase, the departure from the point of contact, full relaxation is exhibited in a follow through motion. Muscular effort ceases at the keybed, rather than at the escapement level where the hammer hits the string, in order for the follow through to be effective. The accurate timing of the stroke, the swift resiliency, and recovery are matters of advanced nervous training, which constitute the highest aim of technique (Fielden, 1949 *Science*).

Fielden (1949 *Science*) compared the process of tone production to walking. The leg moves forward gradually in a uniform manner, not falling in a relaxed heap, but controlled by the muscles which connect it with the body. The foot does not strike the ground, nor does it touch it gingerly. The contact with the ground and the repercussion in the whole body are simultaneous. The steadying action of the muscles in taking up the repercussion acts as a bridge to the movement of the weight of the body to the other leg for the next step.

Finger Touch

After the principles of whole arm touch have been mastered, the student can learn finger touch, which is a combination of finger action with balance of the arm. The finger stroke depends on the principles of leverage, which include power, weight, and a fulcrum. Fingers need power, and for that they need a fulcrum, both in initiating their movement and in meeting the resistance of the keyboard (Fielden, 1949 *Science*).

In finger touch, the arm is suspended above the keyboard and the fingers are prepared to strike a chord. The fingers must be in a state of readiness, not stiffened, but taut, prepared to take the strain of the descent of the weight onto the keyboard. At the beginning of a stroke, the hand is the anchorage on which the lever (the finger) swings. The control should be as far back in the forearm, upper arm, or shoulder as possible. The swing is controlled by the large muscles of the

arm, with the smaller ones working within the impetus of the larger ones and all coinciding at the point of contact (Fielden, 1949 *Science*).

At the point of contact, the pressure is felt at both ends of the finger, at the keyboard and at the metacarpal joint. There is a kind of double anchorage of the finger, with the whole forming a brace which supports the resistance against the fulcrum. To practice this transfer of anchorage, definite notes, such as a triad or first inversion chord, should be used (Fielden, 1949 *Science*).

The finger is raised before striking, not afterwards, and all fingers are relaxed after striking. The raising of the fingers is vigorous, unhindered by stiffness or rigidity in the other fingers. The lowering of the finger is free, swinging toward the point of contact, past that point to the follow through. Finger action is simple in its movement. The finger articulates from the knuckle joint, where it is raised in its entirety, retaining its natural curved state, and drawn down again in the same shape. This exaggerated method of striking should only be used in the preliminary stages of practice. All movements are later reduced as speed is increased until they become merged into the general scheme of coordinated movements (Fielden, 1949 *Science*).

"The importance of correct movements cannot be too strongly emphasized" (Fielden, 1949 *Science*, p. 154). A test for the right conditions of technique is that of a good, firm tone. Also, although the student should be guided by the ear, physical sensitivity is even more important. Physical discomfort signifies wrong physiological conditions.

Playing Apparatus

Muscles

Muscular action maintains the limbs in position, steadies them to prevent unwanted movement, and assists the parts of the limb in moving. Also, after finishing its own work, a muscle assists in the work of a larger muscles (Fielden, 1949 *Science*).

In order for the body and nerves to function optimally, the muscles must be in good condition. This does not mean that they should be developed to an abnormal size or strength. Instead it means ensuring the muscles have a good blood supply so they can respond swiftly to

nervous messages from the brain. To do this, it is important to keep the whole body healthy. Strength is not necessarily the result of muscular power. It is more often the result of perfect timing and coordination of the muscles of the arms and body operating as the power and weight behind the fingers. Muscular efficiency is fitness, and strength goes hand in hand with suppleness (Fielden, 1949 *Science*).

Body

In a comprehensive technique, the main anchorage is the body itself, swinging from the hips. Every part of the body must be used in playing, with all the parts working together (Fielden, 1949 *Science*).

Shoulder and Upper Arm

According to Fielden (1949 *Science*), muscular effort is the basis of technique, and practically all movement is contained in and initiated by the shoulder muscles. All parts of the arm are necessary and work actively in coordination for even the smallest details. The arm is carried in the shoulder, ready to coordinate wherever needed. Therefore, the suppler the whole arm is and the less stiffness in any part of it, the greater will be the speed of movement. The whole arm, however small a part of it may be in operation at the moment, must be kept in a state of "supple resilience" (Fielden, 1949 *Science*, p. 59).

The shoulder is also frequently used as an anchorage for the swing stroke of the whole arm. In a swing stroke by the forearm, the shoulder helps fix the upper arm, which is the anchorage for the forearm. The anchorages continue downward to the fingers, with the joint above the working lever being used as an anchorage for the swing stroke of the next limb section (Fielden, 1949 *Science*).

Wrist

Fielden (1949 *Science*) placed great emphasis on the working of the wrist to assist the motions of the arm, hand, and fingers. The wrist has several functions.

First, the bones of the wrist and metacarpal bones in the hand act as anchorages to enable the fingers and hand to perform their functions as levers (Fielden, 1949 *Science*).

Second, the wrist motion provides resilience and assists in determining the perfect timing for shifting from a double anchorage to a single anchorage in key depression (Fielden, 1949 *Science*).

Third and most importantly, the wrist moves in an undulating fashion to prevent stiffness. This undulating motion shifts the arm laterally, transforms movements from angular to curvilinear, and guides the movements of the arm that aid the fingers. The undulatory wrist motion is described as either a pull (drop) or a push (thrust upwards). This movement may be spread over a group of notes in an ascending and descending five-finger pattern for maneuvering around the combinations of black and white keys in a passage, or may provide resilience in the arm for producing full tone in chord playing. The pull and push may be used alternatively, whether the end of one movement acts as the beginning of the next. This prevents the whole arm from having to be lifted before each new stroke. Since the wrist is a small joint, it can swing several times to every one swing of the whole arm, both facilitating the movements of the shoulders and arms and providing economy of motion for the arm. In the past, pianists emphasized either a high wrist or a low wrist. Fielden stated that a combination of the two, through the undulating motion, is the solution (Fielden, 1949 *Science*).

Fingers

According to Fielden (1949 *Science*), the control of the fingers lies primarily in the large muscles of the arm, shoulder, and body. The process of development and control should begin from the center and moves outward. The training of finger action is essential, because insufficient finger action leads to a lack of clearness and brilliancy in passagework. Devising a method of holding or anchoring the hand so as to achieve the freest finger movement possible is the main problem in teaching finger technique.

Coordination of the fingers with the wrist and arm is very important. The fingers are dependent on the movement of the rest of the arm, because the arm needs to move the fingers into the most advantageous positions, in order to compensate for the different lengths of the fingers and to prevent reaching laterally for the notes. The finger can function with more freedom and power if the arm is behind it in a straight line. Therefore, the finger should function as a straight lever in line with the key rather than at an oblique angle with the key (Fielden, 1949 *Science*).

Another important coordination of the fingers with the arm arises from the fact that any blow to the finger must have its repercussion in the arm. Therefore, producing good tone is dependent on the accurate timing of the entry of the arm weight into the action of key depression, with the amount of weight and speed determining the quantity of tone. For this reason, a moment of rigidity in the hand is necessary. If the fingers are relaxed or flabby, poor tone will result (Fielden, 1949 *Science*).

Regarding the shape of the finger, Fielden (1949 *Science*) advocated the bent position, because the hand stiffens if the fingers are held straight due to the fact that the muscles controlling the straightening action are in the hand. Therefore, the habit of straightening the fingers on black keys due to timidity should be "emphatically discouraged" (p. 97). Playing with overly curved fingers is a waste of energy, and conversely, playing with flat fingers is subversive to strength. Fielden hence appears to advocate a naturally bent position of the fingers at all times.

Fielden (1949 *Science*) believed that finger independence depends not so much on the isolation of muscular feeling as on the isolation of the nerves that are attached to the large muscles and connect individually to the fingers. In other words, independence of the fingers is not gained so much by muscular restraint of the non-working fingers, which causes stiffness, but by keeping away all nervous connection with the non-working fingers and concentrating the nervous impulses on the working fingers. Therefore, exercises where four fingers are held down while one finger is working are detrimental, since the nerves of the fingers held down must

function vigorously and very likely are then impeding the nerves of the moving fingers. Fielden stated that it is subversive to suppleness to try to prevent sympathetic movements of the non-working fingers. Therefore, several fingers may be raised at once in cooperation with the working finger. This aids in preventing stiffness in the hand.

Concerning specific fingers, Fielden (1949 *Science*) made the following comments.

Thumb. The thumb should move in a vertical direction, articulating at the point where the thumb joins the wrist. Over-contraction of the flexing muscles of the thumb causes interference with the *lumbricales* and *interossei* muscles of the fingers, resulting in unnecessary stiffening of the hand in the palmar region (Fielden, 1949 *Science*).

Thumb and 5th Fingers. The muscles of the thumb and 5th finger, if fixed, assist in flexing the wrist. Moving them independently of the wrist action results in fatigue and incoordination (Fielden, 1949 *Science*).

4th Finger. Weakness does exist in the 4th finger, but this weakness is intensified through disuse. The 4th finger should be exercised, but never with its adjacent fingers held down (Fielden, 1949 *Science*).

Contraction and Relaxation

Relaxation is the result of a correct action and cannot be a permanent condition in playing. Relaxation is the goal, not the means, of the good stroke. The right meaning of relaxation is resilience. Contraction and relaxation must work together as a coordinated process in piano playing. The limbs can move only by means of contraction, and there can be no relaxation unless there has been a previous contraction. Knowing when to contract and when to relax is an important component of good piano playing. Unused muscles can be relaxed, but concentration must be focused on the working muscles, which ought to be functioning vigorously (Fielden, 1949 *Science*).

In teaching, the goal is for the student to learn muscular discrimination and the inhibition of unnecessary muscular movements. Teaching relaxation without contraction to a beginner is,

according to Fielden (1949 *Science*), starting at the wrong end. From the beginning, the student should be taught to understand the difference between muscular contraction and relaxation. As an exercise for teaching this concept, the teacher should take the student's arm and hold it with one hand under the elbow and the other under the forearm and tell the student to let his arm lie dead in the teacher's hands. When the teacher's hands are removed, the student will find that if the arm is suspended in the air, it is not resting.

Once the student understands the difference between a contracted and relaxed arm, the teacher should move the student's arm up and down in the shoulder joint. The student will first want to move the arm in sympathy through involuntary muscular impulse. This must be eliminated, as these involuntary impulses are the result of the inadequate command of the nerves controlling the muscles. Once the different feelings of contraction and relaxation have been mastered in the arm, it will be easier for the student to gain control over the other muscles. Once control of the shoulder has been mastered, the student should hold the arm above the keyboard and let it fall. The teacher should, using age-appropriate terminology, point out that the falling arm is caught by the hand on the keyboard and supported by the flexing muscles of the forearm and the triceps muscles of the upper arm (Fielden, 1949 *Science*).

As the discrimination between contraction and relaxation deepens, the student will come to be able to distinguish the point between what Fielden (1949 *Science*) called physical relaxation and absolute relaxation. Physical relaxation is practical relaxation, which cannot be absolute in piano playing because of natural muscle tone. Absolute relaxation is a higher degree of relaxation. In this period of discrimination between contraction and relaxation, the reflex actions built up by instinct and training have their function, serving as a bridge to the next physical effort. The more one strives to develop reflex actions by practicing with full consciousness of the source of control of the physical movement, the wider can this bridge between physical relaxation and absolute relaxation be made, and the movements become easier and suppler (Fielden, 1949 *Science*).

Mind/Body Relationship

According to Fielden (1949 *Science*), the mind is the originator of each muscular movement and is indispensable for building a reliable technique. Knowledge of natural movements is first gained through observation. Every action is conceived in the mind and communicated to the muscles. Once a conception for a movement is determined, the movement must be carried right through, without hesitation, but always under control, to and beyond the point of contact. Any hesitation interferes with freedom of thought and movement. This whole physical conception of the movement must be practiced repeatedly until certainty and accuracy are attained.

Mental grasp of notes must come before physical grasp of groups of corresponding actions. After the mental process, the nervous factor plays the part of directing and coordinating the muscles. The nerves need training and refining just as the muscles do, and they gain swiftness by training. The speed of the nerves and muscles depends on the speed of the mind controlling them (Fielden, 1949 *Science*).

Slow practice is necessary for assuring right conditions, accuracy, and clearness in the music. Fast practice is necessary to train the mind to move, the nerves to carry the message, and the muscles to respond at great speed. The ability to call on the muscles at the swiftest possible speed is the result of nervous power. The individual reflex actions can become so swift and automatic that the swiftest mind cannot control them, and they become involuntary. However, they can be willed in detail slowly and then controlled at speed by taking them in groups. It is the control of these groups of reflex actions that makes for swiftness and certainty in technique (Fielden, 1949 *Science*).

Failure to achieve mastery is usually due to lack of attention or to the habit of blind and unintelligent repetition of a difficulty in the hope that it will magically solve itself. Determination and relentless concentration are the qualities of which great pianists are made. Mechanical, mindless repetition will only lead to a kind of automatic facility. The mind must be concentrated

from the beginning on the nervous coordination and control of these repetitions. In this way the process of reaching the stage of reflex will be shorter, since concentration will be active through the entire process. Fielden (1949 *Science*) said, "Technique is, in the end – given a knowledge of the physiological and mechanical conditions – a simple matter of continuous mental application" (p. 130).

III. Exercises

Gymnastic Exercises

Fielden (1949 *Science*) said, "The aim of all gymnastic exercises is the ability to control and call swiftly into action the muscle or combination of muscles necessary for the performance of any technical difficulty" (p. 36). It is necessary to build up the muscles, because people do not generally develop the muscles needed for piano playing in daily life. Also, gymnastic exercises help the student isolate the feeling of contraction and relaxation in various muscles, train the nervous connection between brain and muscle, and keep this connection in a fit condition to function at any moment when called upon. Gymnastics will not give a student technique; work must be done at the instrument as well. Rather, gymnastics are a means of shortening the period of technical study, of helping the student to learn better the application of physical conditions to keyboard work.

Muscular strength, flexibility, nervous training, and control take a long time to develop. They are attained by slow and steady growth from continued daily application. For this reason, Fielden (1949 *Science*) recommended that gymnastic exercises be practiced daily, morning and evening, until they become part of the daily routine of life. The best time for gymnastic exercises is before breakfast and at a separate time from keyboard practice.

Regarding the method of carrying out gymnastic exercises, Fielden (1949 *Science*) stated that the student should know where the muscles are situated generally and that the pianist should concentrate on vigorous muscle contraction and relaxation, but never to the extreme of violent and spasmodic movement. Unnecessary, extraneous movements should be inhibited. For

instance, in performing gymnastic exercises with one hand, the other hand should remain absolutely passive, free from sympathetic movements.

The gymnastic exercises should be practiced in three ways: first, by alternately contracting and relaxing the same muscles; second, by contracting one set of muscles, and on relaxing them, setting up the contraction of the reciprocal set; and third, by moving slowly and steadily, avoiding stiff or spasmodic movement, and relaxing one set gradually, at the same time gradually in the same degree contracting the reciprocal set. After the right positions have been attained, the exercises should be practiced quickly (Fielden, 1949 *Science*).

Fielden (1949 *Science*) believed that hand deficiencies can be improved through gymnastic exercises and recommended that teachers obtain a sketch or photo of an ideal hand and work toward that ideal. The ideal hand, according to Fielden, is one that when extended, shows an even distance between the fingers and one that has a square palm. The lump of muscle on the 5th finger side of the hand should be well marked.

Gymnastic exercises can also correct weakness of the left hand. Fielden (1949 *Science*) remarked that in a five-finger descending passage moving in toward center, 80% of students will play the right hand with a natural flourish of the wrist, but with the left hand they will play with timid finger action only. This is because a person uses the left arm less in daily life. The remedy for this weakness in the left hand is to persuade the student to use the left arm to a greater extent in ordinary life. Fielden recommended throwing with the left hand as being extremely useful.

Specific gymnastic exercises can be found in Appendix K.

Exercises

Besides gymnastic exercises away from the piano, Fielden (1949 *Science*) also believed that technical exercises at the piano are an important part of the pianist's daily diet. Fielden recommended allotting a regular time each day to exercises, since the physical body responds to a regular and punctual routine. Exercises should be practiced with the goal of the correct movement and feeling rather than for speed. Just as when people walk, they do not stamp their

feet or stretch their legs to the extreme, when the fingers walk on the keyboard, they should play comfortably, with active but unstrained movements, concentrating on correct action and perfect timing.

Solving technical difficulties begins by practicing gymnastic exercises with a maximum of muscular movement. Then, as muscular power develops, attention can be concentrated on minimizing movement and isolating the actual point of contact, so that full contraction takes place only at that point, with relaxation occurring at the approach and departure to the point of contact (Fielden, 1949 *Science*).

Fielden (1949 *Science*) delineated many specific exercises, thereby showing how important he believed this phase of technical development is. However, he stated that there is not much need of exercises for young people, and that they should learn many little pieces, even mechanically if they like. This allows them to learn the movements of the fingers and hands and to get pleasure from playing pieces. The important thing is for the teacher to see that their physical movements are correct and that their tone is good and varied. However, exercises for the arms (including scales in sixths and small chords) should be used early in training because they give the student a good sense of the keyboard and of key.

When exercises are used, the specific exercise used is not as important as how the exercise is practiced. Exercises that move are more important than stationary ones. Exercises should be played slowly with close attention to right movements and realization of the inner physiological conditions. When the right conditions and movements are realized, the exercises should be played swiftly. "Incessant repetition is not by any means to be despised" (Fielden, 1949 *Science*, p. 145). However, the repetition must be intelligent and not merely mechanical. Tone, timing, and correct movement should be cultivated, and concentration must constantly be insisted upon. The process is that of going from the physical to the nervous.

IV. Movement at the Keyboard

Physical Movement

Fielden (1949 *Science*) said, "The aim of all technical practice must be the attainment of the greatest possible freedom of movement, and the inhibition of any impeding factors, whether in the nature of set positions, or of spasmodic nervous or physical interferences" (p. 95). Fielden described movement mostly in terms of limb motions, such as the vigorous movements found in gymnastic exercises, rather than of large movements over the keyboard.

Lateral Movement

In speaking about shifting around the keyboard, Fielden (1949 *Science*) mentioned avoiding playing with fingers at full lateral stretch. He instead advocated swinging the hand laterally on the finger already holding the key until the next finger is as near as possible in a position to play, with the arm directly behind it. Going from the 3rd to the 4th finger, the abducting movement should be made first, with the flexing movement delayed until the actual moment of descent. The involuntary tendency to flex too soon induces friction. If properly executed in combination with lateral arm movement, the motion is a curve. In true rotary movements, all curves are combined, the fingers move in the curve, the wrist rotates in a vertical plane and the elbow in a horizontal one, and the whole arm thus participates in the action.

V. Fundamental Forms

Five-Finger Patterns

In finger passages, Fielden (1949 *Science*) advocated allowing the non-working fingers to move sympathetically with the playing finger, rather than to be inhibited. Also, a finger must be raised before it can be lowered. These two factors show that it is natural to allow the fingers to lift off the keys when playing. Fielden said, "It is not a technical crime to raise several fingers at once" (p. 100). Therefore, in playing an ascending and descending five-finger pattern, all the fingers can be raised to begin with. When the thumb has struck its key, it may begin to rise gradually, followed by the others in turn, until at the 5th finger stroke, the thumb has reached its

highest comfortable elevation, and the remaining fingers have risen in their turn, with the thumb highest and the 4th finger lowest. The 4th finger should be raised as little as possible because it will have to act again almost immediately as the five-finger pattern descends.

Fielden (1949 *Science*) advocated a low wrist for brilliant *forte* passages. This is because if the hand is held out in line with the forearm and the fingers are extended and then the fist is clenched, the back of the hand comes back at an angle to the forearm and is no longer in straight line. This shows that the extensors of the wrist naturally tend to take the strain from the flexing action of the fingers. Trying to prevent this will cause an extra feeling of strain in the flexing fingers. From this it may be inferred that finger action can be facilitated by keeping the wrist low for fast passages.

At first, finger exercises and scales at first should be practiced slowly with movement of the wrist. This will develop the feeling of swinging the anchorage of the forearm and arm from one finger to another. Later, the wrist movement may be reduced and the finger work taken in groups. This is the beginning of swiftness. In swift, *forte* passages, the anchorage, whether forearm or whole arm, may be maintained practically in a permanent though flexible state of fixation, capable of being easily shifted by the undulatory movement of the wrist but controlled enough to prevent any involuntary upward jerking of the arm. The fingers fulfill their own function, moving unimpeded from their own anchorage. In this way, the arm, wrist, and fingers and their various anchorages all play a part in finger passages (Fielden, 1949 *Science*).

Rotation

Rotary movements of the forearm consist of definite muscular effort for the purpose of meeting specific technical difficulties which can be met in no other way. Rotary motion is used for broken octaves and *tremolo* passages and for shakes fingered 1 3, 3 5, and rarely, for 2 4 (Fielden, 1949 *Science*).

Rotating the forearm to play five-finger exercises is not recommended, because a lever requires a fulcrum, and to be fully efficient, the fulcrum should be always in a direct line with the

lever. This fulcrum is supplied by the flexing muscles of the forearm acting with direct, not rotary, movement at the point of contact against the fulcra, either at the knuckle, wrist, or both. If a rotary movement is used, the fulcrum is not in a direct line with the lever. The fingers should not be used as props. In addition, the rotary movement of the fingers is not efficient in transmitting the weight of the arm, because the fingers are different lengths and strike the keys at different angles. Finger action, rather than rotary motion, is necessary between adjacent fingers (Fielden, 1949 *Science*).

Scales

Fielden (1949 *Science*) stated that scales are of little use as finger exercises, because they do not work the 4th and 5th fingers very often. The function of scales is to teach key relations and fingering. Scale passages can be transformed into exercises for the 4th and 5th fingers by adding repetitions of these fingers at the top of the scales. Students should practice scales with a light touch and attention to varieties of touch. A heavy touch is not necessary, since muscle building can be done more efficiently through gymnastic exercises. Strength and elasticity come from activity much more than from lifting heavy weights or from playing with a heavy touch (Fielden, 1949 *New Approach*).

According to Fielden (1949 *New Approach*), in scales moving out from center, putting the thumb under should not be thought of as an independent action applied to the thumb alone. Instead, the thumb passes under in order to assist the movement of the arm and hand laterally to the new group. The pianist should think about the movement of the hand toward the new group rather than of the thumb action alone.

The thumb moves under the hand gradually while the other fingers are playing, contributing to a smooth movement of the hand (Fielden, 1949 *New Approach*). Fielden's method of putting the thumb under is to make it appear that the thumb is being put over rather than under the fingers. The hand is supinated, with the back of the hand turning toward the direction the thumb is moving in order to leave plenty of room for the thumb to abduct. This is combined

with a lateral movement of the forearm. This turning over movement of the hand obviates the excessive contraction of the flexing muscles of the thumb and leaves the 2nd finger in a better position to function than if the hand were turned laterally by the adduction of the wrist with the thumb underneath, where the 2nd finger would be pointing in the direction opposite to that required. Turning the thumb under the other fingers by flexing the thumb it is not advisable (Fielden, 1949 *Science*).

The arm is adjusted to meet the new position, and this adjustment of the arm allows the thumb to function in the same way as in its ordinary action when lying alongside the fingers, that is, by abducting and adducting. The whole question of thumb and finger action depends on allowing the arm to coordinate freely in adjusting the hand to the position most convenient for exercising finger functions. Smooth scales result from a combination of this lateral movement of the arm, smooth flow of the thumb assisted by the supination of the hand, and evenness of tone (Fielden, 1949 *Science*).

In fast scale passages, arm thrusts move the hand from position to position, and smoothness is acquired by the movement of the thumb toward the first note of the next group (Fielden, 1949 *New Approach*).

Chords

According to Fielden (1949 *Science*), two methods are possible in order to gain power in chord playing.

The first method, useful for quick, repeated chords, necessitates the partial fixation of the base of the lever being used. For instance, if the forearm is used, the upper arm must be a fixed anchorage from which the forearm can swing. This method gives advantage in terms of speed, but a disadvantage in inhibiting the extra power that could be obtained by the additional use of the upper arm at the point of contact (Fielden, 1949 *Science*).

The second method, useful for slow repeated chords, is to use acceleration by muscular action. The hand is placed on the surface of the keys or close to it. The fingers are held in a state

of nervous preparation for the shape of the chord. The arm is held suspended in the shoulder. The shoulder is relaxed and the arm is suddenly pulled down by the action of the pectoral and dorsal muscles. This necessitates the low position of the wrist. Or, for a high position of the wrist, instead of the arm being pulled downward, it is thrust forward by the combined action of the triceps and the shoulder, extending the forearm and lifting the whole arm forward respectively. These movements secure the freedom of the elbow joint and more flexible cooperation of the whole arm (Fielden, 1949 *Science*).

VI. Basic Musical Inflection

Articulation: Legato

Legato is the basic articulation advocated by Fielden (1949 *Science*), since basic tone production is described in terms of a legato sequence of notes.

Articulation: Staccato

There is such a thing as hand staccato. Swift staccato passages are achieved by a series of movements of the free or relaxed hand, initiated by the vigorous contraction of the arm muscles (Fielden, 1949 *Science*).

Dynamics and Tonal Control

Control of tone is regulated by the resilience of the muscles through nervous preparation. The consistent maintenance of intention throughout the movement starts from its mental conception. Then the nervous initiation leads to the physical culmination in tone production (Fielden, 1949 *Science*).

Quantity of the tone is determined by the speed of key descent. The limit of tone quantity depends on the actual weight of the arm itself. Though the acceleration of all falling bodies is the same in that two objects of differing weights dropped from the same height will reach the ground at the same time, a heavier object will deliver more sound upon impact than an object of lighter weight. Therefore, the heavier the arm, the greater the power, and the louder will

be the tone quantity. A speed that is too slow will not produce a tone at all, while too much speed will produce a harsh sound (Fielden, 1949 *Science*).

Tone Quality

Good tone is the goal of a sound technique. The pianist should train to know beforehand what the tone is going to be. The cultivation of inward physical sensitivity will bring success in timing and tone quality. Varieties in tone quality depend on variations of the speed in the descent of the key and perfect timing at the point of contact. These variations are controlled by muscular power, not by any special position of the hand. For example, using flat fingers to give a *cantabile* touch is not necessary. The condition for achieving *cantabile* is that the fingers be in one coordinated piece with the arm, which may be helped by using flat fingers. But flat fingers do not produce a *cantabile* tone quality. Therefore, though special hand positions do not cause changes in tone quality, they may assist in setting up the conditions which lead to better accuracy in gauging the speed of the key and timing at the point of contact, which will bring about a change in tone quality (Fielden, 1949 *Science*, p. 66).

Table 11

Elementary Level Technical Concepts According to Fielden

Elementary Level Technical Concepts	**Thomas Fielden**
I. Philosophy	
Philosophy of Technique	- Technique and interpretation are inseparable. - Application of physical and mechanical laws to piano technique. - Mental, nervous, and muscular factors should be developed together, since they are interconnected. - Training the hands is the primary goal in teaching children.
Philosophy of Teaching	- There has been a decline in mental, moral, and physical effort among students. - Hard work is necessary from both teachers and students. - Knowledge and personality are the most important attributes of a good teacher.

II. Basic Components	
Posture	- Forearm is parallel to the ground and at level with the keyboard. - Active poise and balance, like a cat.

Tone Production	- Start with the whole arm stroke.
	- Arm Stroke
	- Approach to the point of contact.
	  - Start with the arm above the keys, or
	  - Use the forearm instead of the whole arm, or
	  - Use muscular effort with hand closer to the keys.
	- Point of contact.
	  - Free descent of arm is arrested by hand coming in contact with the keyboard. Momentary fixation needed with limb fixed in one piece from the joint of origin downward.
	- Departure from point of contact.
	  - Aim at the keybed, not the escapement level, as the point where muscular effort ceases. Relaxation comes in the follow through.
	- Like walking.
	- Finger Touch
	- Approach to the point of contact.
	  - Fingers are in a state of taut readiness above the keys.
	  - Finger swings from single anchorage of hand.
	  - Control from the shoulder, arm, or forearm.
	- Point of contact.
	  - Transfer of anchorage from single to double anchorage.
	  - Contraction and rigidity to withstand the pressure of contact, but for only a short instant.
	- Ears and physical sensitivity are the guide for right conditions of technique.
	- Physical discomfort signifies wrong conditions.

Playing Apparatus	
- Muscles	- Maintains the limbs in position and prevents unwanted movement. - Moves the limbs and assists larger muscles in their movements. - A healthy body leads to proper functioning of muscles and nerves without development of muscles to abnormal size or strength.
- Body	- The whole body works together, the muscles aiding each other. - The biggest anchorage is the body swinging in the hips.

- Shoulder and Upper Arm	- Upper arm coordinates all movements of the arm. - Shoulder contains and initiates all arm movement. - Shoulder used as an anchorage of the swing stroke of the whole arm. - Shoulder fixes the upper arm when it is used as an anchorage for the forearm.
- Wrist	- Anchorage for the hand and fingers. - Aids in the resilience and timing for shifting from a double to a single anchorage in key depression. - Undulatory wrist motion, combination of high wrist (push) and low wrist (pull). - Helps prevent stiffness. - Helps shift the arm laterally. - Transform movements from angular to curvilinear. - Guides the movements of the arm through to the fingers. - Economy of motion through a combination of push and pull.
- Fingers	- Training finger action is important because it leads to clearness. - Finger work should begin with the body, shoulder and arm, not at the fingers. Center outward. - The arm stays behind the finger in a straight line, guiding it to the most advantageous striking position. - Naturally bent position of the finger should be maintained at all times. Flat fingers are subversive to strength. Overly bent fingers cause a waste of energy. - The finger is raised while another finger is used as a pivot, then lowered at the proper time with the help of arm weight, like the legs in walking. - Fingers should be firm, not flabby. - Fingers should raise and strike vigorously. These exaggerated motions will be reduced as speed increases. - Finger independence results from focusing on the nerve function of the working finger, not the non-working fingers. Non-working fingers should be allowed to assist the working finger through sympathetic movements.
Contraction and Relaxation	- Resilience, not relaxation. - Relaxation is the goal, not the means, of a good key stroke. - Contraction and relaxation must work together, since there can be no relaxation without contraction. - Teach beginners not just relaxation, but the difference of feeling between contraction and relaxation. - The goal is to teach muscular discrimination in order to inhibit unnecessary muscular movements.

Mind/Body Relationship	- The mind conceives the movement. The nerves communicate it to the muscles. The muscles execute the orders. - Thoughtful repetition after analysis of a movement leads to the formation of reflexes. - Determination and relentless concentration are required. - Slow practice assures right conditions and accuracy. - Fast practice trains the mind to move, the nerves to carry the message, and the muscles to respond at great speed.
III. Exercises	
Gymnastic Exercises	- Gymnastic exercises develop strength, flexibility, and control of muscles. - Practice gymnastic exercises morning and night. - It takes a long time to develop muscular strength and flexibility. - Teachers should work from a photo of an ideal of piano hand when developing the student's muscles through gymnastic exercises. - Gymnastics can help overcome deficiencies in hand structure and weakness in the left hand.
Exercises	- Not necessary for young people, who should just play many pieces with the correct playing conditions. - Repetition is good. But it must be mindful, not mechanical. - Exercises that move are better than stationary ones. - How exercises are used is more important than which exercises are used. - Play slowly with attention to proper movements and physiological conditions. Then play faster. - Physical to nervous.
IV. Movement at the Keyboard	
Physical Movement	- Freedom of movement.
Lateral Movement	- Do not play with fingers stretched out laterally. Instead, swing the hand so the arm is behind the finger, using rotary motion in a curved line.
V. Fundamental Forms	
Five-Finger Passages	- Allow all fingers to rise before playing the pattern, then gradually each finger lifts after it is done playing. - Practice slowly first with movement of the wrist. - As speed increases, notes are grouped into one movement. - Undulatory movement of the wrist, arm and forearm, and

	fingers all work together in the playing of passages.
Rotation	- Forearm rotation used for broken octaves, *tremolos* and shakes between fingers 1 3, 3 5, and rarely 2 4. - Forearm rotation should not be used for five-finger patterns or adjacent fingers. Finger action is needed instead.
Scales	- The aim of scales is to teach key relations and fingering. - Scales can be made into finger exercises by repeating the top of the scale, which works the 4th and 5th fingers. Practice with a light, varied touch. - The hand and arm move laterally to shift position, working together with the thumb. The hand is supinated to allow room for the thumb to play. - Fast scales are played with thrusts of the arm aiming for the thumb of each new group.
Chords	Two methods for power: 1. Fixate upper arm for the forearm to swing from. Use the forearm force alone. Has an advantage for speed. 2. Arm is suspended on or close to the keys. Low position of the wrist—Shoulder is relaxed and the arm is suddenly pulled down. High position of the wrist—Thrust by extending the forearm and lifting the whole arm forward. Useful for slow chords.
VI. Basic Musical Inflection	
Articulation: Legato	- The basic touch form described in Fielden's method of tone production.
Articulation: Staccato	- Hand staccato used in swift passages.
Dynamics and Tonal Control	- Tonal control is regulated by the resilience of the muscles through nervous attention. - Key speed determines tone quantity. - A heavier arm will result in more power, and therefore greater tone quantity.
Tone Quality	- Caused by speed of key descent and perfect timing at the point of contact. - The pianist should know beforehand what tone quality is going to be produced. - Special hand positions do not cause changes in tone quality, but may assist in setting up the conditions which lead to better accuracy in gauging the speed of the key and timing.

Otto Ortmann

Sources

The Physical Basis of Piano Touch and Tone (1925).

The Physiological Mechanics of Piano Technique (1929).

I. Philosophy

Philosophy of Technique

Otto Ortmann was the first writer to study the mechanics of piano technique through scientific investigation. Unlike other authors, Ortmann (1929) did not set forth his own method of piano technique, but sought to describe what actually happens when a pianist plays in order to support or disprove prevalent technical ideas of his time. In his laboratory Ortmann devised methods for measuring different aspects of piano technique, such as movements of the pianist and of the piano mechanism, in order to establish what a pianist does at the piano and how the instrument responds to movements of the pianist. Ortmann urged teachers and pianists to revise some of their "pet pedagogic concepts" (p. 376) to conform to the scientifically proven facts established by his experiments.

Through scientific investigation, Ortmann (1929) reduced the physiological mechanics of piano technique to one element, the variations of force produced at the key surface by the player. The pianist must obey the laws of mechanical action, and Ortmann described the process of piano playing mostly in terms of leverage. Such concepts as weight, force, action and reaction, inertia, resistance, speed, mass, distance are frequently used in Ortmann's explanation of piano technique.

Ortmann (1925) realized that many pianists and teachers are reluctant to explain piano playing in terms of scientific laws because of the concern that the art will become lost in the science. Ortmann countered this objection, saying that although it is true that art is not science, the appreciation of the art of painting is not lessened just because the viewer happens to know

that the picture consists of various color pigments on a piece of canvas. The artist need have no fear that art will suffer from scientific investigation.

Philosophy of Teaching

Throughout *The Physiological Mechanics of Piano Technique* (1929), Ortmann not only provided the results of his scientific experiments but also discussed how his findings apply to the teaching of both adults and children. Though a weighty book, Ortmann as teacher shines through in his many practical pedagogic applications of mechanical facts. Following are some foundational principles for teachers.

Ortmann (1929) believed it is essential that piano teachers, who sell lessons in physiological mechanics, know the tools they work with. Knowing the fundamental principles of mechanics and muscular action allows the teacher to prevent the assignment of impossible mechanical conditions, aids in distinguishing normal muscular fatigue from that due to faulty coordination, and leads to efficiency in practicing and in teaching.

To Ortmann (1929), teaching technique consisted of a careful balance among the following factors:

1. Being able to isolate a defect in motor adjustment through knowledge of physiology;
2. Applying remedial solutions intelligently; and
3. Knowing when a psychological, rather than a physiological, remedy is necessary.

However, Ortmann (1925) did not necessarily suggest informing the student of all the complexities lead to the teacher to a solution. It is left to the teacher's judgment to decide how much information a student needs regarding the solution.

Two points for teachers to remember when diagnosing mechanical defects in students are:

1. Diagnosing muscular coordination from appearance is not always accurate, because much that is happening in the muscles of the playing unit is invisible to the eye (Ortmann, 1929).

2. Opposite movements on the piano, such as finger lift and drop, arm ascent and descent, and ascending and descending scales, are not mere opposites, but physiologically different movements. In these cases, the muscular action is not simply reversed, but changes in kind (Ortmann, 1929).

II. Basic Components

Posture

Ortmann (1929) did not fix any ideal height or distance from the keyboard, because this will vary with the proportions of the trunk and the arms. A long arm requires a greater distance between the seat and keyboard than does a shorter arm. Ortmann emphasized that anatomical differences are of special importance to the teachers of children.

Regarding arm position in relation to the trunk at the piano, Ortmann (1929) compared the effect of weight in playing in the following four body positions:

1. The arm from fingertips to shoulder is in a straight line,
2. High wrist, low elbow, with trunk leaning back,
3. Low wrist and elbow with the trunk leaning back, and
4. Level forearm with a right angle between forearm and upper arm.

Although it is commonly believed that the player should lean slightly forward so that the center of gravity of the trunk will be brought nearer to the keyboard and the weight of the arm can be used to a better advantage, Ortmann (1929) found that this leaning forward alone will not affect weight transfer. In fact, Position 2 above, where the wrist is high and the upper arm descends at an angle with a slight incline of the trunk away from the keyboard, is the best position for releasing arm weight. There is an increase in weight as the body moves backward and a decrease in weight as it moves forward. Though this second position is most amenable to weight transference, Ortmann did not recommend it as the best standard posture. Ortmann advocated Position 4, with a level forearm, a right angle between forearm and upper arm, and a slight leaning forward of the trunk. He noted that this is the standard position accepted by most teachers, but that because this

position is at a disadvantage for the transference of weight, it is actually arm stroke, rather than arm weight, which is normally used in piano playing.

Hand Position

Ortmann (1929) believed that no fixed hand position can be recommended, since playing is movement, not position. A hand position should be determined by each specific passage. An attempt to force all hands into one standard position restricts pianistic freedom and is unwise pedagogically. Four principles regarding position include:

1. Any key can be reached effectively in many different ways.
2. The position to play a key is determined by the position and manner of playing the preceding and succeeding keys.
3. The best way to make a movement varies with the individual and is determined by skeletal structure.
4. The best movement is one permitting motion near the middle of the range of the joints involved (Ortmann, 1929).

Although Ortmann (1929) believed hand position must be determined by the passage and by the anatomy of the playing apparatus, he did give several specific directions relating to the principles above.

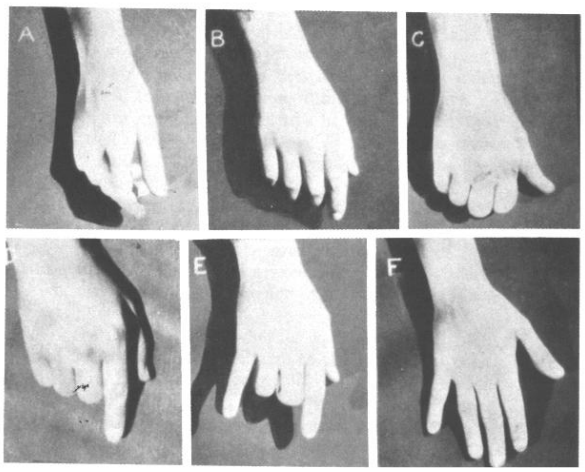
1. A finger, hand, and arm position permitting the joints to operate near the middle of their range is one where the wrist is slightly depressed, the back of the hand ascends toward the hand knuckle, and each finger joint is slightly extended (Ortmann, 1929).
2. An arched rather than a flat hand is recommended, because the arched hand position shifts normal finger movement into the mid-range of action, which allows the muscles to work at a greater mechanical advantage. The use of an excessively flat hand position in order to strengthen the finger flexors by making them work in the least efficient position is not recommended (Ortmann, 1929).

3. Children tend to stiffen the wrist in order to keep it in a straight-line position. Therefore, a flexible bending is recommended at the wrist. The wrist should not be held high, as this impairs the intensity of the finger stroke (Ortmann, 1929).
4. Finger movement, under normal conditions, is accompanied by a quiet arm, a well-arched hand, a horizontal forearm at level with the keys, and a moderately abducted upper arm (Ortmann, 1929).

In order to determine natural hand positions, Ortmann (1929) observed 50,000 men, women, and older children while they were standing or walking with arms resting at their sides. Illustration 3 shows the various hand positions he observed.

Illustration 3

Normal Hand Positions when at Rest (Ortmann, 1929, p. 315)



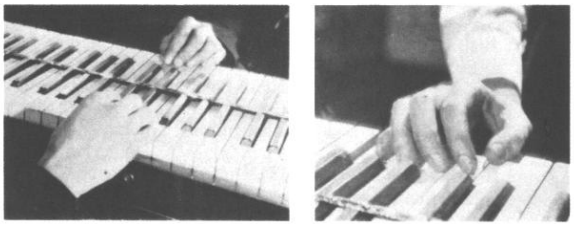
87% of natural hand positions fell into the categories of Illustration 3, Types A, B, and D. These types can be thought of as normal hand positions. Less than 1% of hand positions were of Type F. Therefore, Ortmann stated that the tendency for beginners to flatten their fingers when playing cannot be explained as a natural physiological finger position, but is a result of the application of the hand to the keyboard.

The normal hand positions of Illustration 3, Types A and B, when applied to the keyboard, yield the positions found in Illustration 4, which include a slant toward the 5th finger

side of the hand. This slant prevents the finger stroke from being vertical, resulting in wasted energy during key depression. Teachers should assist students in finding a position that is slightly more pronated so that the hand is level rather than sloping. While the normal axis of the hand passes through the 4th finger, this extra pronation shifts the axis closer to the thumb side, making the 3rd finger the axis and dividing the hand more symmetrically. This allows all the fingers to stand up and to strike the keys vertically (Ortmann, 1929).

Illustration 4

Untrained Hands Applied to the Keyboard (Ortmann, 1929, p. 315)



Tone Production

General Principles

In the piano mechanism, the three fundamental properties of a moving key are mass, direction, and speed. The mass of the key is fixed, as is the direction of key movement. The only variable remaining is speed. Consequently, any differences of touch in key movement must be differences of speed, since that is the only variable. In his explanation of tone production, Ortmann (1925) focused on the speed with which the finger sends the key down to the escapement level where the hammer is released to strike the string. After the hammer leaves the escapement, the pianist cannot change the velocity of the key. The tone volume is determined by the speed at which the key reaches at escapement level, regardless of how that speed has been attained.

Three components of tone production in relation to key speed are percussiveness of touch, fixation for key resistance, and the line of application of force to the key (Ortmann, 1925).

The difference between percussive and non-percussive touches plays an important role in the control of key speed. A non-percussive touch, where the finger starts on the key surface, provides a gradual increase in key speed from top to bottom, and the finger is in contact with the key throughout its descent, thus enabling the pianist to gauge the resistance more accurately (Ortmann, 1925).

In a percussive touch, where the finger strikes the key from above the key surface, the fingertip and key, upon contact with each other, are driven apart by a rebound. Hence there is a moment when the finger is not in control of the key after striking. Once the shock of key contact has been overcome, the finger catches up with the key and depresses it to the keybed (Ortmann, 1929). Since the key is not in actual contact with the finger through the entirety of key descent, whatever speed the pianist wishes to communicate to the escapement must be transmitted either at the moment of impact or after the finger regains control of the key, making a percussive touch more difficult to control than a non-percussive touch (Ortmann, 1925).

In order to withstand key resistance, the fixing of any joint in which movement is to take place demands the fixation of all other joints between it and the trunk sufficient to overcome the resistance. The louder the tone, the greater must be the fixation. The weight needed to produce a barely audible tone in the middle region of the keyboard varies between two and three ounces. More force is necessary for louder tones (Ortmann, 1929).

Along with this fixation in proportion to key resistance, each part of the playing apparatus demands its own muscular adjustment. When changing from a finger movement to an arm movement, there is an increase in the mass of the playing unit, which, if finger velocity is constant, increases the force of the playing unit. Consequently, when the finger meets the key resistance, its descent will be interfered with in an inverse ratio to the force behind the finger. The finger alone will be considerably retarded, the forearm somewhat, the whole arm little. Therefore, for maximal key control, the use of the arm is preferred to that of the finger, at least in the early stages of instruction (Ortmann, 1929).

Another consideration in tone production is the fact that practical piano playing requires that the keys be struck from various angles, demanding various lines of application of force. The effect is greatest when the force is in line with key descent, vertically downward. The effect decreases as the line of application deviates from vertical, because to change the direction of a moving body requires force (Ortmann, 1925).

Arm Touches

Ortmann (1929) described three types of arm touches.

Free Arm Drop. A drop of the completely free arm is not used in piano playing because it is uncontrolled. The only benefit from practicing this arm touch is to intensify the feeling of relaxation for students working for a relaxed muscular condition.

Controlled Arm Drop. For slow melodies of quiet to moderate intensity, a controlled arm descent where the arm is in a state of partial relaxation, should be used. In this arm touch, the descent begins more gradually than that of a free arm drop. As the hand approaches the keyboard, the non-working fingers are drawn back by contracting the extensor muscles, while the flexors of the fingers that are to play are contracted so that the fingers remain somewhat curved after they meet the resistance of the keys. Percussiveness at the time of key contact is minimized by allowing the wrist to descend below the keyboard, and the descent of the arm is gradually stopped. The forward rotators of the shoulder contract to control elbow movement away from the keyboard, so that the arch of the hand can be maintained, and the forearm passes through its horizontal position. Inhibition of free movement occurs in all parts of the arm. At each joint, muscles come into action to retard the free descent. This retardation is not to be confused with stiffness. It is necessary for guiding the fingers and hand properly to their destinations (Ortmann, 1929).

Forced Down Stroke. In this type of arm touch, used to produce *fortissimo* chords at a fast tempo, the muscles controlling the descent of the arm contract forcibly and are reinforced by gravity, thereby lowering the arm more rapidly than when gravity acts alone in the free arm drop.

A fine degree of coordination is necessary at the beginning of the stroke to send the arm on its correct path (Ortmann, 1929).

Finger Touches

Ortmann (1929) said, "Finger-stroke has not received adequate consideration in piano pedagogy, and…undue stress of relaxation has seriously restricted velocity and technical brilliance" (p. 376). In finger touch, the teacher should stress finger drop as felt by the muscles rather than finger lift as seen by the eye. The attention of the student should be directed toward the gauging of key resistance as it affects tone, not toward the lift of the finger away from the key.

The mechanics of finger touch are as follows. The descent of the finger is caused by a decrease in the angle the finger makes with the hand, and this decrease results from contraction of the flexor muscles. When the descent of the fingertip is arrested by the piano key, the tendency of the muscular contraction is still to decrease the angle. This can only be done by raising the hand knuckle. The fingertip thus becomes the fulcrum and the hand knuckle the moving part, with a transfer of anchorage from the hand knuckle to the fingertip. If the hand arch is held firm, the impact of the fingertip on the key will result in an upward jerk of the wrist, the nearest relaxed joint, in a force that is equal and opposite to the force of the descending fingertip. In order to counteract this reaction, fixation at the wrist joint is necessary, but this fixation should not be excessive (Ortmann, 1929).

After the key depression has been made, further motion of the key cannot influence the sound, since the hammer is no longer in contact with the string. Whether the key has been depressed using an arm touch or a finger touch, ascent of the key is straightforward. The pianist cannot increase the speed of the ascent no matter how the key is released. Regardless of touch, the key returns in but one fixed way as soon as the finger leaves it (Ortmann, 1925).

Ortmann (1929) described three main types of finger stroke.

Flat Finger Stroke. In the flat finger stroke, the fully extended finger moves in the hand knuckle with no movement at the middle or nail joints. A descent of the finger results from

contracting the muscles situated in the hand, the *lumbricales* and palmar *interossei*. The fingertip gains in speed but loses in force, since this is a lever of the third class, with the force applied between the fulcrum and the resistance, which gives an advantage in transferring force into speed. This type of finger stroke works well for the production of quiet tones, especially since a flat finger position brings the softest part of the finger cushion into contact with the key, reducing the noise of finger percussion to a minimum (Ortmann, 1929).

Curved Finger Stroke. In a curved finger stroke, the finger is curved so that the nail joint is held vertically. Since the resistance is near the fulcrum, the effect of the force is greater. The increase in percussiveness resulting from the less advantageous part of the finger cushion being in contact with the key surface is partly compensated for by the smaller amount of force needed to produce the desired quantity of tone, which lessens the percussiveness (Ortmann, 1929).

Elliptical Finger Stroke. The elliptical stroke is executed when the fingertip is drawn in as it descends and makes contact with the key, returning in a more flexed position to its original starting point. The fingertip describes an approximate ellipse. Since the angle at which the fingertip strikes the key approaches a right angle, and the greatest force effect is at a straight angle, the elliptical stroke is useless for strength. Its value lies in the extreme lightness with which the key may be depressed and for finger control of *pianissimo* tone, because the finger remains in contact with the key before the key reaches its keybed. It is therefore useful in rapidly repeated tones with changing fingers (Ortmann, 1929).

Finger Shape and Finger Lift

Two other factors are related to finger stroke: finger shape and finger lift. Because of the leverage system of the fingers, flat fingers are conducive to speed in finger sequences, while curved fingers have an advantage in force. A flat finger touch is about three-fifths as strong as a curved finger touch. Since the force of a flat finger is less than that of a curved finger, a flat finger will be retarded more than a curved finger when it strikes the key surface. The elimination of this

retardation should be the aim of finger stroke pedagogy and is secured by appropriate muscular contraction at the moment of impact to overcome key resistance (Ortmann, 1929).

In teaching children, Ortmann (1929) stated that the physiologically simplest finger stroke is one akin to the natural grasping reflex. Though this is not used in piano playing, it may be helpful for the student to start with the fingertip as nearly against the ventral surface of the hand knuckle as possible. If the student starts with the two finger joints in a position of extreme flexion, the hand knuckle is in a position of extreme extension. This can gradually be changed to a fully extended finger joint and a reasonably flexed hand knuckle. On the other hand, Ortmann also said that when teaching children, it is best to start with a flat finger stroke, since teaching the rudiments of finger isolation is much easier with the flat finger stroke than with the curved stroke, due to the opposition of the finger extensor to the flexor.

Finger lift is necessary to produce a louder intensities, since the finger is moving for a greater amount of time before it reaches escapement level. For quieter dynamic degrees, less lift is needed. Excessive finger lift for the production of quiet tones is a waste of energy. In watching a concert pianist, the unused fingers are held almost touching the keys, leaving just enough room for the fingers to pass without moving undesired keys (Ortmann, 1929).

It is unwise to require a child to use a high finger stroke when learning a new coordination, because this may force the muscles to work at a great mechanical disadvantage, and the new coordination will be learned incorrectly. Also, extreme finger lift is antithetical physiologically to relaxation at the wrist. Therefore, teachers should not insist on extreme finger lift and a relaxed wrist at the same time with beginners. This is an example of the principle that relaxation and extreme range of movement are physiologically opposed. Movement is freest when joints move near the middle of their ranges (Ortmann, 1929).

Playing Apparatus

Muscles

The size and strength of a muscle corresponds to its function. The most powerful muscles in the upper body are found in the back and chest. The next powerful muscles are found in the shoulder, then the upper arm, forearm, and finally in the hand. A thick muscle is more powerful than a thin one. Each individual's muscular system differs in strength, but also in the exact location, multiplicity of origin or insertion, and at times certain muscles may be completely absent (Ortmann, 1929). Following are some general properties of muscles.

- A muscle is not like a rubber band, stretched long when tense and shorter when relaxed. A muscle may have similar shapes and be in opposite stages of contractility, since muscle function depends on neural stimulus (Ortmann, 1929).
- Rapid movements and movements of small range are best made by the smaller muscles and joints, while powerful movements and movements of a wide range require the use of the larger muscles and joints. Although large muscles are not lacking in power to control fine movements, the work can be done more economically with the smaller finger muscles, because they allow greater control over timing without the added factors of inertia and momentum that are present in a large playing unit. Movements requiring a rapid change of direction in a playing unit should be made with the lightest, smallest moving part possible (Ortmann, 1929).
- Muscles are not limited to the production of a single movement. Each muscle has primary functions as well as secondary and tertiary functions (Ortmann, 1929).
- Muscle activity is spread over a region of muscles. Even the smallest movement requires some spread. The greater the extent or force of the movement, the greater the spread of muscular activity. The spread, which is nature's device for reinforcing smaller muscles with larger ones, is always toward the larger muscles, never the reverse (Ortmann, 1929).

- A muscle does its best work with relatively light loads, although some investigators have found maximum efficiency at half the maximum load (Ortmann, 1929).
- The degree of response in the muscle varies directly with the intensity of the stimulus. A movement made slowly will not involve the same muscular response as the same movement made rapidly, since greater force is required for greater speed. Therefore, as much as possible, it is important to practice a passage at the tempo, intensity, and pitch at which it will finally be played in order to learn a certain muscular reaction for that specific passage. The value of slow practice and all other forms differing from that at which the passage will finally be played must be sought in the psychological, rather than the mechanical, field (Ortmann, 1929).
- Absence of motion does not necessarily mean absence of muscular activity. For instance, two equal forces acting in opposite directions at the same point will not produce motion, but the muscles will be active (Ortmann, 1929).
- Muscular rigidity results either from excess lactic acid production and fatigue or from simultaneous contraction of antagonistic muscle groups. Rigidity is necessary to some degree in order for a movement to occur. It is only when rigidity reaches an unnecessary degree or when it is present in a joint not acting as a transmission point for the force that it will interfere with ease, accuracy, and speed (Ortmann, 1929).

Ortmann (1929) warned that the teacher should not attempt to teach a movement by calling attention to the actual muscles used. One does not will a particular contraction. Muscle work is a reflex coordination. Proper contraction will normally follow a given degree of resistance, unless the student is untalented.

Training for strong muscles is essential for good technique. Ortmann (1929) said that technical clarity and efficiency are not just a matter of coordination, but are determined far more than is generally believed by differences in the strength of the muscles involved. Strong fingers are

needed for clear and rapid passagework and all rapid *forte* scales, since arm weight cannot be transferred beyond the five-finger limit. Ortmann said, "I know of no case of adequate piano technique accompanied by finger weakness. In fact, I am convinced, after measurements on this phase, as well as general observation of pupils, that much of the limitation of girl and women players results from an inadequate muscular strength in the fingers, hand, and arm" (p. 302).

Ortmann (1929) gave one caution to teachers concerning an ineffective method of teaching movements. He noted that teachers frequently move a student's hand, arm, or fingers through a desired movement, supplying the force while the student makes the movement passively. As a result, the muscles responsible for the movement do not contract and hence cannot either receive or send the proper stimulus to the brain. Hence the student has learned nothing muscularly. Instead, teachers should introduce a resistance against the desired direction of the movement. For example, if finger lift is the problem, teachers should press down on the finger instead of helping it lift. If finger drop is the problem, teachers should press up against the descending finger. For the same reason, practicing tone production without a key or other resistance is unwise. The key resistance is what causes the muscular contraction.

Body

Good technique is opposed to isolated action. The smallest movement involves the trunk as well as the arm, hand, and fingers. Movement that brings the fingertips into contact with the keys can be produced within certain limits by any joint in the upper body. Because of this, any keyboard movement of considerable range involves a constantly changing coordination of movement among the various joints of the body.

In addition to the coordination of the muscular system, there must be coordination among the organs of the body and of the various sense-departments as well: auditory, visual, and kinesthetic. Differences in technical proficiency of students, which generally depend on variations in the size of the hand, length of the fingers or arm, weight of the arm, and range of movement,

can also sometimes be traced directly to variations in the circulatory system. The correction of circulatory defects will correct technical defects in these cases (Ortmann, 1929).

Trunk

The main function of the trunk is to serve as a base that provides stability to the levers of the playing apparatus (Ortmann, 1929).

Shoulder and Upper Arm

Importance of movement in the shoulder joint is often overlooked since the amount of movement is minimal. Shoulder function is often attributed to the hand or the forearm, where the movement is visible. However, the shoulder plays a crucial role in all arm movements. Withdrawal of arm weight from the keys is brought about by contraction of the shoulder girdle. All movements involved in passing the arm in front of the body are primarily movements of the shoulder girdle. Any vertical descent of the forearm, with the upper arm held away from the body, a position used constantly in piano playing, involves rotation of the upper arm. This movement is easily overlooked because the upper arm does not change its angle with regard to the adjoining parts (Ortmann, 1929).

Elbow and Forearm

Elbow flexion and extension are used in lateral shifts within an octave. Beyond this range, shoulder abduction aids the movement (Ortmann, 1929).

The forearm is the source of all keyboard movement involving rotation, which is used for melodic accentuation and phrase release (Ortmann, 1929).

Wrist

There are two main functions of the wrist. First, the flexion and extension of the wrist is used in hand staccato. Second, lateral movement of the wrist aids in passing the thumb under the hand and passing the hand over the thumb in scales (Ortmann, 1929).

Ortmann (1925) explained the use of both high and low wrist coordinations. When high, the wrist is held well above the key level and descends as the key is depressed. When low, the

wrist is held on level with the key, and with a snap movement, ascends as the fingers descend. For all practical purposes, there is no difference in key movement between the touch initiated by high or low wrist.

The teacher should be aware that students with weak hands sometimes raise the wrist to gain greater intensity, substituting a skeletal position, where the bones are in a straight line, for a position which requires muscle use. Muscular strength is necessary to prevent this compensation (Ortmann, 1929).

Hand

The basic movement of the hand is one of opposition of the thumb to the fingers. The hand is thus divided into two parts: the thumb and the fingers. The next finer division of the hand separates the four fingers into two groups: the 2nd finger in one group; and the 3rd, 4th, and 5th fingers in another. The physiological nature of this hand division is an important part of piano technique. Differences among the hands of children of various ages should be carefully considered in the assignment of work, and wide variations in the manner of playing or fingering passages should be permitted to allow the child to adapt to the physiological nature of the hand (Ortmann, 1929).

Fingers

The finger is a compound lever and can transmit force through its tip only to the extent that each of its joints is fixed. Any collapse in any of the joints destroys the efficiency of the lever (Ortmann, 1929).

Abduction, spreading of the fingers, requires more muscular effort than adduction, bringing the fingers together. Therefore, a change from a closed to an open position is accompanied by an increase in effort, whereas the opposite action is accompanied by a decrease in effort (Ortmann, 1929).

Regarding finger independence, the beginner finds separate articulation of the fingers difficult, because biologically, they are all controlled by one muscle. The coordinated subdivision

of the fingers must be trained. Capacity to acquire this integrated action varies widely among students and is one of the fundamental indications of physiological talent at the piano (Ortmann, 1929). Gaining finger independence is more readily acquired by avoiding key pressure entirely and lifting and dropping the finger on an undepressed key, rather than by demanding tone production with its unnecessary muscular resistance.

It is not necessary to inhibit the sympathetic movements of non-working fingers, because this creates extra tension. Physiologically, the flesh and tissue contact and the location and lines of pull of the muscle and tendons in the palm make a direct interaction among adjacent fingers necessary. This will cause neighboring fingers to move sympathetically with the working fingers. However, though sympathetic finger movements should not be eliminated, unused fingers are generally carried close to the keys rather than in a highly lifted position. High finger lift maintained through the interval between strokes is a hindrance and should be avoided (Ortmann, 1929).

Another complication to finger independence is found in the fact that whenever a finger plays, the neighboring finger is pulled toward the working finger because of muscular contraction. In order to neutralize the deflection of the non-working toward the working finger, the muscle on the other side of the non-working finger must be contracted. This is why an apparently simple finger stroke is a very complex adjustment of hand muscles. To develop the coordination to contract the muscle on the far side of the non-playing finger so that this finger will remain away from the playing finger, a resistance (such as a pencil) may be introduced against the non-playing finger to insure the muscular contraction. This resistance should be maintained while the working finger plays (Ortmann, 1929).

Ortmann (1929) discussed at length the causes and solutions of one of the main problems in finger technique, that of collapsing of the nail joints. This collapse is a problem because key depression takes longer with a collapsed nail joint than with a firm one. Also, the

fingertip is not under control when the nail joint collapses, and hence the desired tonal effect cannot be accurately or quickly secured.

Collapsing of the nail joint in a flat finger stroke is not the result of the finger position or weakness in the joint, but of incorrect muscular contraction and relaxation of the muscles controlling the joint. There must be some contraction of the flexors of the finger joints in order to prevent the collapse of the nail joint and other finger joints. Children as young as 4 years have enough strength in their muscles to overcome the resistance of the piano key. The solution lies in introducing resistance to the contraction of the muscle, which is best approached from the flat finger position. If the fingers are merely curved more to prevent the collapse of the nail joint, the problem of muscle coordination is not solved, because a straight line position of the bones is used to prevent the collapse. This demands very little contraction of the muscles. Instead, the student should place the finger flat on a black key and press firmly while at the same time sliding the fingertip along the key toward the hand. This will contract the proper muscles to prevent the collapse in the correct muscular manner (Ortmann, 1929).

Thumb. Since the grasping reflex is the chief biological function of thumb movement, and since this coordination is pianistically of little value, learning proper keyboard movements of the thumb can be difficult. Since flexion of the thumb is at a right angle to the fingers, abduction, rather than flexion, is necessary. This abduction is accompanied by a small amount of rotation so that the thumb stroke is never in a straight vertical line, but is rather a somewhat vertical arc (Ortmann, 1929).

4th finger. Limitation of movement in the 4th finger is a limitation of extension, not of flexion, affecting finger lift, not down stroke. No amount of practice will overcome this limitation. Training may change the amount of finger lift, but not its relation to that of the other fingers. Exercises may also increase the force of the finger stroke, making less lift necessary for tone production, but the 4th finger never reaches the independence of the other fingers (Ortmann, 1929).

5th finger. Double jointedness of the 5th finger may be corrected by substituting a straight finger position for a curved one (Ortmann, 1929).

Contraction and Relaxation

According to Ortmann (1929), the concepts of contraction and relaxation are one of the keys to coordinated movement. A completely relaxed joint does not exist anywhere in the human body, because muscle tone exerts a force at each joint that is relatively constant for each muscle group. The basis for coordinated movement is based on the relationship between stimulation of one set of muscles and the accompanying relaxation of the antagonistic muscles. A muscle should relax at precisely the rate at which the working muscle contracts. If a muscle relaxes at a rate greater than the contraction rate of the working muscle, the excess degree of looseness will impair an accurate sense of control. This condition is only useful for emphasizing the feeling of relaxation, but is never used in piano playing. On the other hand, if a muscle relaxes at a slower rate than the working muscle contracts, stiffness results. Eradication of this stiffness is one of the most important problems of piano pedagogy. Ortmann defined a coordinated movement not as a relaxed movement, but as an action which takes place without unnecessary friction and with maximal efficiency. When excessive friction or looseness interfere with efficiency, the movement is said to be incoordinated.

Fixation is constantly present in piano playing, in part because when a force greater than the weight of the moving part is needed, muscular contraction must be added to weight. The degree of fixation required is directly proportional to the force demanded at the fingertip. Therefore, pianists cannot correctly speak of mere relaxed weight transfer. The force exerted on the key is not simply the weight of a free arm, but that resulting from an active contraction of the muscles of the fingers, hand, wrist, and elbow, combined with gravity. The physiological value of resting on the key is in the distribution of weight. In each ascending arm movement the shoulder muscles do the work. By resting the finger on the key at the bottom of the key descent, some of

the work is shifted to the hand and forearm muscles, thus resting the shoulder muscles for a moment (Ortmann, 1929).

A coordinated movement necessitates the presence of the proper degrees of muscular contraction and relaxation to transmit the desired force. In order to maintain a joint at a given position without external resistance, all joints between the point and the trunk must be fixed to a degree sufficient to overcome the weight of the intervening parts. Relaxation at the piano is relative, being accompanied by a degree of fixation at all times. To demand of the student a tone production of even moderate loudness with the finger while the other joints of the hand and arm are fully relaxed is to demand the impossible. A pianist cannot play loudly and be relaxed to any extent. A mature artist appears relaxed when playing loudly, because relaxation follows immediately after the contraction that produces each tone (Ortmann, 1929).

In addition to the proper amount of muscular contraction or relaxation, the contraction must also be timed correctly. A coordinated movement is one in which the muscular contraction is of as short a duration as possible in view of the desired effect. Most movements of piano technique are rapid contractions followed by periods of relaxation. The ratio between times of contraction and relaxation is one measure of coordinated movement. Ortmann (1929) believed that the readiness with which relaxation sets in between contractions is a useful indicator of kinesthetic talent. The teaching of the proper timing of the rigidity, rather than its complete avoidance, is the problem of pedagogy.

Mind/Body Relationship

Ortmann (1929) limited his study to the mechanics of muscular action and movements, leaving problems of coordination involving neural activity unexplored. He did mention, however, that the whole learning and playing process are bound up with the nervous centers of the spinal cord and brain. The value of repetition and drill lies in the transfer of the neural representation of a movement from the higher brain centers to the lower spinal reflex centers. No adequate substitute for repetition exists.

III. Exercises

Gymnastic Exercises

Although he opposed any mechanical appliances used in actual piano practice, Ortmann (1929) did advocate the strengthening of the finger and hand muscles through appropriate non-pianistic exercises. A weak hand often uses the arm as a substitute. This can only be used to a limited degree. The mechanics of movement show the need for strengthening the smaller finger and hand muscles themselves rather than using the larger arm muscles as the prime movers. By a systematic training of the finger and thumb movements with appropriately controlled resistances, the hand muscles are strengthened in a much shorter time than they would be in practice at the piano alone. Also, mechanical drill at the keyboard, which wastes an enormous amount of time, can profitably be detached from tone, making work at the keyboard less mechanical.

Another use of gymnastic exercises is found in warming up cold hands. Cold weather drives the blood from the periphery to the vital, internal regions, resulting in cold fingers that impair speed and accuracy. Ortmann (1929) said students lose from 5 to 15 minutes of a lesson before circulation has been sufficiently established to limber up the fingers. Swinging the arms across the chest, rubbing the hands together, and washing hands in warm water are recommended.

IV. Movement at the Keyboard

Physical Movement

One of Ortmann's (1929) main points about movement around the keyboard is that very few movements are made in any one single plane or direction. Horizontal and vertical movements are usually combined into curvilinear motions. Curved movements have a mechanical advantage over angular movements in that angular movements require an abrupt change of direction and sudden mechanical readjustment, while curved movements are smooth and steady mechanically.

The other type of movement discussed takes place in the joints of the body. Whenever any part of the body changes position, movement takes place in more than one joint, with various

joint movements overlapping. The main source of movement is never in the joint that is actually moving. In order for any joint to move, some other joint situated closer to the trunk must serve as a stationary fulcrum (Ortmann, 1929).

These two points of movement around the keyboard and movement in body joints yield these principles of movement:

1. All movement generated by motion at a single joint is curvilinear (Ortmann, 1929).
2. Any motion of a part of the arm in a straight line results from simultaneous movement at more than one joint (Ortmann, 1929).
3. Simultaneous motion in two or more joints can generate both rectilinear and curvilinear movement (Ortmann, 1929).
4. Therefore, movements in straight lines, since they involve coordination of motion at several joints, are more physiologically complex than movements in the arc of the circle caused by one joint (Ortmann, 1929).

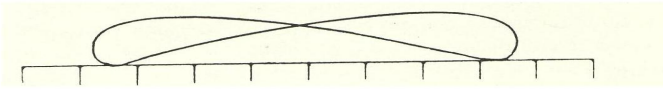
Lateral Movement

Ortmann (1929) explained that the movement changes as the pianist shifts laterally from middle C out toward the extreme ranges of the keyboard. In the middle of the keyboard, arm strokes are made by the forearm acting from the elbow. When played near the extremes of the keyboard, the movement is made by rotation in the shoulder.

Ortmann (1929) conducted experiments to determine the most coordinated way to move the hand from one place on the keyboard to another in a lateral leap. The most coordinated shape of this movement is shown in Illustration 5.

Illustration 5

Curvilinear Shape of a Leap on the Keyboard and the Return to Starting Place (Ortmann, 1929, p. 163)



Variations to this curve result in the following principles:

1. *Intensity*. With an increase in intensity, the amplitude of the curve increases, giving greater height to the curve. This allows for the gain in velocity necessary to produce a louder tone (Ortmann, 1929).
2. *Velocity*. In a slow movement, the need for a leap does not exist. The movement may be made in two ways: by a steady, extremely slow curved arm movement; or by a somewhat more rapid movement that brings the hand over the desired key followed by a vertical descent (Ortmann, 1929).
3. *Distance*. As the distance of the leap increases, the curve grows flatter (Ortmann, 1929).

V. Fundamental Forms

Rotation

Ortmann (1929) described two kinds of rotation:

First, *tremolo* figures depend on rotation at the radio-ulnar joint. The radius and ulna bones cross when the hand is pronated and are parallel when the hand is supinated (Ortmann, 1929).

Second, rotation allows the fingers to descend and ascend without movements in their own joints. The axis of rotation passes through the 4th finger, which allows the thumb to describe the greatest arc because it is furthest removed from the axis of rotation, with the 5th finger describing the smallest arc. However, if the wrist is shifted laterally, the axis no longer passes through the 4th finger, but any finger may be shifted out of the line of the axis of rotation to

receive vertical displacement when the forearm turns at the radio-ulnar joint. Therefore, the fingers can receive a vertical stroke equal in height to the finger stroke itself (Ortmann, 1929).

Scales

Ortmann (1929) described the following process for scale playing.

In a slow scale moving out from center, the 3rd finger is lifted while the thumb plays in order to permit the 2nd finger to play immediately after the thumb. This lift is accompanied by a lateral shift, which brings the fingers over the proper keys. The ascent of the finger is accompanied by the rolling of the thumb on its longitudinal axis and movement in its joints. These movements shift the hand over while the thumb is fixed by contact with the piano key. Finger lift and hand shift occur at same time, resulting in the 3rd finger describing an approximately straight line toward its new position. Then it descends approximately vertically on the key for its next stroke. Specifically concerning the thumb, Ortmann noted that as the thumb passes under the hand, flexion increases at the knuckle joint, while it decreases in the two remaining joints. Therefore, any lateral movement of the thumb involves movement in all three thumb joints (Ortmann, 1929).

In a scale moving in toward center, by supporting the hand on the thumb tip, the height at which the hand may be held over the keyboard is much greater when the thumb is in normal flexion at the side of the hand than when it is flexed under the hand. Consequently, in a scale moving in toward center, the greatest height will be near the beginning of the shift before the thumb is flexed under the hand, while in a scale moving out from center, the greatest height will be toward the end of the lateral hand shift, when the thumb regains its position at the side of the hand (Ortmann, 1929).

The scale is another example of the principle that opposite musical patterns are not necessarily opposites physiologically. Ascending and descending scales are completely different in their muscular coordination. A scale moving out from center (right hand ascending, left hand descending) is more complex technically, because the thumb must play when under the hand, a

position ill-adapted to thumb stroke. On the other hand, in a scale moving in toward center (right hand descending, left hand ascending), passing of the hand is not a hand or thumb movement, but an elbow movement (Ortmann, 1929).

The difficulty in scale playing lies not in passing of the thumb under the hand, as this is a function of the grasping reflex which is present from earliest infancy, but rather in the vertical thumb stroke while the thumb is under the hand. This is made easier by a slight supination of the hand, because the thumb can then be abducted more nearly in a vertical line. The thumb does pass under, but as the speed of the scale increases, the actual amount of passing under decreases. Exercises requiring the thumb to play well under the hand, separated from any horizontal movement, are helpful in teaching this difficult movement. Preparation for the next tone or tone sequence and prompt passing of the thumb under the hand and the hand over the thumb must be diligently practiced from the beginning (Ortmann, 1929).

Ortmann (1929) conducted experiments to determine the shape of scales at various tempos. He found a marked difference between slow and fast scale playing. In a very slow, right hand, ascending C major scale viewed from above, a slight rise in the hand knuckles pulls the hand forward slightly and accounts for the short forward and backward shifts that are noticeable as each finger strikes the key. Points of rest are visible where the hand is shifted. Other than this, the movement is made in an approximately straight line. There is no appreciable forward or backward motion of the upper arm.

The same scale played at a fast tempo yields a curved shape due to the forward and backward movements of the whole arm. No points of rest are visible, as the movement has become both curvilinear and continuous. This radical difference between slow and fast scales is caused by the difference in thumb action between the scales at the two tempos (Ortmann, 1929).

In a descending right hand scale, both slow and fast scales show curvilinear motion. The main difference lies in continuity. In slow scales, there are expected points of rest, while in fast scales there are swift unbroken shifts along the keyboard. This causes a difference in the muscular

coordination between the arm muscles that bring about arm shift and the muscles controlling finger action (Ortmann, 1929).

Because hand shift occurs in all scales, regardless of speed, insisting on a quiet hand in scale playing is unrealistic. The teacher must be careful not to judge a student's scale playing based on the look of the hand alone, reading accents and irregularities into the tonal result that do not actually exist. The presence of movements alone does not produce an irregular scale. The teacher should judge first by ear, listening to the sound of the scale (Ortmann, 1929).

Chords

One cannot bend the fingers in the hand knuckles while the fingers are widely spread. Therefore, demanding a hand arch in extended chord positions is unrealistic (Ortmann, 1929).

VI. Basic Musical Inflection

Articulation: Legato

Ortmann (1929) described two types of legato: weight transfer and arm legato.

Weight Transfer Legato

Weight transfer legato is affected mostly by the fingers as the weight is transferred from one fingertip to another. The application of weight to the piano key requires a certain degree of muscular contraction. Weight transfer therefore demands fixation, not relaxation. As the weight is transferred to another finger, the muscles controlling that finger are contracted to support the weight. The muscular contraction for the first finger is lessened as weight is released. If the relaxation of the first finger is greater than the contraction for the second finger, weight is lost. But if the release is slower than the following contraction, there will be an overlapping of weight, resulting in unnecessary pressure on one of the two keys (Ortmann, 1929).

Weight transfer legato depends on three factors: speed, intensity, and percussiveness (Ortmann, 1929).

Speed. Because weight transfer takes time, efficiency of weight transfer legato decreases as the speed of successive finger strokes increases, although weight can be transferred at great

speeds as long as the finger remains in contact with the key until the next finger plays (Ortmann, 1929).

Intensity. The greater the intensity or weight, the greater is the muscular adjustment necessary. Small muscles of the fingers suffice to transfer a small amount of weight, while larger playing units are required for larger amounts of weight (Ortmann, 1929).

Percussiveness. Judgment of weight transfer is hampered by percussiveness. Therefore, weight transfer is easiest in a non-percussive touch of low or moderate intensity made at a slow tempo (Ortmann, 1929).

Arm Legato

Arm legato is used to play slow, *cantabile* passages that require at least a moderate degree of intensity. The arm is alternately raised and lowered while the fingertip remains in contact with the key. This is comparable to the controlled arm drop, the difference being that the finger remains in contact with the key throughout the stroke. The greater the distance through which the arm moves, the better the ability to control the dynamics. The primary value of arm legato is in the control possible and in the reduction of percussive noises.

The amount of weight introduced into tone production varies from zero to the greater part of the weight of the whole arm. It can never reach the entire arm weight due to shoulder attachments. Since a few ounces is all that is required to keep the piano key on the keybed, the depressed key may give the impression of carrying arm weight when it is actually only carrying a minimal amount (Ortmann, 1929). The arm should be relaxed, as it is the joint in which the movement takes place. However, fixation at other joints, such as finger or wrist joints, is necessary and does not interfere with the accuracy of the movement (Ortmann, 1929).

Articulation: Staccato

"The two essential characteristics of all staccato touches are the shortness of the tone and its tonal separation from the preceding and succeeding tones" (Ortmann, 1929, p. 196). Key release, not key depression, becomes the determinant of staccato touch. The tone is longer than

the finger-key contact. Extreme *staccatissimo* is an auditory illusion, since the pianist cannot hasten key ascent by a faster hand release motion. The change from down stroke to up stroke is difficult physiologically. In staccato touches, no arm weight should rest on the keys. The arm is carried by the shoulder muscles. A part of the arm is permitted to fall on or is forced down onto the key and then immediately withdrawn. According to the part used, the touch is called hand, arm, or finger staccato. Ortmann described the processes of arm staccato and hand staccato.

Arm Staccato

Arm staccato is produced with the wrist relatively rigid while the forearm or whole arm is thrown against the keys. Since the part moving has a greater mass than the hand alone, greater muscular contraction will be needed to control the change in direction at the moment of impact, and the force acting on the key will be greater. There is not a physiological or mechanical advantage to playing staccato from the entire upper arm (Ortmann, 1929).

Hand Staccato

In hand staccato, the forearm and upper arm are held stationary above the key level. The dorsal flexors of the wrist are held contracted to keep the hand from falling onto the keys. These muscles are relaxed, and in the case of the lighter child's hand, the fall of the hand is increased by adding appropriate muscular contraction to the falling hand. As the hand reaches the keys, the extensors of the wrist are rapidly contracted, bringing the hand back to its original position. This wrist jerk results from finger-key impact. In hand staccato, the wrist is the only joint in which motion occurs (Ortmann, 1929).

Ortmann (1929) provided the following advice for teaching hand staccato.

- Finger movement should be avoided, because finger movement is normally accompanied by a fixing of the wrist in order to withstand key resistance. This fixing of the wrist interferes with the freedom of wrist movement in hand staccato (Ortmann, 1929).
- Start with the fingers close together, bracing the 3rd finger. This makes finger movement impossible (Ortmann, 1929).

- Then play thirds with fingers 2 and 4 (Ortmann, 1929).
- Or play with fingers 1 and 5 flexed, beginning with thirds and working up to larger intervals. The wider the spread of the fingers, the greater the fixation at the wrist, which interferes with wrist movement in hand staccato (Ortmann, 1929).
- Curved fingers are preferable to flat fingers in teaching hand staccato (Ortmann, 1929).

Dynamics and Tonal Control

In order to increase the intensity of a tone, there must be an increase in the speed of key descent. The two ways of obtaining this are by increasing the velocity of the playing unit or by increasing its mass. An increase in velocity results in a more intense muscular contraction and a greater fixation in order to withstand the reaction of key impact. Since speed is retarded when relaxed production, rather than rigid production, is used, tone produced by relaxation is usually weaker than tone produced by rigidity (Ortmann, 1925). To increase intensity through an increase in mass, a larger playing unit is substituted for a smaller playing unit (Ortmann, 1929).

Another factor affecting tonal intensity is percussiveness. Percussive touches produce greater key speed than non-percussive touches. Therefore, pianists normally tend to play louder when using percussive touches than when using non-percussive touches. Tonal intensities are most directly controlled when produced by a descending, vertical, non-percussive touch near the end of the key (Ortmann, 1925).

One important point relating to tonal control is that the same weight used on all keys will produce a dynamically uneven scale. Ortmann (1925) found a variation of weight of a key in key depression of between 2.1 ounces and 4.5 ounces on one piano. Almost every key demands a different weight from its neighbor if the resulting tones are to be of the same intensity. These differences are clearly audible for intensities ranging from *pianississimo* to *piano*, gradually decreasing in audibility as the dynamic degree increases. In the *forte* regions, differences of several tenths of an ounce are not discernible (Ortmann, 1925).

Teaching Children

Ortmann (1929) stated several points relating to tonal intensity to be aware of when teaching children.

Minimal Tonal Intensity. In the early stages of instruction where relaxed movement is the focus, tones of minimal or at most moderate intensity should be used and *forte* and *fortissimo* degrees avoided. Stiffness at extreme degrees of intensity never vanishes. A pianist cannot play loudly and be relaxed to any extent (Ortmann, 1929).

Muscular Coordination. When a child produces a singing tone on the piano, it is done with a muscular coordination different from that used by an adult to produce the same tonal intensity. Conversely, when a child restricts movement to a finger stroke, it produces a different effect from that produced by an adult using the same coordination (Ortmann, 1929).

Arm Weight. The slight weight of a child's arm makes a difference in the tonal intensity the child is capable of producing. To produce the same tonal intensity as a large arm, a smaller arm will have to add muscular contraction to arm weight. A large arm, on the other hand, will have to restrict arm weight by an opposite muscular contraction. The teacher should take this difference in arm weight into account when demanding a certain degree of tonal intensity from different students (Ortmann, 1929).

Finger Strength. A lighter finger of a child will require more muscular contraction than the heavier finger of an adult. For this reason, a child, when playing rapidly, must use a light tone until muscular strength in the finger muscles has been developed. The heavier hand can play at the same speed with greater intensity. In general, boys play more loudly than girls, and strong and heavily built children play more loudly than those of light build (Ortmann, 1929).

Adult's vs. Child's Strength. The teacher should only expect tone production commensurate with a child's strength. The teacher too often imagines the tonal intensities an adult would produce instead of those that would have been produced when the teacher was the child's age. When the child necessarily stiffens in order to meet the tonal demands imposed by the teacher,

the teacher complains about the stiffness. Or if the student adopts a skeletal hand position in order to transmit the necessary force to the keys, or uses the side of the hand to accent a pitch, the teacher complains about a high wrist or the slant toward the 5th finger, because the stronger hand of the teacher does not need either position (Ortmann, 1929).

Tone Quality

Ortmann's 1925 book, *The Physical Basis of Piano Touch and Tone*, is devoted completely to the study of tone quality. Prior to Ortmann's experiments in this book, pianists believed that tone quality was based on the way the keys were touched, the manner the playing units were manipulated, or on a mysterious gift born to some pianists. Ortmann's experiments showed that many of the assumed facts about tone quality are fallacies.

Since both the direction and distance of the key and hammer are fixed, only the speed may vary, and consequently, the differences that exist in tone quality must be differences in key and hammer speed, since this is the only variable. Because speed is the only variable, Ortmann (1925) dispelled many fallacies regarding the production of tone quality.

<u>Factors that do not in Themselves Produce Changes in Tone Quality</u>

- Movement of a playing unit in a certain way does not in itself produce changes in tone quality. What the pianist does is to produce a sound of a certain pitch, intensity, and duration, nothing more. Certain forms of touch are effective only because they enable the pianist to secure proper relationships among these variables. Although a certain hand or finger motion is often said to produce a certain tonal quality, in actual practice other types of movement can produce the same tonal quality. If tone quality depended directly on the type of arm or finger movement, then one arm and finger position for all students would be essential. If, on the other hand, changes in tone quality depend on the force of the stroke, then arm and hand positions may be varied in order to secure the appropriate force after taking into consideration the variations in anatomical formation found among different students (Ortmann, 1925).

- Relaxation does not produce changes in tone quality other than to vary the speed of the key descent. Rigidity tends to produce louder tones than relaxation because of greater hammer speed and greater string displacement, but relaxation or rigidity do not in themselves cause changes in tone quality (Ortmann, 1925).
- Height of wrist does not cause differences in tone quality (Ortmann, 1925).
- Degree of finger curvature does not affect tone quality other than to contribute to varying key speeds. Pianists tend to play quieter with extended fingers than with curved ones (Ortmann, 1925).
- Arm movement upward or downward does not, by itself, influence tone quality (Ortmann, 1925).
- Differences between hand staccato and finger staccato do not cause changes in tone quality other than to produce differing intensities (Ortmann, 1925).
- The reason that more padded fingertips tend to produce better tone than pointed, tapering fingers is because padded fingers have less finger-key impact noise, not because of the padding itself (Ortmann, 1925).

Factors that Contribute to the Impression of Differences in Tone Quality

Although a change in tonal intensity is the most important variable in the production of differing tone qualities, the following factors also contribute to the impression of differences in tone quality (Ortmann, 1925):

Percussiveness. Besides the fact that percussiveness contributes to different tone qualities by contributing to a change in tonal intensity, there is also a slight change in the non-tonal aspect of the touch because of the noises produced by finger-key impact. The noises present in a percussive touch and the lack of noises found in a non-percussive touch may be perceived as a slight change in tone quality (Ortmann, 1925).

Tone Decay. For any one degree of intensity, there can be but one tone quality. Because a tone reaches its loudest point practically at the moment of impact and then diminishes in intensity, this variation is accompanied by complexity of tone color. The tone changes in quality from each moment to the next due to the constantly changing tonal intensity during tone decay (Ortmann, 1925).

Pitch. In the treble region, the piano differs in quality from the middle and bass, because a short string cannot vibrate in as many parts as a long string. This means that the strings in the treble region do not produce as many upper partials as do the lower strings. Hence, the duration of tones in the treble region is much shorter than the duration of the bass notes, producing a different tone quality (Ortmann, 1925).

Combination of Tones. The combination of two or more tones leads to an inexhaustible field of tone color. Even for the same two tones, a different combination of sounds results from each variation in the degree of overlap, because the piano tone is never constant but changes its contour from one moment to the next due to tone decay (Ortmann, 1925).

Noises. Tone quality is influenced by noises of the piano mechanism, which result from (in order of importance):

- The impact of the finger on the key,
- The impact of the hammer against the string,
- The impact of the key against the keypad, and
- Friction noises of the action, including impact of the rebounding hammer (Ortmann, 1925).

Transfer of Sound through Distance. Changes the tone undergoes after leaving the instrument and before reaching the ear of the listener are often perceived as differences in tone quality (Ortmann, 1925).

An Experiment in the Description of Tone Qualities

Ortmann (1925) asked pianists and teachers to produce and describe certain tone qualities. He discovered the following:

- Tones described as forced, harsh, ugly, and thumped are produced by playing with fast key speed (Ortmann, 1925).
- Tones described as good, singing, and full are produced by playing with moderate key speed (Ortmann, 1925).
- Tones described as shallow or dry are produced by playing with slow key speed (Ortmann, 1925).
- The most satisfactory tone is one of medium loudness, with the unsatisfactory qualities at either end of the dynamic range (Ortmann, 1925).

Ortmann (1925) said,

> It is true that the player uses other devices (psychological in nature) in addition to these intensity and duration variations, in order to secure the desired effect. These are relatively unimportant, however, and we may safely conclude that all artistic effects *in sound* are secured on the piano by variations in key-speed and in time-interval between successive key-release and key-depression. (p. 55)

In his 1929 book, Ortmann explored more thoroughly the physiological implications of his 1925 research on tone quality. He stated that undesirable tone qualities are produced because of incorrectly timed muscular contractions that come either too early or too late after the key has reached its keybed. He suggested teaching tonal control by interposing additional resistance, either by a slight upward pressure against the outer top surface of the key or by inserting a small spring under the key while the student depresses it. This brings key resistance forcibly to the mind of the student and results in the added muscular contraction during key descent upon which tonal control depends. The moment the keybed is felt, partial muscular relaxation should set in, since the added pressure is no longer needed.

Tempo

Electrical stimulation has shown that, muscularly and mechanically, the normal infant is as ready to play a rapid five-finger sequence as the trained adult. The difference between the two lies is in the ability to tell the fingers what to do in advance (Ortmann, 1929).

Ortmann (1929) said there is a difference between how talented and untalented students approach fast tempos. When asked to tap their fingers as fast as possible, talented students use a light touch accompanied by a gentle and steady raising and lowering of the wrist that combines the taps into larger muscular units. In contrast, untalented students show a spread of tension and tremendous misdirected energy, which results in slow tapping.

When playing slowly, it is physiologically wasteful to carry the finger in a high position between strokes. A lift sufficient to permit the key to ascend and to stop the tone is all that is needed. Such a lift has the fingertip resting lightly on or close to the key surface. Just before the next stroke, the finger is lifted to the full extent desired, descending immediately for production of the next tone. However, if high speed is the end goal, the student, when practicing slowly, should play with an immediate, but not excessively high, finger lift and descent (Ortmann, 1929).

In arm movements, when changing from a slow to a fast tempo, the muscles are contracted more forcibly, and the range of movement is smaller. It is characteristic of students with poor muscular coordination to execute rapid movements with large movements, which requires unnecessary expenditures of energy (Ortmann, 1929).

Table 12

Elementary Level Technical Concepts According to Ortmann

Elementary Level Technical Concepts	**Otto Ortmann**
I. Philosophy	
Philosophy of Technique	- Scientific method in the study of technique. - Technique depends on force variations on the piano key expressed in terms of the leverage of the playing mechanism.

	- Art will not suffer from scientific inquiry.
Philosophy of Teaching	- Knowledge of mechanics and physiology is important for teachers. - Diagnosing problems from appearance alone is not always accurate. - Opposite movements are not muscular reversals of movement, but are changes in the kind of movement.
II. Basic Components	
Posture	- No fixed posture can be determined. It depends on the proportion of lengths of the trunk and arms. - A level forearm with a right angle between forearm and upper arm, with the body leaning slightly forward, is best for arm stroke.
Hand Position	- Since playing is movement, not position, hand position is determined by the passage in question and the skeletal structure of the individual, not by a fixed hand position. - The position in which the fingers, hand, and arm can operate near the middle of their range is best. - Wrist is slightly depressed. - Back of the hand ascends toward the hand knuckle. - Each finger joint is slightly extended. - Quiet arm. - Horizontal forearm level with the keys. - Moderately abducted upper arm. - Slight pronation of the forearm so that the hand is not leaning toward the 5th finger, and the axis of the hand can be shifted toward the thumb side, allowing all fingers to stand up and strike vertically.

Tone Production	- Speed of the key is the only variable that can be manipulated.
	- Non-percussive touches give the best control over key descent.
	- Fixation is necessary between the joint in which movement is to take place and the trunk, sufficient to overcome key resistance.
	- Muscular adjustment is necessary as the change from one playing unit to a larger one is made. The bigger the playing unit, the less the key resistance, and the less force necessary.
	- Various angles in lines of application of force are necessary. However, the greatest effect is when the force is in line with key descent, vertically downward.
	- Three types of arm strokes.
	  - Free arm drop. Uncontrolled and therefore not to be used in piano playing.
	  - Controlled arm descent. For slow melodies of small to

	moderate intensity. - Forced down stroke. For *fortissimo* chords at a fast tempo. - Arm stroke is preferred to finger stroke for beginners because of greater control. - In finger touch, stress finger drop rather than finger lift. - After key depression, further motion on the key will not influence the sound. - The key returns in one fixed way at one speed of ascent no matter how the key is released. - Three types of finger stroke - Flat Finger Stroke. Fully extended finger moves in the knuckle joint with no movement in the middle or nail joints. Useful for fast tempos and small intensities. - Curved Finger Stroke. Nail joint vertical. Useful for forceful strokes of greater intensity. - Elliptical Stroke. Fingertip draws back toward the hand during contact with the key. Useful for lightness, *pianissimo* tones, and quick repeated notes with changing fingers. - Children should begin with a flat finger stroke, which makes finger isolation easier. - Children should not lift fingers excessively, because they will not be able to relax the wrist.
Playing Apparatus	
- Muscles	- Large muscles are used for powerful or large movements, small muscles for rapid or small movements. - Muscles have more than one purpose, and muscular activity is spread over a region of muscles. - A muscle works best with light loads. - Movements made slowly are different than movements made quickly. Practice at the tempo and intensity of the final product. - Absence of motion does not mean absence of muscular activity. - Some rigidity is necessary for muscular work. - Do not teach by calling attention to the muscles used. Muscle work is a reflex coordination. - Training for strong muscles is essential. - When teaching movement, make students use their own muscles, and introduce resistance in a direction opposite to the movement.
- Body	- The parts of the body work together in coordination, not isolation. - Coordination of the various systems and sense-departments is necessary. - Technical talent depends on the size and weight of the

	arms, hands, and fingers, but also on the circulatory system.
- Trunk	- Base for stability for the playing apparatus.
- Shoulder and Upper Arm	- Movement at the shoulder is minimal but important. - Allows vertical movements of the arm, withdrawal of arm weight from the keys, and passing the arm in front of the body.
- Elbow and Forearm	- Elbow flexion and extension are used in lateral shifts within an octave. - The forearm is the source of rotation movements used in melodic accentuation and phrase release.
- Wrist	- Flexion and extension of the wrist is used for hand staccato. - Lateral movement of the wrist aids position changes in scales. - High or low wrist does not in itself change key movement.
- Hand	- The hand is divided into thumb as opposed to fingers. - A further division is between 2nd finger, and 3rd, 4th, and 5th. - Allow variations in fingering and manner of playing for children of various ages to adjust for physiological differences in hands.
- Fingers	- Spreading of fingers (abduction) requires more muscular effort than bringing them together (adduction). - Separate articulation of the fingers is difficult and must be trained. - To gain finger independence, lift and drop the finger on the undepressed key. - Do not inhibit sympathetic movements of non-working fingers, but carry non-working fingers close to the keys. - To correct collapsing nail joints, put the finger flat on the black keys, and press firmly while sliding the fingertip back toward the hand.
Contraction and Relaxation	- A completely relaxed state does not exist anywhere in the body because of muscle tone. - A muscle should relax at the same rate as the contraction rate of the antagonistic muscle. - A coordinated movement is one where action takes place without unnecessary friction and with maximal efficiency. - Muscular force must be added to weight for tonal intensities above what the weight of a playing unit can produce. - Exactly the right amount of weight timed at the right moment is needed. - Contractions should be followed by immediate relaxation.

Mind/Body Relationship	- Ortmann's study is limited to the mechanics of muscular action. - The whole learning and playing process is bound up with the nervous centers of the spinal cord and brain. - Repetition is necessary to transfer the neural representation of a movement from the brain to the reflex centers.
III. Exercises	
Gymnastic Exercises	- Important because hand muscles are strengthened in a much shorter time than with practice at the piano alone. - The weak hand should not use the arm as substitute. Strengthening of the hand and finger muscles is necessary. - Good for warming up cold hands.
IV. Movement at the Keyboard	
Physical Movement	- Curvilinear motions are used most often. - Movement in one joint involves movement at other joints.
Lateral Movement	- Arm strokes made by the forearm acting at the elbow are used in the middle of the keyboard. Rotation in the shoulder is used at the extreme ranges. - Curvilinear movements are best for movements around the keyboard. - A leap makes a curved elliptical shape, which changes slightly based on intensity, velocity, and distance.
V. Fundamental Forms	
Rotation	- For *tremolo*. - For allowing the fingers to descend and ascend without movement in the finger joints.

Scales	- Scales Moving out from Center.
	  - Finger lift is accompanied by lateral shift and passing of the thumb under the hand.
	  - The thumb rolls over on its axis. The knuckle joint flexes while the other thumb joints straighten slightly.
	  - Difficulty lies not in the passage of the thumb under, but in vertical thumb stroke while the thumb is under the hand.
	  - Slow scales yield a straight line with stops for hand shifts and key depression.
	  - Fast scales yield a series of curves with backward and forward movements of the whole arm. No points of rest.
	- Scales Moving in toward Center.
	  - Hand supported on thumb tip when passing over the

	thumb. - Slow scales, curves with stopping points. - Fast scales, curves with no stopping points. - Do not insist on a quiet hand in scale playing. - Judge the scale by sound, not by eye alone.
Chords	- Demanding a hand arch in extended chord position is unrealistic.
VI. Basic Musical Inflection	
Articulation: Legato	- Weight Transfer legato. - Weight is transferred from one fingertip to another with proper timing. - Easiest with a non-percussive touch of low or moderate intensity made at a slow tempo. - Arm Legato. - Like controlled arm drop, but finger remains in contact with the key. - Arm is relaxed with other joints fixed. - Used for *cantabile* passages of moderate to loud intensity.
Articulation: Staccato	- Shortness of tone and separation from preceding and succeeding tones. Key release is the determining factor. - Key ascent cannot be hastened. - Arm Staccato. - With wrist rigid, the forearm or upper arm are thrown at the keys. - Hand Staccato. - Free wrist movement only. - Use fingers 1 and 5 starting with intervals of a 3rd and working out to larger intervals. - Avoid finger movement.
Dynamics and Tonal Control	- Increase key speed to increase intensity by increasing the velocity of the playing unit or by increasing its mass. - Greater fixation is needed for greater intensity. - When teaching children: - Use only tones of minimal to moderate intensity at the beginning of study. - Children produce singing tones with different muscular coordinations than adults. - Do not expect the same tonal intensities that an adult would produce.
Tone Quality	- Tone quality is influenced by: - Most important factor. Speed of key descent, which determines intensity. - Timing of tone production. - Percussiveness.

	- Tone decay. - Pitch. - Combinations of two or more tones and the degree of overlap of the tones. - Noises from the impact of the finger on the key. - Noises from the impact of the hammer against the string. - Noises from the impact of the key against the keypad. - Friction noises of the action. - Changes the tone undergoes after leaving the instrument but before reaching the ear of the listener. - The best tone quality is one of medium loudness, with the unsatisfactory qualities being at either end of the dynamic range.
Tempo	- In slow playing, do not carry the finger in a high position between strokes. - In slow practicing of fast playing, an immediate, but not excessively high, finger lift and descent is desired. - In fast playing in arm stroke, the muscles contract more forcibly, and the range of motion is decreased.

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I. Philosophy

Philosophy of Technique

In his 1962 book, Ching described teaching techniques that have been successful in his quarter of a century of teaching piano. His books set forth his own method of piano technique with some reference to other technical writers such as Matthay and Ortmann. Although Matthay was his teacher, Ching rejected Matthay's technical principles and sought to expose the flaws in Matthay's system and to replace them with his own ideas concerning the teaching of piano technique.

Biology and Science

Ching (1962) said that technique is nothing more than an acquired physical skill, and that this skill is to be harnessed in service of the musical art as a means to a musical end. He believed that "The facts of piano technique constitute merely an extension, an elaboration of the facts of our everyday experience" (Ching, 1946, p. v). Therefore, Ching said that anyone who can, for instance, operate a typewriter is also capable of acquiring a reasonable standard of piano technique. However, although the average person can reach a high standard of bodily skill in connection with those activities that have biological significance such as walking or grasping,

bodily movements involving a high standard of technical ability such as playing the piano are harder to acquire because they are biologically nonessential activities. Therefore, an acquired knowledge of the processes of piano technique is necessary for success.

Ching (1946) stated, "To a very large extent any Method of technique stands or falls by the quality of tone which results from it" (p. 141). Although a musical result of good tonal quality is the goal of technique, purely technical aspects in operating the piano keys are not to be gained by any reference to questions of art, but through the facts found in the sciences of psychology, physiology, and mechanics. Scientific knowledge shows the pianist how to use the body as nature intended rather than in a distorted or contorted way. Natural biological instincts for movement are the foundation upon which technical achievements are built, allowing the pianist to modify biologically essential movements and conditions for application to piano playing.

Technique can be acquired in only two ways: by acquiring a specific knowledge of technical processes and by practicing. The pianist rectifies technical problems by the method of trial and error, or in other words "diagnosis plus experiment" (Ching, 1946, p. 64). The power to diagnose rests on the intellectual knowledge of technique, while the ability to experiment successfully rests on he pianist's facility in bringing into operation the bodily conditions necessary.

Necessary Skills of Technique

Ching (1957) established a list of technical skills that are necessary for all pianists. He believed that no one can properly be called a pianist without being able to play legato and staccato, quietly and loudly, over the entire keyboard, accurately, and at varying speeds that are within the limits of the individual's physical capacity at a given stage of development. The ability to do all these things provides the pianist with the minimum of basic technical skill.

Ching's System of Technique

To acquire these technical skills in the most efficient way, Ching (1956 *Amateur*) categorized technique under three headings: Postures, Movements, and Joint Conditions. Ching said, "The story of correct postures, correct movements and correct conditions constitutes the

whole story of piano technique" (p. 67). These three foundations of technique are applied in various combinations to four Categories of Passages, which Ching referred to by number:

I. Chords, intervals, staccato, repeated notes, intervals, and chords.

II. Single notes legato.

III. Alternating passages where the span is wide (broken octaves) or where the span is narrow and louder than the fingers can produce by themselves.

IV. Wide skips (Ching, 1956 *Amateur*).

Although Ching (1956 *Amateur)* did note that factors such as anxiety, inefficient or inadequate practice, lack of experience, and even insufficient intrinsic talent can cause problems at the keyboard, the immediate cause of failure can be explained by incorrectness of postures, movements, conditions and/or pressures. Ching (1962) showed his belief that one way of teaching technique can apply to all students when he said, "Thus it is clear that our aim is to teach a factually correct and standarised technique for all our students by means of which they may sooner or later be able to express their individual (i.e. non-standardised) interpretations" (p. 7).

Philosophy of Teaching

The teaching of technique requires a method, which Ching (1946) defined as "a particular way of using the mind and body in the act of playing the piano" (p. 2). Ching believed that "Any teacher who denies that he makes use of a method is openly confessing that he doesn't know his job" (p. 2). A method allows a person to acquire a physical skill more quickly than is possible when a bad method or no method is employed.

Teaching technique as a skill is different from teaching interpretation. Technique should be taught factually, whereas the teaching of interpretation consists largely in an appeal to the student's powers of imagination (Ching, 1962). Technique and interpretation should be taught separately, and technical analysis of every pianistic difficulty is necessary in relation to the technical structure of the passage, which includes its speed, tone quantity, and tone quality. To these are added considerations of fatigue and differences in the degree of tonal control. Once the

piece has been analyzed technically, the pianist needs to ensure that the physiological processes are as near as possible to the analysis. This consists of modifications in the size, force, or type of movements employed, or an increase or decrease in tension at a particular joint or joints. This kind of technical analysis leads to teaching the student to play the piano instead of just to play pieces (Ching, 1946).

Ching (1962) believed that technique should be taught to every child from the very first lesson, because technique gives students the tools to be successful in their playing. Children who make really satisfactory progress do not quit piano lessons when they get older and busier. In fact, Ching (1946) said it is his "unshakable belief that most of the difficulties in advanced playing arise because pianists never master the elementary principles of technique" (p. 85). In many cases, one of the chief reasons some pianists cannot advance beyond the attainment of a limited standard of technique is because they began learning to play with incorrect technical methods, which do not reveal their incorrectness until more serious difficulties of technique begin to arise.

There is no rush at the beginning if a child is beginning as early as 7 or 8 years of age. If the teacher lays the foundations properly with Stages 1 and 2b (see Teaching Order under Tone Production) within the first 18 months, there should be no further major technical problems (Ching, 1962).

The teacher's job is not to teach the coordinative mechanism, which is acquired at a very early age with little or no teaching at all. Rather, the teacher needs to understand the general principles that govern joint conditions in order to guide students in the cases where the natural, coordinative mechanism fails to function as capably as possible (Ching, 1962). Technical processes should be taught through explanation, demonstration, and associating technical processes with familiar everyday activities (Ching, 1956 *Piano Technique*).

Ching provided the following specific advice on teaching technique to children:

- Every fact, explanation, and instruction must be fully and clearly understood by the child at the actual time at which it is being dealt with. Ask the child to explain in his own words what has been said (Ching, 1962).
- The teacher should refrain from using jargon and should instead use words and expressions familiar to the student (Ching, 1962). Moreover, the teacher should also be sure to use the right word for a particular student. For instance, using the word "firm" is unlikely to be sufficiently strong in the case of a student who plays with flabby joints. The use of the word "rigid" would be more instructive in this case. On the other hand, use of the word "rigid" may be unsuitable in the case of a student who tends to play with stiffness (Ching, 1934).
- Before tackling any technical problem, the teacher must be as certain as possible of its real cause, which may be notational instead of physical (Ching, 1962).
- The teacher should never try to solve two or more different teaching problems simultaneously. For example, when dealing with a technical problem, care should be taken that notational problems are not also involved (Ching, 1962).
- The teacher should always try to be one step ahead of the student in respect of the next technical issue to be tackled (Ching, 1962).
- The order in which technical processes are taught is very important (Ching, 1962).
- Technical skill is of greatest value only when it can be applied automatically, as a habit. The initial understanding of the student is not enough, but must be supplemented by adequate practice of suitable material over a period of time (Ching, 1962).

II. Basic Components

Posture

Faulty posture is one of the most common causes of poor tonal control (Ching, 1946). It is important to establish a correct sitting position from the very beginning of piano study (Ching, 1934).

In Ching's (1962) method, two types of postures are described:

1. Standard Postures, which the pianist should always try to adopt.
2. Variable Postures, which vary with the type of passage and tone desired. These relate to hand posture and are therefore discussed under Hand Position.

The Standard Postures are:

I. The body is inclined slightly forwards from the hips.

II. The head follows the line of the body and is not tilted backwards.

III. The shoulder blades are kept as low as possible.

IV. The upper arm is approximately vertical, which determines the distance from the piano.

V. The forearm is approximately horizontal, which determines the height of the bench.

VI. The forearm is at a right angle to the keyboard.

VII. The hand and forearm form a straight line.

VIII. The back of the hand is flat and is under no circumstances allowed to tilt, however slightly, towards the 5th finger side of the hand (Ching, 1962).

The Standard Postures should be taught from the very first lesson regardless of the age of the child. Children whose feet do not reach the floor should use a footstool. The teacher should ensure that the child is also sitting at the correct height and position in relation to the piano at home. Ching (1962) recommended marking the proper bench position with a piece of chalk.

With children, it is best to begin by teaching Standard Postures IV and V. Next, Standard Postures I, II, and III should be taught, followed by Standard Posture VIII. However, with Standard Posture VIII, big changes should not be demanded immediately. The teacher should instead be content to keep this posture in mind as something very important at a later stage in connection with good finger touch. The other Standard Postures can be introduced as a particular passage demands them (Ching, 1962).

After teaching the child the correct Standard Postures, constant vigilance on the teacher's part is necessary to ensure that the child is using them correctly and that they become habitual. This may take months or even a year, because correct postures may feel uncomfortable if the child is accustomed to using incorrect postures (Ching, 1962).

Hand Position

The three Variable Postures are variations in hand position:

I. High wrist with straight fingers (most passages).

II. Level wrist with curved fingers (*p* to *mp* passages).

III. Low wrist with curved fingers (*f* to *ff* passages) (Ching, 1956 *Amateur*).

The difficulty in using the Variable Postures lies in knowing which posture should be used and with making the necessary changes from one posture to another quickly enough (Ching, 1956 *Amateur*).

Standard Posture VIII relates to hand position as well. The back of the hand should be perfectly horizontal with no slope toward the 5th finger side of the hand (Ching, 1946).

Tone Production

Categories of Principal Movements

Ching explained tone production in terms of four Categories of Principal Movements, which he referred to by number:

I. *Whole Arm Oblique Movements*. This movement consists of a combined forward and downward thrusting movement of the whole arm operating from the shoulder and elbow

joints simultaneously, with a high wrist. This is the easiest, most efficient way to play chords and all detached or repeated single and double notes (Ching, 1962; Ching, 1956 *Piano Technique*).

When practicing this movement at the piano, the movements may be large in the early stages, and any slide of the fingers along the keys after key depression need not be eliminated. There must not be any separate movements of the hand from the wrist joint or of the fingers from the knuckle joints. Wrist, knuckle, and finger joints must be kept firm and immobile. Each movement should be aimed deeply into the keys down to the keybed. This is not to be confused with keybedding. A deep touch is one of the most important factors in tonal control and should be acquired as an automatic habit as early as possible for all touches (Ching, 1962).

II. *Finger Vertical Movements*. In this finger touch, the tone is controlled by downward pressure from the hand and forearm combined with muscular force that is transferred from key to key by the fingers. The word "pressure" is preferable to the word "weight," because "pressure" conveys the idea of the application of voluntary force (Ching, 1956 *Piano Technique*, p. 4).

For legato passages in single notes and for tonal levels of *piano* to *forte*, the wrist should be level and the fingers curved. There should be no separate independent upward or downward movements other than those of the fingers from the knuckles. The hand and arm remain quiet (Ching, 1962). In *pianissimo* passages the wrist is high. At a moderate tonal intensity it is level, and for *fortissimo* sounds, the wrist is low (Ching, 1956 *Piano Technique*). The knuckle joints of the fingers should always be as firm as necessary for proper tonal control, and the wrist should always be at least moderately firm. The remaining joints should be as loose as possible.

III. *Forearm Rotary Movements*. Discussed under Rotation.

IV. *Whole Arm Sideways Skip Movements*. Discussed under Lateral Movements.

Along with the initial production of a tone, Ching (1956 *Piano technique*) also emphasized the end of the tone. He said that attention to the initiation and cessation of the tone allows the greatest possible control over tone to be achieved. The stopping of the movement should be mechanical through contact with the keybed, rather than physiological by way of muscular contraction.

Ching (1946) advocated the use of arm and finger touches for all playing. Although he explained forearm and hand touches in his 1929 book, he did not recommend them in his later books.

Percussive vs. Non-Percussive Touches

Rigidity in the joints is necessary to various degrees in all joints involved in tone production. Joint rigidity should also be in operation throughout the whole of the preliminary movement toward the key in any percussive touch. In a non-percussive touch, the rigidity should begin at least 1/20th of a second before the key depression (Ching, 1934).

Teaching Children

When teaching children, the following points should be kept in mind:

- Movements are best learned by imitation (Ching, 1962).
- The child should begin to associate each movement with a definite name and number. Children have no difficulty in remembering the names of things (Ching, 1962).
- The four Principal Movements should be firmly associated in the child's mind with specific types of passages (Ching, 1962).
- The easiest movement is Principal Movement I, and therefore it is the best one to start with (Ching, 1962).
- Principal Movement II is one of the hardest movements to master. The difficulty arises in that the five fingers are controlled as a whole by way of the grasping reflex. The pianist is forced to break down this natural coordination by learning finger independence.

Children should not play any kind of finger passages until they have acquired some finger independence away from the piano (Ching, 1962).

- The first keyboard work should be so easy that there is no anxiety about notes and rhythms. Exercises away from the keyboard can be practiced with Principal Movement II while the easier Principal Movement I is being applied to the piano (Ching, 1962).
- Principal Movements III and IV are not as difficult as Principal Movement II but are not used very often at the beginning stages in repertoire pieces. These movements can be taught at an earlier stage away from the piano or by exercises at the piano (Ching, 1962).
- With very small children, the teacher should not insist on meticulous accuracy in movements. However, the sooner this accuracy is acquired, the more quickly a high degree of technical skill will be achieved (Ching, 1962).
- Every Principal Movement should be aimed deeply into the keys (Ching, 1962).
- All unnecessary movements should be eliminated as much as possible, since a high degree of skill is associated with economy of movements. Also, reactionary movements should be reduced, but not to the point of undue tension (Ching, 1962).

Order of Presentation

Ching (1962) presented the following scheme for the order of presentation of technical material. A new stage is not to be taught until the previous one has become automatic to some extent.

Stage 1. Teach exercises and studies consisting entirely of passages in Category I. Use Principal Movement I and Joint Combination I in conjunction with correct Standard Postures and Variable Posture I (see Table 15). During this stage, also teach legato processes away from the piano (Ching, 1962).

Stage 2A. As soon as legato processes have been correctly established away from the piano, teach exercises and studies at the piano consisting of passages in Category II, using

Principal Movement II in conjunction with correct Standard Postures and Variable Posture II (Ching, 1962).

Stage 2B. Teach changes from passages in Category I to those in Category II and vice versa (Ching, 1962).

Stage 3. Teach exercises and studies containing passages in Category IV, using Principal Movement IV in conjunction with Standard Postures and Variable Posture I (Ching, 1962).

After progressing through these stages, the essential problems of technique will have been covered. The child then should be given carefully selected pieces and/or studies in which exactly those same problems (with very few additional ones) will continue to be encountered with gradually increasing difficulty (Ching, 1962). These difficulties relate to:

- Increases of speed.
- A widening of the dynamic range.
- Passages of different categories in the two hands simultaneously.
- The control of differences in quality and tone.
- The management of passages in Category III (Ching, 1962).

Playing Apparatus

Muscles

The pianist cannot influence the working of a muscle by focusing consciously on the muscle. The biological pattern for the control of movements is such that people think about movements rather than about individual muscles. Any attempt to control voluntarily the processes of individual muscles is dangerous and interferes with the finer control of movements. Although students and pianists do not gain any practical advantages by knowing the scientific names for each muscle, it is difficult to understand any details of technique without some understanding about the mechanical and physiological plan that underlies all muscular activities (Ching, 1946).

There are three processes that take place during key depression:

1. The contraction of one muscle in conjunction with the relaxation of its antagonist in order to move the playing unit (Ching, 1946).
2. The simultaneous and equal contraction of both muscles in order to transmit the force of the touch movement to the keys (Ching, 1946).
3. The muscular contraction needed to stabilize the base of the movement (Ching, 1946).

The degree of efficiency with which these processes are carried out and coordinated determines the control of the tone (Ching, 1946). Joint stiffness or rigidity is necessary, and antagonistic contraction is not to be completely avoided (Ching, 1934).

Piano playing should always feel as easy and effortless as possible. The stronger the muscles, the greater will be the feeling of ease. The most fatiguing kind of muscular work is that which is heavy in relation to the amount of bodily strength, or work that is done continuously and for a prolonged period of time without an opportunity for relaxation. Muscles work best when they are not working beyond 50% of their maximum capacity. The pianist must have strong and well-toned muscles, which are gained through exercise (Ching, 1946).

Body

The human body is largely standardized in respect to anatomy, physiology, and mechanics (Ching, 1962). There are seven joints involved in the processes of making correct movements and of preventing incorrect ones: the hips, shoulders, elbows, joints of forearm rotation (radio-ulnar joint), wrist, knuckles, and the two joints within the length of each finger. Each of these joints may at one time be involved in making a correct and required movement and at another time in preventing an incorrect or non-required one (Ching, 1956 *Amateur*).

When working for correct joint conditions in various parts of the playing apparatus, Ching (1962) advised concentrating on one joint at a time, beginning with whichever joint is the most important and gradually working toward automaticity of a specific joint condition. While working on one joint, other joint conditions may be momentarily ignored, no matter how wrong

they may be. For example, when concentrating on firmness of wrist, knuckle, and fingers, the pianist need not worry about looseness in the shoulder until the firmness is automatic. Then the looseness of the shoulder can be tackled while expecting the wrist, knuckle, and fingers to remain firm.

Correctness of joint conditions can be judged in two ways: by the sound obtained and by the physical comfort in the body. If the active playing of a passage feels and sounds right, it is probably being played efficiently (Ching, 1946).

Arm

The arm plays an important role in technique, and the Oblique Whole Arm Touch is a main touch form in Ching's technical system. The arm participates in the simplest finger passages, and Ching (1946) described many of the main factors of tone production, such as continuous pressure, wrist posture, and wrist movements, as arm factors.

Wrist

To check for elasticity of the wrist and the proper method of continuing pressure from finger to finger while the child plays a five-finger exercise, the teacher should press down on the child's wrist, which should not collapse. Next, the teacher should lift the wrist. The wrist should bend upwards easily and leave the fingertips in contact with the keys (Ching, 1962).

Special conditions of the wrist affect facility and fluency in finger passages, the teaching of which can be postponed until later elementary or early intermediate levels (Ching, 1962).

Fingers

Finger individualization is difficult because the fingers are badly adapted to the demands of finger passages due to the grasping reflex, the instinct to use the fingers together with the thumb in opposition. To play the piano, this natural coordination must be broken down and replaced by a specialized, artificial coordination whereby the fingers are used separately. This is why the teaching of finger touch should be delayed at the piano, with exercises for the fingers practiced away from the piano first (Ching, 1946).

The condition of the rotary joint is the most essential factor in successful finger work, because it facilitates correct hand posture. The rotary joint should be kept loose for easy passages, with an increase in firmness as the passage becomes louder and/or faster (Ching, 1962).

4th and 5th Fingers. Weakness in the 4th and 5th fingers can be corrected by exaggerating the rotary posture slightly in order to give a slight slope of the hand in the direction of the thumb rather than toward the 5th finger (Ching, 1946).

Contraction and Relaxation

Joint Conditions

Conditions of contraction and relaxation in the joints are central to Ching's system of piano technique. Regardless of the correctness of postures and movements, if the joint conditions are faulty by being either too loose or too tense, inefficiency in playing will result (Ching, 1962).

When no work is being done by a joint, the joint should be as relaxed as possible. When the joint is working, some firmness or tension is necessary. The amount of firmness depends on the amount of work. The greater the work, the more firmness is necessary. Also, the greater the speed or the louder the tone, the more firmness is necessary, with the loudest tone requiring more tension than most pianists realize (Ching, 1962). Ching (1929) stated laws of touch to explain his theory of joint conditions. In summary, these laws say that the joint at which movement takes place (the fulcrum) should be loose, while those joints between the fulcrum and the keyboard must be firm, and the joints behind the fulcrum remain nicely balanced.

Unwanted and reactionary movements can be minimized by controlling the conditions of tension or relaxation in the joints. There will be varying degrees of tension in different joints depending on the movement to be executed. These conditions of tension should be practiced away from the piano before they are tried at the piano. Ching (1956 *Amateur*) divided the Joint Conditions into three categories:

- Joint of Movement. Makes the Principal and Auxiliary Movements.
- Joint of Transmission. Transmits the force of the Principal Movement to the keys.

- Joint of Basic Stabilization. Prevents reactionary movements.

For example, in finger touch, the Joint of Movement is the knuckle, the Joints of Transmission are the 2nd and 3rd joints of the finger, and the Joint of Basic Stabilization is the wrist (Ching, 1956 *Amateur*).

The student must learn how to produce tension in varying degrees and how to relax the tension at will (Ching, 1946). However, at the very beginning of lessons it is not necessary to concentrate on joint conditions (Ching, 1962). The earliest stages of piano playing are occupied by playing slowly, thus placing the emphasis on relaxation (Ching, 1946). Therefore, in the first few lessons, the only instruction on joint conditions that should be given to the student is to play as loosely as possible. It may be 6 months or more before it is necessary to teach individual joint conditions (Ching, 1962).

Teaching control of joint conditions is more difficult than teaching correct postures and movements for three reasons:

- Joint conditions are invisible.
- Different degrees of rigidity are required at several joints simultaneously for a given passage.
- One pianist will have to put forth more effort than another pianist due to the condition of the individual's muscular apparatus (Ching, 1934).

Therefore, teaching joint conditions should never be hurried. It is best to let a child acquire some degree of mastery of postures and movements before teaching control of joint conditions. Until technical problems become fairly difficult, it is not necessary to be as accurate about joint conditions as it is for the student to be accurate about postures and movements (Ching, 1962).

However, once the Principal Movements have been mastered, the teacher can begin to teach Joint Conditions Combinations (see Table 13). Even small children are capable of learning these combinations. Teaching the student to estimate the amount of tension necessary in the

joints is brought about both by exercises away from the piano and by experimentation at the piano (Ching, 1946). First, the student should discover how little actual force is necessary to move the piano keys downwards to produce sound (Ching, 1929). Then the student should experiment in bringing about different degrees of tension in one joint while other joints are relaxed. Once the student has developed control over 10 to 15 degrees of tension, associations should be formed at the piano between tones of different intensities and the degrees of tension necessary to produce them (Ching, 1946).

Table 13

Joint Condition Combinations (Ching, 1962)

Joint Condition Combination	Joint Combinations	Passage Category
I	Some degree of firmness in the finger joints, knuckle joint, and wrist joint and relaxation at all other joints.	Principal Movement I for all passages in Category I which are slow and quiet or moderately slow.
II	Firmness at the knuckle and finger joints, elasticity at the wrist, relaxation elsewhere.	With Principal Movement II for all passages in Category II.
III	Firmness at the wrist, knuckle, and finger joints. Slight degree of firmness at the joint of forearm rotation, and relaxation elsewhere.	Principal Movement III and passages in Category III which are relatively slow.
IV	Firmness in all joints.	For slow skips the amount of firmness is slight. There is an increase in firmness with skips that are wider and/or faster.

The average student makes one of two fundamental mistakes with regard to rigidity and relaxation:

1. Either sufficient rigidity is not put into operation for key depression, resulting in a loss of tonal control;

2. Or correct rigidity is obtained, but relaxation does not take place when it is possible. This leads to a waste of bodily energy, premature fatigue, or pain (Ching, 1934).

The teacher's task is to guide the student's natural, inborn instincts for good bodily coordination toward the fulfillment of those particular conditions that are necessary for the management of the piano. The teacher who has an adequate understanding of the process of technique is less likely to interfere with the child's natural coordination by giving wrong instructions. Most children need little teaching in respect to joint conditions if there is no anxiety related to notation, memory, note accuracy, rate of progress, etc., or if there have never been any wrong directions given about joint conditions (Ching, 1962).

Mind/Body Relationship

Success in piano playing is dependent not only on steady work and natural ability, but also on a favorable attitude of mind (Ching, 1956 *Amateur*).

All technique is ultimately mental; that is, the fingers will not work unless a part of the mind is directing them. From this point of view, it is absolutely essential for the performer to have a strong mental picture of the minimum exertion necessary to depress the piano key. Without this, the physical system is unlikely to work efficiently (Ching, 1929).

The act of piano playing includes three processes that relate to the mind:

1. The general wish, desire, or urge to express oneself artistically.
2. The wish to express a particular composition in a certain way.
3. The translation of these emotional processes into the production of actual sound at the instrument (Ching, 1946).

Since the first two of these processes are difficult to teach systematically, Ching (1946) limited his method for the most part to the study of the third process. Ching said that mental processes are standardized in respect to the way in which they control the voluntary activities of the body. Thus, although there are many different forms of expression, there is, according to Ching, only

one correct way of learning to produce the bodily activities necessary to express the music and only one correct method of controlling these activities after they have been learned.

The only way we can get our muscles to move is to have a precise mental concept, a visualization of the sound prior to its production (Ching, 1946). Preliminary thought and analysis saves time, energy, and frustration (Ching, 1956 *Amateur*). Ching (1946) advocated practicing visualizing a simple down movement of the forearm away from the piano and then at the piano in order to practice the voluntary performance of precise and clearly differentiated movements of the body and to acquire the ability to remember the different bodily sensations associated with various bodily movements. After practicing this way with one movement, the pianist should apply this manner of practicing to exercises by visualizing an exercise in the imagination before playing it on the piano. This is the best preventative against errors in movement. The power to produce voluntarily the right conditions for each and every passage is one of the shortcuts to technical mastery.

The final goal in practicing is to allow the conscious and subconscious minds, or the thinking mind and the automatic (memory) mind, to fulfill their rightful functions. Frequent correct and exactly similar repetitions, performed slowly and with full attention, allow a new muscular action to pass from the conscious to the subconscious, so that at the end the subconscious mind directs matters of technique while the conscious mind controls interpretation (Ching, 1929).

III. Exercises

Gymnastic Exercises

Piano playing is a form of athletics that demands muscular strength and stamina as well as the minutest refinements of muscular control. One of the shortcuts to technical mastery lies by way of regular gymnastic exercises for the development of muscular strength and for heightening muscle tone. However, sudden or dramatic improvements should not be expected (Ching, 1946). Building muscular strength is a long term process, which is why gymnastic training should be

begun as early as possible (Ching, 1934). After a month of practicing gymnastic exercises for a few minutes every day, the pianist should notice that playing generally seems easier and more controlled. Ching (1946) placed such importance on gymnastic exercises that he said if the exercises are skipped, keyboard practice for the day should be omitted as well. Ching presented two types of gymnastic exercises:

1. Exercises that explain a movement away from the keyboard before applying it to the piano.
2. Exercises that strengthen the muscles.

Specific exercises of both types can be found in Appendix K.

Exercises

Ching (1946) believed that exercises are important. However, mechanical repetition alone does not produce results. Mastery is brought about according to the degree and quality of the sensory and mental processes that are brought into operation while practicing the exercises.

IV. Movement at the Keyboard

Lateral Movement

Changes in keyboard position in the form of both large and small shifts should be tackled early, resolutely, and with precise technical knowledge so that they do not become a stumbling block to learning (Ching, 1957). Most of the difficulties in finger passages with extensions are not finger difficulties but arm difficulties. If the arm movements and postures are correct, the finger problems will solve themselves (Ching, 1946).

Auxiliary Movements are combined with Principal Movements for specific types of passages. The four types of Auxiliary Movements are:

I. Whole Arm Lateral Movements. The arm moves the fingers and hand along the keyboard, as in a scale.
II. Hand Lateral Movements. For widespread chords.
III. Finger Lateral Movements. Changing the spatial relationship between fingers.

IV. Whole Arm Forward and Backward Movements. Shifting from white to black keys (Ching, 1962).

Whole Arm Sideways Skips. Principal Movement IV. Ching (1962) explained the process of making large lateral leaps in detail. These large skips are not present in the repertoire of the earliest levels, but confidence in moving around the keyboard is important and should not be delayed longer than necessary. The sideways movement consists of the whole arm moving from the shoulder joint. The arm traces a path in the air of an up slope until the required finger is almost directly above the note, when it descends vertically.

In the lateral skip movement, the wrist, knuckle, elbow, and rotary joints are firm. The shoulder is loose in slow, quiet skips, increasing in firmness with speed and tone. The body should be steady, with firmness at the hips to prevent uncontrolled swaying from side to side (Ching, 1962).

The pianist should not jump only to the first note of the new group but to a new hand position so as to begin each new group with a good hand posture. Movements can be practiced away from the piano first, aiming at small pieces of paper laid out in different positions. When working at the piano, the movements initially should be made slowly, keeping an eye on the goal and on the movement toward the goal (Ching, 1962).

Fundamental Forms

Five-Finger Patterns

A five-finger passage played very slowly can be played either by finger movements or by a series of repeated arm movements. In the latter case, the arm moves in an upward direction after playing each note while the finger keeps the note depressed. The arm then moves down to play the next note. Played with arm movements, five repetitions of the same playing unit will have to be employed for each of the five notes. With finger movements, the factor of repetition is not involved. Five different playing units are used, each of the five fingers being used only once. The

choice between finger or arm touch will be governed by factors of tone quality, tone quantity, and individual preference (Ching, 1946).

Rotation

Forearm Rotary Movements. Principal Movement III. Although Ching (1962) recognized the need for rotary stabilization in order to hold the hand in playing position, he was opposed to most forms of forearm rotary movement, calling it "perhaps the most undesirable and dangerous movement in the whole of piano technique" (p. 29) Ching said, "This movement must never on any account be used, even in training exercises, for scales, five finger exercises, arpeggios or for alternating passages of moderate span or tone. *Indeed, every possible precaution must be taken to prevent its use from creeping into the child's technical processes"* (p. 23). And again, "I cannot emphasize too strongly that the use of Rotary Movements in an attempt to obtain finger independence will, in every case, lengthen the time necessary to obtain such independence and will, in the majority of cases, prevent it from ever being properly achieved" (p. 29).

Ching (1946) admitted that it is easier to play, for instance, a 5th finger after the thumb using rotary motion instead of finger touch. However, he believed that finger touch is superior, because in using rotary motion there is loss of tonal control, different sizes of rotary movements must be used for every interval played, and it is more difficult to control and coordinate movements of two different playing parts (finger and forearm) than of one part.

According to Ching (1962), rotary movements should be reserved for the following limited types of passages:

- Alternating passages where the span is wide.
- Alternating passages irrespective of the span that are louder than the fingers using Principal Movement II can produce.
- *Tremolo* figures.

Because these three categories are not often used in the beginning of study, Ching (1962) believed that no specific teaching of rotary motion is required in the early stages. When rotary motion is necessary, Ching provided the following advice:

- Separate movements of the fingers from the knuckle joints should be avoided, and firm and immobile knuckle and finger joints should be maintained (Ching, 1962).
- The elbow and shoulder should be loose, increasing in firmness as the passage becomes louder and/or faster (Ching, 1962).
- Side to side or upward or downward movements of the arm, revealed by movements of the elbow, must not be allowed (Ching, 1956 *Amateur*).
- For legato passages a certain degree of pressure is to be transferred from finger to finger (Ching, 1956 *Amateur*).
- In all fast passages, the size of forearm rotations stays small (Ching, 1956 *Amateur*).
- A higher wrist should be used for forearm rotation than for other kinds of touches (Ching, 1956 *Piano Technique*).

Scales

In passing the thumb under the hand in scales moving out from center, Ching provided different instructions for fast and slow tempos:

- For slow legato scales, the thumb must be passed under even though this means an undesirable sideways shift of the hand at the wrist. When the pedal can be used to connect the tones, the passing should be replaced by a shift of the hand (Ching, 1962).
- The faster the passage, the more a skip movement is substituted for the passing of the thumb (Ching, 1962).
- At very fast speeds, there is no passing of the thumb. Instead, a skip from one position to the next is made. No sideways shift of the hand is necessary (Ching, 1962).

- As much as possible, pushing the wrist to the right or moving the elbow away from the body in a scale moving out from center should be avoided (Ching, 1946).

Chords

In his 1946 book, Ching recommended using Whole Arm Oblique Touch for practically every type of chord passage, irrespective of its speed or tone. This is in contrast to his earlier books, where he recommended using hand, forearm, or whole arm touch depending on the loudness of the passage (Ching, 1934).

When playing chords, the wrist, knuckle, and finger joints must always be firm while the elbow and shoulder joints are free except in loud and/or fast passages. The teacher can remind the student that this coordination is one that is used in everyday life, for example when lifting a glass of water, where the fingers are firm and the shoulder is relaxed (Ching, 1962).

VI. Basic Musical Inflection

Articulation: Legato

Ching (1946) described legato and *legatissimo* effects as "the most important by far of all the effects which are obtainable from finger touch," (p. 268) and said they constitute the "bread and butter" (p. 268) of the pianist's diet, while the various degrees of non-legato and staccato effects are nothing but "pepper and salt" (p. 268).

Principal Movement II, Finger Touch, should be used when playing legato. The knuckle and finger joints are firm while the wrist is elastic, and the elbow and shoulder are loose (Ching, 1962). The wrist is level, and the fingers are curved (Ching, 1957). The rotary joint is loose if the passage is slow and/or quiet (Ching, 1962). The arm and hand are continuously supported in playing posture by the keyboard and the moving fingers. Therefore, the arm should be very much as it normally is when resting on the arm of a chair (Ching, 1956 *Amateur*). The arm feels heavy, as if it would drop if the piano were suddenly pushed away, and it should remain relatively quiet, not moving up and down with each note that is played (Ching, 1957). As the passage increases in intensity and speed, firmness in the rotary joint increases (Ching, 1962). It is remarkable how

often children reverse the coordination, playing with flabby fingers and tight shoulders. Since these coordinations are complex, they should be taught in this order:

1. Concentrate on firmness in the fingers and looseness at the elbow and shoulder.
2. Make sure there is not too much tension in the rotary joint. Most children play with too much tension.
3. Teach looseness in the elbow.
4. Deal with conditions of the wrist (Ching, 1962).

Legato playing consists of a degree of continuous downward pressure applied by the forearm and hand while the fingers make their upward and downward movements (Ching, 1962). The fingers move up and down working from the knuckle joints, except for the first note of the passage, which should be played with a small Oblique Whole Arm Thrust (Ching, 1957). The continuous pressure is transferred to the keybeds from finger to finger in the same manner as walking (Ching, 1962). The greater the degree of legato desired, the less the height to which the fingers are raised (Ching, 1956 *Piano Technique*).

According to Ching (1962), teaching legato is not very difficult, and the acquisition of a good legato technique is a matter of a week or two to a few months for most children. However, this transference of weight nearly always has to be taught specifically, as it does not normally arise spontaneously. For those children who have trouble with legato, Ching provided remedial exercises that can be found in Appendix K.

Articulation: Non-Legato

Principal Movement II, Finger Touch, should be used for non-legato articulation. Some tension of the wrist will be present, and if the passage is very fast, some tension may also be necessary at the elbow. The difference between non-legato and legato articulations is that in non-legato, the finger movements are larger, the fingers are raised higher, and the method of continuous pressure is not applied as it is in a legato touch (Ching, 1956 *Amateur*).

Articulation: Staccato

Children should begin their piano studies by playing staccato movements with Principal Movement I, Whole Arm Oblique Touch. This touch is just as musically satisfying and interesting to the child as legato playing. If this is the first touch employed and legato is taught later, a high degree of finger independence, legato, and tonal control can be achieved early in the child's development (Ching, 1962).

A staccato passage is one in which the ear is capable of actually hearing a gap in the continuity of the sounds. Any passage that is slow enough for gaps to be heard is also slow enough to be played by the Whole Arm Oblique Touch. Approximately 9 or 10 movements per second may be executed using this touch. At faster speeds than this the ear is not capable of hearing any true gaps. Thus, according to Ching (1946), it is safe to say that all staccato passages should be played with Whole Arm Oblique Touch.

In staccato playing, the pianist should sit close enough to the keyboard to let the body slope slightly forward and the upper arm hang straight downward (Ching, 1957). The arm is self-supported (Ching, 1934). The forearm is parallel to the floor, the wrist is rather high, and the fingers are fairly straight. The wrist, knuckles, and joints of the fingers are firm enough to prevent them from collapsing. All the other joints of the body should be as loose and free as possible (Ching, 1957).

When playing each staccato note, interval, or chord with a small Whole Arm Oblique Thrust, the movement should be carried right to the bottom of each key (Ching, 1957). This will keep staccato passages from sounding erratic and out of control (Ching, 1956 *Amateur*). Each movement should be the same size, and experimentation will be necessary to find the most comfortable size. Vigorous movements are used for playing loudly, and the pianist must always play to the bottom of the keys whether the sound is loud or quiet (Ching, 1957).

Rhythm

The regular descent of the wrist on accented notes and its subsequent gradual rise bring about a regular and rhythmic series of the movements of the hand and arm that conforms to the rhythmic structure of the passage. The pianist will be better able to express rhythmic feeling when the passage is associated with an unbroken chain of rhythmic bodily movements (Ching, 1946). Attention should be focused on firmness in the fingers and looseness of the elbow and shoulder (Ching, 1962).

Ching (1956 *Amateur*) provided the following procedure for correcting rhythmic unevenness in playing:

1. Check for accuracy of postures, movements, and conditions.
2. Make sure the Principal Movements are of the most appropriate size.
3. Apply a high degree of visual concentration in order to make sure the movements are either equal in size or properly graduated.

Dynamics and Tonal Control

The ability to produce different dynamic degrees depends on how successfully the correct postures, movements, and conditions are brought into operation and the degree to which the pianist transfers the correct amount of force up to the point of key escapement, which for practical purposes is the point when the keybed is reached (Ching, 1956 *Amateur*; Ching, 1946). It is essential to maintain the force exerted until the key is fully depressed by feeling the sensation of immobility on the key bottom (Ching, 1956 *Amateur*). Lack of uniformity in the depth of touch is one of the principal factors leading to poor tonal control (Ching, 1946). Accurately judging the correct amount of force is based on experience gained from past practice. Therefore, whenever the pianist does anything exceptionally well, the sensations should be immediately ingrained through subsequent repetitions until an automatic habit has been established for a given degree of tonal intensity (Ching, 1956 *Amateur*).

It is not possible to play in a relaxed manner when playing loud and fast (Ching, 1962). About 45 times as much force is necessary for the production of the loudest tone as compared with the quietest tone for a single key. Inability to produce a loud tone is usually due to the absence of a basic mental concept of the great amount of effort needed. For production of a loud tone, the most powerful type of touch movement possible should be used, and this movement is to be made percussively and with as much muscular force as possible in order to reduce the preliminary movement toward the key to the smallest size possible. This will produce accuracy and control over the key. Adding higher finger lift will also produce more sound (Ching, 1946).

It is best to associate the whole question of loud and quiet tone with the amount of strength, vigor, or energy of the Principal Movement. Ching (1962) said that the teacher should never use the words "slower" or "faster" (p. 65) in connection with Principal Movements when trying to obtain a quieter or louder tone.

Slow playing and piano or *mezzo piano* playing will characterize the child's earliest efforts. The child's natural coordinative instincts bring about an increase in firmness whenever asked to play louder or faster. A decrease in firmness is not as instinctual. Therefore, the teacher should teach the student to be attentive to a decrease in firmness when a passage changes to quiet or slow from loud or fast (Ching, 1962).

Relationship between Movements and Tonal Intensity

For Principal Movement I, Whole Arm Oblique Touch, large movements are used for loud tones and smaller movements for quiet tones. However, care must be taken to ensure that the movements are not so large that they impair accuracy. When movements are made smaller, loudness must be compensated for in muscular strength (Ching, 1962). The Whole Arm Oblique Touch is useful for tonal control, because the fingertip may move forwards along the length of the key during key descent, which leaves the finger in contact with the key surface for a longer period of time (Ching, 1946).

For Principal Movement II, Finger Touch, the least pressure possible is employed with Variable Posture I for the quietest tones, and a high wrist and straight fingers are used. For the loudest tone, considerable pressure is required with Variable Posture III along with a low wrist with curved fingers. An increase in tone will necessitate an increase in firmness at all joints. Therefore, loud playing involves more work than quiet playing (Ching, 1962).

Crescendo and *diminuendo* effects can be obtained by increases and decreases in pressure transference in legato playing. This is the best way of controlling such tonal effects, because it yields a smoother and better graded sound than other methods (Ching, 1962). Another way to produce dynamic fluctuations is to change the height of the wrist, which gradually rises to produce a *diminuendo* and falls to produce a *crescendo*. This produces fine and subtly controlled gradations. The change from the lowest to highest wrist posture should be not more than an inch. This wrist movement may be combined with pressure gradations (Ching, 1946).

For balance between hands, the pianist should imagine making vigorous movements with the fingers of one hand while making gentle movements with the other hand. These movements are practiced on a table first and then in five-finger patterns at the piano (Ching, 1956 *Amateur*).

For balance within a hand, the pianist should tilt the hand toward the finger to be brought out. The finger that is to be loudest should have more tension than the other fingers. In early stages it will often happen that the louder of two notes will sound slightly head of the quieter note. In time, this fault will usually cure itself (Ching, 1956 *Amateur*).

Tone Quality

Ching (1946) mentioned Ortmann's 1925 book, *The Physical Basis of Piano Touch and Tone,* and echoed Ortmann's beliefs in describing tone quality. Differences in tone quality depend on the following factors:

- The general quantitative level (Ching, 1956 *Amateur*).
- The duration or degree of legato and staccato (Ching, 1956 *Amateur*).

- The degree to which consecutive tones are appropriately graded in dynamic evenness (Ching, 1956 *Amateur*).
- The degree to which consecutive tones are appropriately graded in terms of rhythmic evenness (Ching, 1956 *Amateur*).
- The degree to which all notes that are intended to be played together are in fact played absolutely together (Ching, 1956 *Amateur*).
- The degree to which the hands are appropriately balanced (Ching, 1956 *Amateur*).
- Noises from the piano mechanism (Ching, 1946).
- Finger-key impact noises in percussive touches (Ching, 1929).
- The relationships among consecutive and simultaneous tones (Ching, 1946).

Differences in tone quality are not the result of certain joint conditions, though faulty joint conditions lead to poor tonal control that disturb the quantity-duration relationship that contributes to differing tone qualities (Ching, 1946). Therefore, the pianist who is dissatisfied with the tone quality produced should not seek an answer in the joint conditions alone but should experiment with different levels of loudness and quietness, try to play more evenly in time and tone, play with all notes together, experiment with varying degrees of legato, and balance the voices differently. Systematic experimentation with these factors will certainly improve tone quality (Ching, 1956 *Amateur*).

Failure to obtain a *cantabile* tone in melody playing is usually the result of playing the melody too quietly, the accompaniment too loudly, or both (Ching, 1956 *Amateur*). A *cantabile* tone depends on the production of a tone of a certain quantity and of a certain minimum duration. A *pianissimo cantabile* is impossible (Ching, 1946).

Harsh tones are the result of application of an exorbitant amount of force to the keys, which makes the string vibrate not only transversely but also longitudinally. These longitudinal

vibrations produce a high harmonic of considerable intensity that produces harshness (Ching, 1946).

Tempo

Ching (1946) cited experiments made in an experimental physiology lab in a London hospital that showed that although individuals produce different maximum speeds of movement, in a given person, any movement of one body part can be made just as quickly as with any other body part after reasonable practice. In other words, a sequence of whole arm movements can be made just as quickly as a sequence of hand movements. Failure to attain high speeds is due to the failure to bring into operation enough tension at the joints of movement. The average pianist has little idea of the amount of tension that is actually necessary for the attainment of very high speeds (Ching, 1962).

The faster the movement, the smaller the motion must be. Slow movements can be either big or small (Ching, 1946). Faster motions require more fixation, and slower motions require less fixation (Ching, 1962). A passage played at a slow tempo is played differently than the same passage executed at a fast tempo. This is shown by small children who intuitively select a downward movement of the arm for each note when playing a slow scale, since this is the easiest movement from the physiological point of view. However, a fast scale cannot be played with this movement (Ching, 1946). Although there is not the concern for the highest speeds when teaching children, it is desirable to introduce some idea of adjusting the size of the movement to fit the speed of the passage at an early stage (Ching, 1962).

New pieces should be learned slowly to ensure accuracy and correct technical conditions. However, the process of speeding up the tempo should not be delayed any longer than necessary, because the conditions necessary for playing a passage at a fast speed are different from conditions at a slow speed. However, it is possible during slow practice to imagine the different sensations that will occur at a faster speed (Ching, 1946).

Specifically guidelines given for playing at a fast tempo are:

- The 2nd and 3rd finger knuckles must always be firm.
- In staccato playing the wrist must also be firm.
- The elbow and rotary joints must be as loose as possible, although the rotary joint should be slightly firm for fast legato passages.
- The shoulder should always be as relaxed as possible and should not become tenser for fast passages, except for really fast staccato.
- The back of the neck must not be tense (Ching, 1957).

Table 14

Elementary Level Technical Concepts According to Ching

Elementary Level Technical Concepts	**James Ching**
I. Philosophy	
Philosophy of Technique	- Technique is a means to art, but questions of technique and art should be dealt with separately. - Diagnosis and experimentation can solve technical problems. This requires scientific knowledge and ability to bring about bodily processes. - Biologically significant movements are the foundation for the more complex movements of piano technique. - Technique is categorized with regard to the type of passage into three categories: Postures, Movements, and Joint Conditions. - The immediate causes of failures in technique are incorrectness of postures, movements, or joint conditions. - Secondary causes for failure in technique may be due to anxiety, faulty practicing, lack of experience, or insufficient talent.
Philosophy of Teaching	- A method of teaching technique is necessary. - Technique should be taught to every child from the first lesson. The beginning stages are crucial to later development of technique. - There is no rush at the beginning of study if the student starts as young as seven or eight. - Teaching technique should be separated from teaching interpretation. - Make sure the child understands the concept clearly by using explanation, demonstration, and reference to movements in everyday life.

	- Choose words carefully. - Be sure of the real causes of technical failure. - Solve one problem at a time. - Adequate practice is necessary to ensure automaticity.
II. Basic Components	
Posture	- Faulty postures lead to poor tonal control. - Establish a correct sitting position from the beginning. - Eight Standard Postures. - Teach the Standard Postures in the order IV, V, I, II, III, VIII, others. - Be constantly vigilant that the child uses the correct Postures. This may take months or a year to establish.
Hand Position	- Three Variable Postures. - Standard Posture VIII. The back of the hand is horizontal with no slope toward the 5th finger side of the hand.

Tone Production	- Four Principal Movements.
	- Combinations of joint conditions for various degrees of tension and relaxation in different passages.
	- Use arm and finger touches, not forearm and hand touches.
	- Allow the movement to be stopped by contact with the keybed.
	- Prevent reactionary movements through control of contraction in the joints.
	- Teaching children.
	  - Teach movements by imitation.
	  - Associate the movement with a definite name and number and associated with a specific kind of passage.
	  - Beginning work should be very easy.
	  - Every movement should be aimed deeply into the keys.
	  - Do not insist on meticulous accuracy with small children at first.
	  - Economy of movement is the goal.

Playing Apparatus
 	
- Muscles
	- Do not try to voluntarily control individual muscles. Concentrate on the movements instead.
	- Joint rigidity is necessary. Antagonistic contraction is not to be completely avoided.
	- Three types of muscular movement in different muscles during key depression:
	  1. Contraction of one muscle with relaxation of its antagonist in order to move the playing unit.
	  2. Simultaneous and equal contraction of the antagonists

	to transmit the force to the keys. 3. Muscular contraction needed to stabilize the base of the movement. - Playing should be as effortless as possible. - Strong muscles working at 50% of their maximum capacity lead to effortless playing. - Exercise to build strength.
- Body	- Standardized in respect to anatomy. - Seven joints concerned: hips, shoulders, elbows, joints of forearm rotation, wrist, knuckles, and the two joints of the finger. - Concentrate on one joint condition at a time. - Correct sound and physical comfort follow correct playing conditions.
- Arm	- Oblique Whole Arm Touch. - Arm participates in finger passages through the use of continuous pressure, wrist posture and movements.
- Wrist	- Should not collapse down when the teacher tests it, but should bend upwards easily and leave the fingertips in contact with the key.
- Fingers	- Finger touch. - Finger individualization is difficult. - Conditions of the wrist influence facility in finger passages. Not much work is needed until the later elementary or early intermediate levels. - Condition of the rotary joint is essential for successful finger work.
Contraction and Relaxation	- Conditions of joints are important. - The greater the speed and/or intensity, the greater the firmness. - Students begin by playing slowly. Emphasis is on relaxation. - Exercises away from the piano can help the student estimate joint tensions by degree and in different joints. - It is not necessary to be concerned with joint conditions at the very beginning until after the movements and postures have been established. - Guide the child's inborn natural coordination. - Most children need little teaching about joint conditions if they are free from anxiety and have not been given wrong instructions.
Mind/Body Relationship	- Success depends on steady work, natural ability, and a favorable attitude of mind. - All technique is ultimately mental.

	- The pianist must have a mental picture of the minimum exertion needed to depress the piano key. - Three processes: 1. The general wish to express artistically. 2. The wish to express a composition in a specific way. 3. The translation of this emotional process into sound. - Mental processes are standardized. There is one correct way of learning to produce movement and one correct method of controlling these activities after they have been learned. - Visualize the movement away from the piano and at the piano. - The subconscious mind controls technique after sufficient repetition, while the conscious mind controls interpretation.
Exercises	
Gymnastic Exercises	- A shortcut to technical mastery. - Long-term. Do not expect instant results. - A few minutes per day are sufficient. - If the exercises are missed, the keyboard practice should be skipped for the day. - Explain and practice a movement away from the piano before applying it to the keyboard. - Strengthens the muscles and heightens muscle tone.
Exercises	- Exercises are important, but are worthwhile only if sensory and mental processes being used.
IV. Movement at the Keyboard	
Lateral Movement	- Confidence at moving around the keyboard is important in the early stages of study. - Principal Movement IV. Whole Arm Sideways Skips. - Practice away from the piano, aiming for slips of paper placed at different distances. - At the piano, an arched movement on the up slope, descending vertically when the finger is almost over the note. Joints firm with loose shoulder. - Aim for the new hand position, not just the first note of the new group. - Firmness in the hips. - Four Auxiliary Movements.
Fundamental Forms	
Five-Finger Patterns	- Can be played by a single arm movement for each note or by finger movements. - Finger movements are most efficient, because five separate playing units are playing.

	- The choice between finger and arm touch is governed by factors of tone quality, tone quantity, and preference.

Rotation	- Rotary stabilization is necessary for placement of the hand in playing position.
	- Forearm rotary movement should be avoided in finger passages.
	- Forearm rotary movement should only be used:
	  - Alternating passages with wide span.
	  - Alternating passages irrespective of span that is louder than the fingers can produce alone.
	  - *Tremolo* figures.
	- Not necessary at beginning of study.

Scales	- In slow scales that cannot be connected by the pedal, passing of the thumb under the hand is necessary. - The faster the passage, the more a skip motion from one position to another should be substituted for the passing of the thumb.
Chords	- Use Whole Arm Oblique Touch for all chords. - Wrist, knuckle, and finger joints should be firm and elbow and shoulder joints free except in loud and/or fast passages.
VI. Basic Musical Inflection	
Articulation: Legato	- The most important effect obtainable from Principal Movement II, Finger Touch. - Not difficult for children to acquire. - Knuckle and finger joints are firm, wrist elastic, and elbow and the shoulder is loose. - Wrist is level and fingers are curved. - Arm is quiet and heavy. - Continuous downward pressure applied by the forearm and hand while the fingers make upward and downward movements like walking. - The greater the degree of legato, the less the fingers are raised.
Articulation: Non-Legato	- Use Principal Movement II, Finger Touch. - Some tension of the wrist is necessary. - Do not use the method of continuous pressure. - Finger movements are larger and fingers are raised higher than in legato.
Articulation: Staccato	- Children should start by playing with a staccato touch instead of a legato touch. - Use Principal Movement I, Whole Arm Oblique Touch. - Wrist, knuckles, and finger joints firm enough not

	collapse. Other joints of the body loose. - Carry the movement to the bottom of the key, whether loud or quiet. - Make the movements the same size.
Rhythm	- The regular descent of the wrist on accented notes and subsequent rise bring about rhythmic movements. - Rhythmic body movements express rhythmic feeling.
Dynamics and Tonal Control	- Depends on the force up to the point of key escapement or to the keybed. - Correctly judging the amount of force is gained by practice and should be automatized for a given degree of sound. - Maintaining force on the keybed momentarily is essential for evenness. - Slow, *p* or *mp* playing will be the child's earliest efforts. - An increase in firmness when playing louder or faster is instinctual. The reverse is not as instinctual. - It is not possible to play loud and fast at the same time. - For loud tone, use the most powerful type of movement possible. - Higher finger lift also achieves a louder tone. - Associate dynamics with strength, vigor, or energy, not with slower or faster movement of the key. - *Crescendo* and *diminuendo* are obtained through graded pressure transference and a rise and fall of the wrist. - For balance between hands, make vigorous movements with the louder hand. - For balance in one hand, tilt the hand toward the louder finger.
Tone Quality	- Differences in tone quality result from: - The general quantitative level. - The duration, or degree of legato and staccato. - The degree to which consecutive tones are appropriately graded in dynamic evenness. - The degree to which consecutive tones are appropriately graded in terms of rhythmic evenness. - The degree to which all notes that are intended to be played together are in fact played absolutely together. - The degree to which the hands are appropriately balanced. - Noises from the piano mechanism. - Finger key impact noises in percussive touches. - The relationships among consecutive and simultaneous tones.
Tempo	- The teaching of children is not concerned with the highest speeds. However, they should be given some idea of fitting

	the size of the movement with the tempo. - Any movement of one body part can be made just as quickly a movement with any other body part. - The faster the movement, the smaller the motion. - The faster the movement, the more fixation is necessary in the joints. - Playing a passage slowly requires different conditions than playing a passage quickly. However, in slow practice, the fast conditions can be imagined. - Practice slowly at first for accuracy, but speed up the tempo as soon as possible.

Abby Whiteside

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I. Philosophy

Philosophy of Technique

At its core, Whiteside's system of technique centers around four concepts:

Integration of the Parts of the Playing Apparatus

Whiteside (1969) believed that coordination in playing the piano is similar to that used in daily living. A person wants to do something, and nature automatically helps the person to accomplish it. In nature's coordination, the parts are never practiced separately. From the beginning, the mechanism is used as a whole to achieve the desired results.

Operating from the Center of the Body to the Periphery

In piano playing, the upper arm takes the initiative for all movement, coordinating the timing of the mechanism from the center to the periphery (Whiteside, 1969). The body governs the fingers, and no amount of coaching in finger dexterity will lead to the easy beauty in playing that is possible when the movement originates from the upper arm and torso (Whiteside, 1955).

The Interaction between Listening and Movement to form a Musical Progression

The difference between a simple act of daily life and a complicated act such as playing the piano is one of musical talent, which implies a pitch perception that is so accurate that the body moves automatically to produce the tones that the ear hears. The pianist's listening is conditioned by the kind of physical activity that dominates the playing. If there is a separate initiation of power for each note, the pianist will listen note-wise. But if the tones are produced inside a current of power, as when a *glissando* is played, the pianist will listen in a phrase-wise progression (Whiteside, 1969).

A Continuous Rhythm that Motivates the Movement

"[A] basic rhythm is the illuminating guide to the subtle beauties of great music" (Whiteside, 1969, p. 27). Good performers derive their satisfaction from both their ears and from the rhythm. For example, jazz pianists are not concerned with hand position or fingering. Instead they fuse the tune in their ears with the rhythm in their bodies. Non-finger technique throughout the body should attract more attention than finger technique, because non-finger techniques create a rhythm. Fingers are only at the periphery of the total activity involved in playing (Whiteside, 1955).

Philosophy of Teaching

Whiteside (1929) quoted a gifted teacher who once told her, "Few people create in two fields, and teaching and playing are both creative fields" (p. 3). Often gifted performers cannot explain to others the road they have traveled to reach perfection, which sometimes makes them unsuccessful teachers.

What the student needs to gain from a teacher is an adequate mechanism for full emotional expression and knowledge of the fundamental relationship between dynamics and the use of power (Whiteside, 1929). The teacher should find a way to teach what gifted players discover instinctively by themselves. There is no reason to block the less gifted from important issues such as pitch perception and rhythm at the beginning. Otherwise the teacher will just be "substituting intellectual concepts for nature's manner of learning" (Whiteside, 1955, p. 10).

Whiteside (1929) believed in a holistic approach not only for coordinating the playing apparatus, but also in the act of teaching. The teacher's efforts should always be focused on teaching the most difficult problems rather than approaching difficulty step-by-step. She recommended establishing motions and conditions necessary for typical problems in technique such as double thirds, trills, octaves, and chords right from the beginning. This saves the student time and energy, since if the most difficult conditions and actions are achieved, there is no need

to worry about the rest. Whiteside assumed that the beginner is an adult but said she would use the same approach for a child, adapting the instructions to the size of the hand and the capacity for reading.

The greatest help in effecting a change of habit in a student comes from frequent repetition of the sensation by direct transfer from teacher to student (Whiteside, 1969). The success in this kind of teaching depends on the skill the teacher has in manipulating this transfer of sensation and on the correctness of the teacher's own body in using the rhythm. The teacher must have a vivid consciousness of what is involved in playing (Whiteside, 1955).

To transfer sensation, the teacher manipulates the passive student's muscles until the sensation of the desired action is sufficiently established for the student to achieve alone. While the student executes the action, the teacher keeps close contact with the muscles through touch. Only by covering the muscles of the hand and shoulder can the teacher quickly diagnose what is happening in the student's muscles. The teacher should never use a quick or nervous pressure but instead should keep the touch like a feather so that it does not interfere with the actions of the student (Whiteside, 1929).

II. Basic Components

Posture

Although Whiteside (1969; 1929) did not describe a standard posture for all pianists, saying only that the elbow should be in front of the torso, she did discuss the fact that playing a passage over and over in the hopes of acquiring accuracy will not fix a problem. Instead, the pianist should experiment to find a certain placement of position, whether in hand or body, that will solve the difficulty.

Hand Position

Whiteside (1955) believed that hand position is not a creative factor in developing technique, because it lies at the periphery. There is too wide a variance in hand position among fluent players to give it a high priority in the development of facility.

Tone Production

Basic Rhythm

The difficulty in piano playing lies in the fact that pianists need to achieve a motive energy that travels sideways at the same time that a vertical action is made for key depression (Whiteside, 1929). The top arm, with the torso, motivates the overall rhythm. Unless the vertical movements of articulation by the smaller levers operate inside the orbit of this rhythm and are timed with it, there can be no effective phrasing. Levers are never isolated. They are synchronized so that there is cooperation between the upper arm, forearm, and hand (Whiteside, 1955).

Upper Arm Pull

The basic stroke in Whiteside's (1969) technical system is the Upper Arm Pull. Since tone at the piano is produced through a vertical action of the key, there must be a down action in the playing mechanism for tone production, which is produced just before the keybed is reached. The nearest thing to a down action the upper arm can produce, given that it operates in a circular joint, is a pull toward the torso. In playing position, the elbow is in front of the torso. A pull with the upper arm toward the torso lowers the elbow and depresses the key. When a key is depressed, there must be no stopping or sticking to the bottom of the key, because this will prevent the continuity and forward movement of the phrase.

After the Upper Arm Pull, there must be a lift, since the upper arm cannot continue pulling toward the body. However, the pianist should concentrate at all times on key depression, not on key release (Whiteside, 1929). Perfection in timing the lift of the arm—including the use of the forearm, hand, and finger levers—is indispensable for coordinated action of the whole playing apparatus. The manner in which the levers are used is always determined by the pattern of the music. The main goal in timing and balancing these lever actions is to make the action of the upper arm so vivid that it can absorb the actions of the other levers in order to "dampen the eagerness of the too-active fingers both to find the tones and to strike them ahead of the upper arm" (Whiteside, 1969, p. 133). Whiteside (1955) recommended feeling that the arm is one bone

from shoulder to fingertip in order to check on the perfect timing for a blended activity of all levers sharing tone production.

The pull and its subsequent lift result in an alternating, or repeated, action that absorbs the action of the smaller levers. The upper arm produces power for the important tones. While the upper arm lifts to prepare for the next important tone, the forearm, hand, or fingers tuck in the less important notes, the modifiers of the phrase. The forearm is the center lever for fast articulation, and its repeated action is always associated with the hand and fingers, which operate inside its repeated action. This alternating action, plus rotation, should always share tone production with the fingers, which play inside the hand's repeated action (Whiteside, 1955).

Whiteside (1969) described three exercises for development of the Upper Arm Pull.

1. The *glissando* is the simplest and most direct manipulation at the keyboard for sensing the control of the upper arm, because the upper arm produces the fundamental action, the power is implemented at the keybed, and there is a vigorous action toward a musical goal (Whiteside, 1969).
2. In the five-finger pattern cluster, the five keys are pressed down simultaneously with an Upper Arm Pull. It is an action of the upper arm, not the fingers, that is in charge of key depression. The habit of using the fingers for playing usually produces a feeling of heaviness in the forearm. This must be avoided if the upper arm is to control the playing (Whiteside, 1969).
3. The five notes are played in fast succession like a rolled chord. Sensation in the forearm is consciously replaced with a fast, strong, short, Upper Arm Pull toward the torso. The power for producing tone is manifested at the bottom of the key, and the fingers' only role is to furnish a bony structure for the upper arm to play against (Whiteside, 1969).

Finger Action

When teaching finger action, Whiteside (1929) recommended beginning to play with the hand in fist formation to avoid concentrating on the fingers and to establish the feeling of the

shoulder as the lever that furnishes the energy. Then when finger action is used, the finger extends to complete the distance between the arm power—which is ready at the hand knuckle—and the bottom of the key, so that the power may be used without being disturbed by the downward motion of the key. After the finger strikes, it need not pull back away from the key, but should simply stop producing the tone.

Common Faults

The most common faults among students Whiteside (1929) encountered include:

- Using a separate application of power for each tone. This interrupts the flow of the phrase in the same manner that a sentence would be interrupted by taking a breath between each word.
- The power is relaxed and the intensity of the arm is changed after each note.
- The power drives too deeply, past the keybed.
- The small muscles in the hand and forearm are allowed to furnish the energy for tone. The motive energy should always be furnished by the large muscles.
- The hand and forearm take control of placement for finding the key. The control of lateral progression belongs to the shoulder joint (Whiteside, 1929).

Playing Apparatus

Muscles

Power is generated by contraction of the muscles, while bones furnish the resistive force that makes the muscle action effective (Whiteside, 1969). To acquire technique, there must be as little interference as possible by the muscles not actually involved in an action (Whiteside, 1929). Also, the pianist should not pay attention to a localized muscle action (Whiteside, 1955).

Ear

"Unless…physical activity and listening are fully coordinated, the pupil will never achieve ease, enduring technical facility, and complete enjoyment of the piano" (Whiteside, 1969, p. 157).

A beginner's first approach to the keyboard should be a happy experience and should deal with music, not with verbal concepts. A long period of rote learning will enable the beginner's ear to register tone more easily (Whiteside, 1969, p. 158). In addition, the movements that make the imagined tone audible are fluid, efficient, and coordinated when playing without reading the notes. "The teacher should begin with the most beautiful literature available, not with finger exercises or other such material. The pupil must be involved emotionally and intellectually from the first lesson, no matter how simple the beginning" (Whiteside, 1969, p. 160).

Although the pianist must learn to read music, beginners who start playing by ear become aural learners instead of visual learners. Notes are merely symbols for sounds. The student should learn to hear the tone when looking at the symbol (Whiteside, 1969).

Whiteside (1969) recommended that students work daily in small groups at the beginning stages, because the weekly half-hour private lesson makes it "virtually impossible to give the visually-minded student sufficient help to waken the ears to active learning" (p. 165). Every lesson should deal with the sound of the music through rote learning and the feeling of its rhythm through pantomime. After learning to read, a student can avoid faulty musical first impressions in a new piece by using a full arm stroke to play each note. This causes less damage to the desired final coordination, because continuity of action is possible with the upper arm in control of the tone.

Body

The physical sensation of playing must involve the entire body. Small tasks like removing a splinter from someone's eye, require the whole body, not just the hands and fingers, to concentrate on the task. The same applies to playing the piano. The center of the body should have the same relationship to the hands as the hub to the spokes of a wheel (Whiteside, 1969). If the body is trained, the fingers will find their way under the guidance of this central control (Whiteside, 1955). Technique is never the result of training individual levers for independence of motion (Whiteside, 1969).

Torso

The torso is the fulcrum for the upper arm. The full force in the torso, which is grounded against the ischial bones in contact with the bench, produces the basic rhythm, which is an emotional response to a musical statement. Continuity in action is possible for the torso by shifting the balance on the bench from one ischial bone to the other. This balance allows muscle energy to be conserved for tone-producing activity rather than for keeping the skeleton balanced and erect (Whiteside, 1969). Contraction in the buttocks muscles allows the torso to sway in all directions, dancing with the music in a rhythmic response to the music. Whiteside used the image of sitting in a driver's seat and holding the reins to convey this torso activity. Being seated well means being active and alive (Whiteside, 1955).

Shoulder and Upper Arm

The upper arm has three main functions:

First, besides the torso, the upper arm is the most important part of the playing apparatus. The upper arm is the only lever equipped to deal with a continuous rhythm, because it is the only lever that operates through a circular joint. Therefore, the upper arm furnishes a part of the power for all notes that are to form a rhythmic, musical unit (Whiteside, 1969).

Second, the upper arm functions as a fulcrum for the forearm, which fills in the notes between the important tones produced by the upper arm (Whiteside, 1955).

The third function of the upper arm is in lateral movement across the keyboard (Whiteside, 1929). The upper arm's pull controls the level at which tone is produced as well as the slight turning of the humerus that controls distance by allowing the forearm to act in any plane from horizontal to vertical (Whiteside, 1969). The fingers do not find keys in lateral progression. Rather, the upper arm controls key accuracy (Whiteside, 1929).

The two arms must always feel like one unit that maintains a relationship with the torso. There must be only one source for all activity if it is to be simple (Whiteside, 1969).

Forearm

The forearm, wrist, and hand are channels through which the energy for tone flows. If any joint is relaxed, sluggish, or constricted, the flow of energy is impeded. All the joints must have added tension from the beginning to the end of playing (Whiteside, 1929).

The forearm is the connecting lever between the upper arm and the hand. Its fast and powerful alternating action at the elbow and its rotary action are the forearm's great assets (Whiteside, 1969). The alternating action is created through a combination of the leverage between the elbow and wrist. While the forearm is lifted, the hand descends. The hand produces tone while the forearm prepares to repeat a down action. This allows for speed of the repeated action (Whiteside, 1955).

Extension and rotation of the forearm produce vertical actions that depress the keys. Flexion, extension, and rotation of the forearm guide the hand over horizontal distances (Whiteside, 1969).

Wrist

The wrist joint does not produce action. Rather, it transmits action by allowing the up and down action of the forearm to flip the hand into the desired position on the keyboard (Whiteside, 1969). This means that a small movement at the elbow can fling the hand over a large distance by means of a loose wrist (Whiteside, 1955). The wrist is sometimes in a high position and at other times in a low position but should never be exaggeratedly high or low. The important thing is for the wrist to remain a poised, lightly balanced extension of the forearm. The hand does not depress the key from the wrist. Any slight adjustments of the wrist for proper placement of the hand and fingers must fit into the adjustment of the upper arm (Whiteside, 1929).

Hand

The hand is equipped with a bony structure that easily transmits the power of the larger muscles of the arm for tone production (Whiteside, 1955). Training the hand and fingers is not helpful for acquiring technique, because a well-trained hand is an impediment toward achieving a

physical sensation of control in the upper arm. A mental image of the arm as one piece with the hand and fingers will help negate hand activity and will emphasize the activity of the upper arm (Whiteside, 1969).

Another role of the hand is to provide lateral action. When the rotary action of the forearm acts in conjunction with the movement of the hand, there is a feeling of freedom in the motion of the hand in all directions. This freedom allows for lateral action, which, though not very large, is important for playing scales and passagework and for extending the range of the forearm action of flexion and extension (Whiteside, 1969).

To furnish five fingers of equal length for the arm power to play against in chords or scales, the student should practice depressing five keys without tone half the distance of key drop with no variation in the level of keys. The adjustment of finger length is a palm action, for it is in the palm that the sensation of holding the permanent position lies. This position should be achieved with a minimum of effort and with easy, alert muscle action (Whiteside, 1929).

Fingers

The primary function of the fingers is to stand up under the power that is delivered by the other levers. The fingers vitalize when the power comes to them and share in striking the key, but they do not initiate this action (Whiteside, 1969). The fingers should never reach for their position, because this disengages the finger action from the arm and makes horizontal distances feel very wide (Whiteside, 1955).

The fingers also assist in covering horizontal distances by a lateral spread that is controlled at the bridge and palm. Flexion and extension at all three joints aid in covering this distance (Whiteside, 1969).

Independence of action in the fingers is counter to all simplicity and ease in playing. The fingers can never be made equal in hitting strength, nor can they furnish enough power for loud dynamics on the modern piano (Whiteside, 1969). Independent training of the fingers blots out the awareness of the basic rhythm that makes the music flow, conditioning the pianist for note-

wise listening (Whiteside, 1955). "This training of the fingers for producing tone is largely responsible for the terrific waste in playing talent" (Whiteside, 1969, p. 176). It is a misconception that fingers are not skilled in action if they are not trained for independence. In actuality, they are most precise when they operate in conjunction with the arm.

Whiteside (1929) recommended double thirds and trills as solutions for problems of finger independence, since these are the most difficult coordinations for the fingers. If these challenges are conquered, easier skills can be mastered quickly.

Thumb. "The thumb is the master mechanic of the hand" (Whiteside, 1955, p. 24). It moves in all directions with easy freedom. Patience is necessary for acquiring good thumb technique. However, once the student attains this, there are few obstacles that will be harder (Whiteside, 1929). The thumb participates in covering horizontal distance by abduction and adduction, which allows for rotation to take key drop (Whiteside, 1969).

The thumb must bear the arm force in the same manner as the other fingers so that the tones will be even in tonal intensity. Concentrating on the muscles in the ball of the thumb makes thumb control easier. All thumb action should be localized in this palm segment, with the tip acting only as an extension, not as a guide for the action. Actions initiated in the ball of the thumb must at first be very light so that the power will not be furnished by the stronger muscles of the forearm (Whiteside, 1929). The thumb fulfills the following functions:

- It provides a sturdy line for the power to play against, which means a straight line for the thumb, gained through care not to overextend the tip or under-extend the 2nd joint (Whiteside, 1929).
- It maintains a natural position beside the hand to allow for freedom at the wrist joint (Whiteside, 1929).
- It plays on its corner and side. Playing on the corner of the thumb is used in fast playing to equalize the thumb with the other fingers (Whiteside, 1929).

- It cultivates the ability to extend under or out from the hand and to assist the lateral progression of the hand in scale and passage playing without sacrificing the first three functions (Whiteside, 1929).
- It allows for vertical action to depress the keys (Whiteside, 1929).

Contraction and Relaxation

Readiness for action in playing demands a balanced coordination, not relaxation. Whiteside (1969) described it as the alertness of a cat waiting to pounce on its prey, not of a cat asleep in the sun. Releasing or letting go in the motive power is "one of the most deadly habits a pianist can acquire" (p. 182), because releasing completely halts the continuous rhythm by emphasizing individual tones, leading to a lack in continuity.

III. Exercises

Gymnastic Exercises

Whiteside (1969) recommended that pianists should begin their daily practice with a series of patterns away from the piano to orient the mind to the basic rhythm. In these exercises, the arm is folded up with the hand touching the shoulder so that control by the upper arm is felt. An example of this type of exercise is imagining the action of a lariat, where the upper arm controls the end of the rope. This is the relationship the upper arm should have to the hand and fingers.

Exercises

Repetition is necessary, but it must not be mechanical (Whiteside, 1969). Routine drill is dull and is a poor substitute for utilizing ears and rhythm for making music, where technique is built without being noticed. Routine drill does not produce the blended activity necessary for an exciting rhythm (Whiteside, 1955).

Five-finger exercises, scale playing, and other drills practiced by the hour waste time and constrain the playing mechanism. There is a need for five-finger exercises and for scale playing,

but these should be used for learning to transmit arm power, not for producing more muscle in the fingers (Whiteside, 1929).

Etudes

Czerny etudes and Hanon exercises do not lead to masterful playing of repertoire. In fact, they often do the reverse. These etudes and exercises are "responsible for untold boredom, and that is exactly why [these] exercises should be discarded" (Whiteside, 1969, p. 177). Pianists should not waste time on dull literature (Whiteside, 1955).

IV. Movement at the Keyboard

Physical Movement
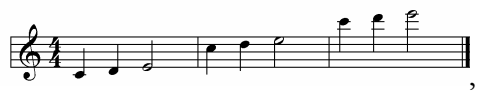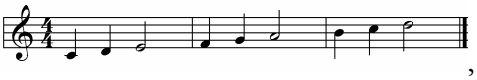
Extravagant body movements may result from a rhythm in the torso that expresses emotion. On the other hand, there may instead be an intensity of emotion that exhibits very little movement. Whiteside (1969) calls this a "holding of the reins" (pp. 29) of the body. Movements should not be discarded as distracting mannerisms, because they play an important part in the performer's production of the music.

Lateral Movement

Rather than practicing scales, which require finger work, in the early periods of study, Whiteside recommended that children begin by playing large skips. This aids students in developing a basic rhythm that establishes the desired body coordinations (Whiteside, 1955).

The torso provides for movements to the top or bottom of the keyboard without thought about the process of the torso's operation. Only the desire to move is necessary. Lateral distances on the keyboard are measured and controlled by the slight twistings and turnings of the upper arm, which make large actions of the forearm available (Whiteside, 1955). All other levers support this upper arm control, but they must not initiate it. When the control is at the center, distances seem shorter. When the control is at the periphery, distances are too large to be negotiated without fear of striking the wrong keys (Whiteside, 1969).

Slight changes in direction can be taken with the short levers without changing the direction of the upper arm. However, the fingers should never reach for positions (Whiteside, 1955). The forearm produces quick movements of extension through the lateral action of the hand. The hand must be delicately balanced as an extension of the forearm, not strongly held in position (Whiteside, 1969).

Students should practice exercises that move from octave to octave when solving technical problems in a piece. For example playing , which moves up by octave, rather than , which moves up on consecutive notes. This allows the upper arm the opportunity for action between groups (Whiteside, 1969). Even when there is not a horizontal progression of the hand along the keyboard, there is a span of time related to the progression of the music that should be filled with activity of the upper arm and torso to give expression to the phrasing (Whiteside, 1955).

Keyboard Topography

The in and out distances necessitated by the black and white keys are absorbed by the top arm, forearm, and hand, rather than by the fingers. Action at the shoulder, elbow, and wrist controls this distance (Whiteside, 1955).

V. Fundamental Forms

Five-Finger Patterns

One of the main exercises Whiteside (1969) explained for learning the use of the upper arm is the rolled five-finger pattern. The order for practicing this pattern is:

- Contrary motion from thumb to 5th finger.
- Contrary motion from 5th finger to thumb.
- Parallel motion up.
- Parallel motion down (Whiteside, 1969).

One strong pull of the upper arm plays the five tones. Other characteristics of the rolled five-finger pattern are:

- The movements of articulation must not be emphasized.
- There is no active down pressure with the forearm or hand. Both feel light.
- An exaggerated rotary motion when ripping from thumb to 5th finger is not used. This is especially evident when playing in parallel motion. The two arms must feel as if they are acting as a unit to further the development of rhythmic sensitivity. Therefore, rotary motion is limited.
- The power of the pull is used at the bottom of key drop, at the keybed level.
- The entire arm feels as if it is one piece.
- The hand does not reach the keybed ahead of the Upper Arm Pull.
- The fingers have no feeling of being ready for individual, independent action.
- When the tempo changes, the action remains the same (Whiteside, 1969).

In detail, the rolled five-finger pattern in slow motion is executed as follows. In a C five-finger pattern, the C is depressed by an Upper Arm Pull with the forearm, hand, and fingers in a low wrist position. At the last second, the finger becomes alerted for receiving the power for tone and connects with the keybed. As the D, E, F, and G are played, the low wrist changes to a high wrist. The pull and turning of the humerus lift the tip of the elbow away from the torso. Hence, the down action necessary for tone production involves an Upper Arm Pull, flexion of the hand, and flexion of the finger (Whiteside, 1969).

The sensation of moving forward to the close of the musical statement must not disappear in a slow tempo. Playing staccato is the best way to sense the relationship of action between tones at a slow tempo—provided it does not alter the procedure of the upper arm, forearm, or hand—because it creates the alertness necessary for speed. The staccato must permit the finger to become less active at the hand knuckle after tone production (Whiteside, 1969).

Rotation

Rotary action will take care of itself and should not be stressed too much, because any action that will happen naturally should be left alone (Whiteside, 1969). If too much attention is given to rotation, the use of the upper arm will be diminished (Whiteside, 1955).

When added to flexion and extension of the forearm and a constant adjustment at the shoulder, rotation helps the forearm place the hand in successive positions along the keyboard, such as in scales. In this action, the hand supinates, bringing the thumb perpendicularly over the 5th finger. The thumb replaces the 5th finger, thereby moving the hand to a different position on the keyboard (Whiteside, 1955).

Scales

"Scales which are of the essence of beautiful playing can develop habits which will prevent beautiful playing if they are practiced too soon. They should never, never be used as the basis for developing a technique" (Whiteside, 1955, p. 123). Whiteside gives three other reasons for not using scale drill with children. First, it is boring. Second, it is too easy for children to practice scales wrongly, in a manner that uses only the fingers instead of the upper arm. Third, scale practice destroys the awareness that a scale is a musical pattern of great beauty (Whiteside, 1969).

The model for a scale is a *glissando*, because both are controlled by the upper arm (Whiteside, 1969). The upper arm produces the continuous action for a scale, while the movements of articulation at the fingers connect the power of the upper arm to the tone the instant the fingers are needed, without pressure against the keybed between tones. All the levers assist the upper arm, cooperating with the rhythmic flow (Whiteside, 1955.)

There should be no snapping the thumb under the palm or reaching for position, nor fingers reaching over the thumb and seeking a legato key connection (Whiteside, 1955). Instead, the shoulder tilts so that the thumb is passed under without losing its straight-line position or constricting the wrist joint (Whiteside, 1929). Passing the thumb and fingers is not solved by one

movement in exaggeration. Only the action from the center can coordinate all the levers needed (Whiteside, 1955). Blocking scales in fingering groups is an efficient manner for establishing the shoulder action in relation to the lateral progression along the keyboard (Whiteside, 1929).

An exercise for the thumb to aid the pianist in sensing the coordination of the upper arm in shifting is to poise fingers 2 and 3 over C# and D# while the thumb plays C, D, E, and F through an adjustment of the upper arm. When playing the thumb in this exercise, the action is controlled by the wrist joint, which is the center of the radius of activity for the thumb. With her own students, Whiteside (1929) placed her arm along the inside of the student's arm to cover all the muscles and guided the arm into position over each note to be played. The arm must be over the note before it is played.

Chords

When the fingers extend for a large chord, the manner in which they extend is very important. There must not be any reaching with the finger tip, but the extension instead must be initiated by action at the palm, because the wrist is not free when the fingers are reaching for position. With the hand in a light fist, the distance is spread across the bridge and in the palm segment of the thumb. Although the extension between the hand knuckles will be small, the palm segment of the thumb can spread out considerably. After extending, the fingers and thumb open to their full lengths while the control of the spacing in the palm is maintained (Whiteside, 1969). The sensation of this spreading of the hand is akin to the sensation of opening the face when it registers surprise, where the eyebrows lift and the nostrils distend without the least feeling of tension or of a set quality in the muscles of the face (Whiteside, 1929).

VI. Basic Musical Inflection

Articulation: Legato

Key connection is not the principal manner of conveying a legato sound. Instead, it is the relation of the intensity of tones at their inception that expresses legato to the listener. The only difference between staccato and legato is in duration (Whiteside, 1969). Control of intensity, plus

a horizontal progression that intensifies the rhythm of form, can produce dynamics that invoke the feeling of legato even when there is no key connection (Whiteside, 1955).

Especially in fast passages, legato results from a flowing energy that brings about the desired connection between keys. An effort to hold down one key until the next is played hampers ease and speed and does not enhance the smoothness of the legato (Whiteside, 1929).

Articulation: Staccato

The shortness of a staccato note is regulated by the energy used for producing a tone of short duration rather than the action of coming off the key by a certain kind of up action of the finger, hand, or arm (Whiteside, 1969). Concentrating on the up action of a staccato inhibits speed and rhythmic continuity. All that is necessary for staccato is a detachment of the power used to produce the tone. The key will come up if it is not held down (Whiteside, 1955).

Rhythm

There are two types of rhythm, the rhythm of form (basic rhythm) and the rhythm of meter (rhythm of articulation). One or the other of these rhythms will always predominate. If the actions of articulation are made emotionally important, the performance will be cluttered with too many "explosions" (Whiteside, 1969, p. 115). If the actions that produce an awareness of form are emotionally important, the performance will unfold with simplicity and grace. In teaching, the rhythm of form must be stressed from the beginning, or the mechanism will not develop as a unified whole.

The rhythm of form is created by the upper arm and torso, which create and implement the rhythm. The torso responds to the mood of the music, and the upper arm articulates the mood of the torso. When the rhythm of form becomes the most potent factor in the playing mechanism, the result will be an activity in the upper arm that produces tone and a strong sense of progression. Pantomime is a good teaching tool to enable the body to feel the rhythm of form. This is the kind of rhythm that jazz players have. They have a tune in their ears and a rhythm in their bodies, and they fuse the two (Whiteside, 1969). First chair players in the orchestra sway

their bodies because they have rhythm. These players' excellence, manifested by rhythmic playing, is why they were chosen to be first chair players (Whiteside, 1955).

From the beginning, students should think of notes as symbols for continuous patterns of sound, not as isolated statements. Their first impression at the piano should not be that of struggling with movements to strike the right keys. It should instead be that of an overall rhythm of music in the body as an emotional outlet found through playing from the center (Whiteside, 1969).

Playing note-wise, with a separate initiation of power for each movement, prevents playing by phrase and feeling the rhythm of form. Playing note-wise is like speaking letter wise. Students with absolute pitch have the greatest difficulty with this problem because they are liable to focus on all the individual tones at the expense of the phrase (Whiteside, 1969).

Whiteside (1969) described an experiment she conducted in 1956 with an adult viola student who wanted to learn piano. Instead of teaching this student the details of a piece, Whiteside first had him concentrate on translating his aural image into a basic rhythm as an emotional outlet. To do this, the student played clusters with a firm hand. The five fingers were held in readiness to stand up under the arm's power. Clusters were crashed all over the keyboard, with no attempt at note accuracy. The basic rhythm of form was created in a violent, flamboyant explosion of clusters. After this expression, the student began gradually to insert the proper notes and details while still striving to maintain the exciting, rhythmic performance. Pieces were all taught by rote to avoid "fussing at the keyboard" (p. 155). Whiteside said that all teachers should be concerned with learning how to use an exciting rhythm from the beginning, not after other habits have been formed that make it difficult to use this basic rhythm. Whiteside hypothesized that this "splashing chord" (p. 156) technique, which uses rhythmic patterns of getting closer and closer to the related keyboard positions, could be a useful tool to establishing a rhythm of form.

Dynamics and Tonal Control

Tonal variety comes from intensity of the application of power (Whiteside, 1929). The only way a pianist can control dynamics is to make the hammer hit the string with greater or lesser force (Whiteside, 1955).

The upper arm, not the fingers, controls dynamics and shading. This is proven by playing a *pianissimo* scale with the fingers, followed by a *pianissimo glissando*. The *glissando* operates under the control of the Upper Arm Pull, and it is easy to keep it *pianissimo*. Because of the finger action, in the scale the difficulty is multiplied tremendously without adding anything to the control of the *pianissimo* (Whiteside, 1969).

Rhythm of form is essential for the kind of control and subtle gradation that dynamic shaping requires (Whiteside, 1969). Phrasing depends on the kind of activity that takes place between the tones. This space should be filled with the rhythm of form through action of the upper arm and torso (Whiteside, 1955). From the beginning, the teacher should work for the ultimate sensitivity of phrasing with students. The best method is to find works in the great piano literature that are simple enough for beginners, pieces that have a pattern that absorbs all complications (Whiteside, 1969).

Tone Quality

Terms such as "color," "singing tone," "marvelous legato," "beautiful tone," "harsh tone," "rich tone," and "brittle tone" (Whiteside, 1969, pp. 152) have no relation to piano playing. It is misleading to describe piano playing in the same terms that are used for violin and voice, since the musician cannot color the tone unless there is contact with the vibrator that produces the tone. For the pianist, there is no such thing as influencing the quality of the tone, because the pianist is not in contact with the strings (Whiteside, 1955). Rather, tone quality is influenced by the following factors:

- *Tonal Intensity*. Different tonal intensities that start diminishing on impact are the only kind of tone possible on the piano. The quality of tone is determined by the

manufacturer of the instrument. There is a certain quality for each degree of tonal intensity, and the pianist cannot separate the two. The pianist only controls duration and intensity (Whiteside, 1969).

- *Rhythm*. Tone quality is related to a succession of notes that lead forward in a rhythm toward a completed phrase statement through a subtle use of dynamics. Bad tone is the result of a succession of tones that have no dynamic subtlety or inflection (Whiteside, 1969).
- *Percussive Noises of the Piano's Mechanism*. In a small room these are very evident. In a larger room, they are less audible (Whiteside, 1969).
- *Keybedding*. Impact of the key against the keybed produces a hard noise. The energy should be aimed for a point just above the keybed (Whiteside, 1969).

Tempo

Control at the center, at the shoulder joint, is an indispensable asset for accuracy and speed. Having some of the tone-producing power of the upper arm available for tone production at all times is the secret of a virtuosic technique (Whiteside, 1969). Little movement is visible in the hand and arm when speed is demanded (Whiteside, 1929). Spending hours cultivating independence of action in the levers results in the formation of habits that are not suitable for speed (Whiteside, 1969).

Slow practice must be used carefully, because it establishes habits of slow plodding and can result in the formation of habits that are not those demanded at performance tempo. If slow practicing is used, the action should be quick and the whole arm buoyantly alert. Therefore, it is better to use staccato in slow practice (Whiteside, 1929).

A full arm stroke can be used at a slow tempo for study of a new composition, because this still allows for continuity of action through the circular shoulder joint. Every effort should be made to establish a rhythm of form from the first reading, even if some of the notes are left out (Whiteside, 1969).

Table 15

Elementary Level Technical Concepts According to Whiteside

Elementary Level Technical Concepts	Abby Whiteside
I. Philosophy	
Philosophy of Technique	- Center to periphery. - Basic rhythm. - Coordinations used in daily living. - Pitch perception is important. - Fuse the ear with rhythm.
Philosophy of Teaching	- A gifted performer is often not a good teacher. - Do not water down material for less gifted students. - Teach the most difficult problems first, and the rest will come: double thirds, trills, octaves, chords. - Transfer of sensation from teacher to student through tactile intervention.
II. Basic Components	
Posture	- No standard posture. - Find a specific position to solve a specific problem.
Hand Position	- Wide variance.
Tone Production	- Upper arm pull. - *Glissando.* - Blocked five-finger cluster. - Ripped five-finger pattern. - Arm goes before the fingers. - Large levers initiate important notes while small levers play the less important notes in between. - Start finger action by playing in a fist formation. - The fingers never lead.
Playing Apparatus	
- Muscles	- Power is generated by contraction of muscles, and bones furnish the resistive force.
- Ear	- Physical activity and listening must be coordinated. - Teach by rote and by ear at the beginning.
- Body	- Entire body is involved in playing. - Fulcrums of the body are alive and responsive.

- Torso	- Fulcrum of the upper arm. - Emotional response to the music forms movement that is the foundation for the basic rhythm.
- Shoulder and Upper Arm	- Most important part of the playing apparatus. - Forms the basic rhythm. - Fulcrum to the forearm. - Controls lateral movement.
- Forearm	- Connects upper arm to hand. - Alternating action for speed. - Extension and rotation produce vertical action that depresses the key.
- Wrist	- Transmits action by flipping the hand to the desired position. - Poised and lightly balanced.
- Hand	- Transmits the power from the arm. - Should not be trained for independent action. - Lateral action in conjunction with the forearm.
- Fingers	- Stand up under the power delivered by the other levers. - Lateral spread controlled by palm and bridge. - Do not train fingers for independent hitting action.
Contraction and Relaxation	- Balanced coordination, not relaxation. - Do not release or let go.
III. Exercises	
Gymnastic Exercises	- Daily dozen away from the piano to set up thinking patterns.
Exercises	- Repetition must not be mechanical. - Routine drill is not helpful.
Etudes	- Waste time and cause boredom.
IV. Movement at the Keyboard	
Physical Movement	- Body motions of the torso are good.
Lateral Movement	- Begin study with large skips. - Torso and arm lead. - Slight changes in direction can be taken by smaller levers without changing direction of the upper arm.
Keyboard Topography	- Bigger levers absorb in and out distances.

V. Fundamental Forms	
Five-Finger Patterns	- Ripped five-finger exercise. - Upper arm pull plays the exercise. - Low to high wrist in the ascending pattern.
Rotation	- Will take care of itself. - Helps place the hand in successive positions along the keyboard.
Scales	- Should not be taught too soon. - Upper arm leads as in a *glissando*. - Arm turns, and all levers help the thumb to pass without snapping under the hand.
Chords	- Extend from the palm, not the fingers.
VI. Basic Musical Inflection	
Articulation: Legato	- Relationship of dynamics between tones controls legato.
Articulation: Staccato	- Concentrate on down action, not release of keys. - Staccato is produced by power for initiating the tone. The key comes up by itself.
Rhythm	- Two types: rhythm of form and rhythm of meter. - Rhythm of form must always predominate. - Rhythm of form is created by the torso and upper arm. - Splashing cluster technique.
Dynamics and Tonal Control	- Controlled by greater or lesser force imparted to the hammer. - Controlled by upper arm. - Rhythm of form helps shape dynamics.

Tone Quality	- No such thing for the pianist.
	- Influenced by:
	  - Tonal intensity.
	  - Rhythm.
	  - Percussive noises.
	  - Keybedding.

Tempo	- Control at the center gives accuracy and speed. - Slow practice must be used carefully. - Playing should be in the proper tempo as much as possible to keep the rhythm of form intact.

Arnold Schultz

Sources

The Riddle of the Pianist's Finger and its Relationship to a Touch-Scheme. (1936).

"The Physiological Mechanics of Piano Teaching." *American Music Teacher* 46(1) (1996).

I. Philosophy

Philosophy of Technique

Schultz (1936) said that technique has too often been identified with velocity instead of with expressive playing through control over duration and intensity. In order to gain control over the playing apparatus, Schultz analyzed all possible touch forms of the arms and hands, as well as the workings of the small muscles of the fingers, to determine the best touch forms to use for any given passage with relation to control of intensity, control of duration, degree of intensity, velocity, and physiological ease.

Putting physiological ease last revealed Schultz's (1936) belief that the musical outcome, rather than physical comfort, must be the first aim of technique. Schultz said it is "folly [to] make physiological ease a primary factor in the selection of a piano touch" (p. 209). Schultz believed that even after touch habits have been firmly established, the pianist should analyze the musical score and write the intended touch form in the score. Like Ortmann, whom he praised, Schultz's theory of technique is one of careful, scientific analysis of the workings of the playing apparatus and its application to the piano for the purpose of bringing about an intended musical interpretation.

Philosophy of Teaching

Schultz (1936) believed in method in teaching and stated that practically no serious piano teaching exists which does not involve a method of technique. Many piano methods, according to Schultz, contain outlines of technical mechanics that are "so shadowy, so arbitrary, sometimes so truly whimsical, that one suspects the author was at pains to set down his own way of playing rather than to investigate all possible ways of playing" (p. viii). *The Riddle of the Pianist's Finger and*

its Relationship to a Touch-Scheme is "advanced quite unashamedly as a piano method. Its intention is to promote a certain way of playing the piano" (p. ix).

The system of technique described in this book is deliberate, detailed, and organized. Schultz (1936) said, "Until now, piano pedagogy has yielded its finest results either when it has confined itself entirely to the musical aspects of playing, abandoning the technical aspects to unconscious adjustment by the student, or when imitation, rather than intellectual analysis, has been the vehicle of learning" (p. 10).

In other words, the selection of movement types may be an unconscious process, learned by watching someone else play and by trial and error or imitation. This forms habits independent of intellectual analysis and is a legitimate type of learning. However, Schultz (1936) believed that just because the trial and error method has worked in the past does not negate the importance of intellectual inquiry into questions of technique as well. In fact, Schultz stated that conscious, intellectual analysis and knowledge of movement can hasten the process of attaining technique.

Furthermore, Schultz (1996) said that the teacher's challenge lies not in the gifted student who finds the proper bodily coordinations by instinct, but in "the inept student who needs to be told how to do the thing that the gifted student does spontaneously" (p. 34). Schultz said that when the student moves around the keyboard in an inefficient manner and the teacher fails at helping the student find correct processes through illustration and imitation, that knowledge of physiological mechanics, which set down a series of distinct technical formulations, can help the teacher explain body mechanics to the student, thereby providing another avenue to solve technical problems.

II. Basic Components

Posture

Schultz (1936) said that the usual playing position of the arm demands that the upper arm be lifted forward, abducted somewhat to the side of the body, and rotated toward the keyboard. The forearm is lifted to a horizontal plane on level with the keys, with the hand supported to keep

its weight from pressing on the keys. The fingers hang loosely from the hand knuckles. The center of gravity of the arm, the point where all the parts exactly balance one another, is located just below the elbow. The weight of the playing unit should never rest completely on the keys. As the playing unit approaches a horizontal line, less weight is carried in the joint and more on the keys. Thus, more and more of the weight is lodged on the keys as the trunk is inclined back away from the keyboard. Hence, leaning back should be avoided so that weight may be brought to bear on the keys only when needed.

Hand Position

Schultz (1936) explained elements of finger and hand position at great length through his descriptions of the touch forms and finger conditions. Although he stated that a normal hand should not preclude the use of other positions when necessary, Schultz did give the following guidelines for the normal position of fingers and hands.

Wrist Position

Regarding wrist height, Schultz (1936) advocated a position between low and high, the mean being reached when the undersurface of the forearm is level with or a bit below the keyboard.

Finger Position

Schultz (1996) favored a natural hand position like that assumed when the hand is hanging passively at the side of the body. This results mainly in a moderately flat finger position. The traditional "ball-shaped" (p.33) hand position, with a perpendicular relation of the end two phalanges of the fingers to the keys, is seldom used by concert pianists. In fact, Schultz pointed out that a beginning child adopts the flatter position by instinct.

Reasons for using the relatively flat position of the fingers are as follows. First, legato is the normal requirement of all passagework, which usually requires spreads larger than an interval of a second (Schultz, 1936). An excessively rounded finger position makes type of legato passagework difficult, since pronounced curvature of the fingers makes it more difficult to spread

the fingertips apart (Schultz, 1996). Since a flat finger is longer than a bent finger, a flat position enables the fingertip to describe a wider arc and thus is more efficient for use in passagework where the fingers need to be spread (Schultz, 1936).

Second, there is a choice in muscular coordination between using the long flexors or the small muscles of the fingers. In the flatter position, there is visible evidence that the small muscles dominate the stroke, because the mid-joint of the finger collapses during key depression. Schultz (1996) said that when examining the piano playing of students who were not his own, the most gifted technicians always showed a small-muscle dominance, and the most inept exhibited a long-muscle dominance.

Bent fingers are useful occasionally for rapid non-legato or staccato successions because of the force advantages not available in the flat position. However, Schultz (1936) advocated teaching the flat finger condition first, which is more complicated, because once the flat finger movement has been mastered, little difficulty will be encountered in learning the bent condition.

Tone Production

Touch Forms

Regarding tone production, Schultz (1936) related the whole of his technical system to the use of various touch forms and finger coordinations. After describing all possible movement types and finger coordinations, Schultz concluded that the best touch forms are ones that lead to controlled key descent, which is defined as one in which:

- The applied force makes a positive difference to the key throughout the whole course of its descent by either maintaining or accelerating the speed of descent, and,
- The force is sustained enough to retain the key on its bed for the required duration of tone (Schultz, 1936).

Controlled key descent provides control over the intensity and duration of tones. According to Schultz (1936), because these two factors are the major requirements of expert piano technique, controlled key descent must be the first objective of the piano student.

Schultz (1936) described seven possible movement types that may be used for key depression.

1. Weight-Movement. Movement caused by weight alone.
2. Contra-Weight Movement. Movement caused by muscular contraction with an unmoving base of weight.
3. Contra-Pressure Movement. Movement caused by muscular contraction with an unmoving base of pressure.
4. Contra-Fixation Movement. Movement caused by muscular contraction with an unmoving base of fixation.
5. Trans-Weight Movement. Movement caused by muscular contraction with a moving base of weight.
6. Trans-Pressure Movement. Movement caused by muscular contraction with a moving base of pressure.
7. Trans-Fixation Movement. Movement caused by muscular contraction with a moving base of fixation.

The Latin prefix "contra" means "against," signifying that the base does not move, while the prefix "trans" signifies that the base moves. Movement types 1, 4, 7 are the most valuable to the pianist. Movement types 2, 3, 5, 6 are frequently used by amateurs but are generally disadvantageous and should be avoided by the expert pianist (Schultz, 1936).

The three most valuable movement types are described below.

Weight-Movement. In general, the whole arm must be the playing unit when weight alone is used to depress the key. The finger alone cannot be used in Weight-Movement, because the weight of the finger is insufficient to depress the key without additional distance of travel. An unprepared attack, with the finger striking from above the keyboard, could provide greater distance for the finger to travel and therefore greater force, but an unprepared attack results in an

uncontrolled key descent and is therefore undesirable. The forearm, like the finger, also is not suitable for use as the main playing unit in a Weight-Movement, because vertical movement of the forearm in the elbow can take place only when the arm is close to the body, and therefore key depression is limited to the center of the keyboard (Schultz, 1936).

When using the whole arm as the main playing unit in Weight-Movement touch, care must be taken that the arm is used correctly. Schultz (1936) said that the practice of raising a student's arm and then letting it go, allowing it to fall to the side with dead weight, is objectionable, because dead weight is probably never used in fine piano playing because it is not easily controlled. Rather, a good pianist relaxes the arm partially so it falls with a blow that is not uncomfortable. In teaching, the instruction to let the arm descend into the keys as if it were a single piece usually brings about the correct coordination.

In Weight-Movement, the weight of the whole arm is dropped from the key surface into the key. The use of the whole arm is advantageous because its larger mass suffers less reaction from the key, and enough of its weight can be reserved for the impact to keep the finger in contact with the key at all times, thus ensuring a controlled key descent through the whole depth of the key (Schultz, 1936).

The whole arm Weight-Movement has a wide range of tonal intensity. However, because the mass of the arm is so large, Weight-Movements can only be used for slow successions of tones (Schultz, 1936).

Contra-Fixation Movement. When a playing unit exerts force against the key, there is an upward reaction against a base. In a Contra-Fixation Movement, this base is fixed by contractions of the joints above the playing unit, the joints closer to the center of the body. Contra-Fixation Movements eliminate the need for separate force adjustments for each tone, which are necessary in Weight-Movements due to the necessity for retrieving the weight after each key depression. Greater velocity is obtained when separate force adjustments are not needed, since the speed of

the movement is then determined by the degree of contraction in the muscle operating the playing unit rather than by force adjustment of the base (Schultz, 1936).

The finger, hand, forearm, and upper arm may all be playing units for Contra-Fixation Movements. Each joint supplies a fulcrum for the next playing unit out from center: i.e., shoulder for upper arm, elbow for forearm, wrist for hand, etc. All joints between the body and the fulcrum in which the playing unit moves must be fixed by antagonistic contraction. However, the degree of fixation must be considerably below the maximal degree of which the muscles are capable, otherwise fatigue will arise that will make playing extensive passagework impossible. As the speed increases, the degree of fixation must also increase. The body is the fulcrum when the whole arm is used as a playing unit, and when the arm movements are powerful, a more intense fixation of the hips, which is made automatically, is required to keep the base immobile (Schultz, 1936).

In order to feel the sensation of a Contra-Fixation Movement, Schultz (1936) provided several exercises.

Exercise away from the piano: The pianist is to sit upright, press both arms into the thighs, and then note the sensations of muscular tension in the arm. This feeling is contrasted with a poke of the arms into the thigh, where the shoulders move. The first is the feeling of a Contra-Fixation Movement. This sensation can also be felt by sitting on a chair and pressing the legs on the floor without moving the body (Schultz, 1936).

Exercise at the piano: When playing a five-finger pattern at the keyboard, the pianist should sense the same sensations as in the exercise away from the piano. The base shows no movement. The left hand fingers hold under the right hand palm to support the right arm if its weight is released or pressed downward. Any movement from the hand knuckle and back into the hand is prevented by pressing the hand knuckle against the fingers of the left hand. When the thumb ascends from its key, the arm is retrieved at the shoulder. This is continued with the other fingers. When playing faster, the arm cannot be recovered at the shoulder after each key

depression, but remains pressed down on the left hand during the whole series of tones. When the artificial fulcrum of the left hand is removed, the antagonistic muscles of the right arm create a fixed base for the finger and hand movements. In finger and hand touches, raising the playing unit high and letting it drop on the keys without key depression will help the pianist feel the Contra-Fixation Movement (Schultz, 1936).

In Contra-Fixation Movements of the arm, the stroke may begin above the keys, because the muscles are capable of reserving part of the force to control key descent. When Contra-Fixation Movements of the finger and hand are made, movement must always start on the key surface if the key descents are to be controlled (Schultz, 1936).

The muscular contractions must be sustained long enough to control the duration of the tone. There is a frequency in moderate to fast tempos, especially with finger touches, to relax the contraction before the keybed has been reached. The pianist should aim for the keybeds to ensure that passagework is even. Each muscular contraction reaches its summation at the bottom of the key descent (Schultz, 1936).

Although Contra-Fixation Movements of the smaller playing units show a slight disadvantage in their range of tonal intensity, the advantages of this movement type outweigh this shortcoming. Contra-Fixation Movements show advantages in their control of intensity, in velocity, and in legato. This movement type can also be used in staccato playing as long as the staccato is not of extreme brevity. Of all the touch forms, Contra-Fixation Movements of the fingers create the finest legato with the subtlest control of intensity and are therefore extremely important in expert piano technique. Schultz (1936) termed Contra-Fixation Movement as the "normal piano touch" (p. 97).

Trans-Fixation Movement. In the category of trans-movements, the base as well as the playing unit moves. These are generally unsatisfactory touch forms, because moving both the playing unit and the base results in poor control over key descents. Trans-Fixation Movements are necessary for the execution of passages where the degrees of velocity and tonal intensity are

both high and also for staccato. Schultz (1936) said that this touch form is used far in excess of its proper function.

Trans-Fixation Movements have as a base joints set by contractions of antagonistic muscles. At the moment of key attack, the force of the fixated muscles of the base is insufficient to withstand the pull of the muscles operating the playing unit, and the base is moved out of its position of fixation. As soon as the pull is over, these muscles automatically pull the base back to the position of fixation. The base returns to its original position without resting on the playing unit, in contrast to the other trans-movements (Schultz, 1936).

To establish the feeling of Trans-Fixation Movements, Schultz (1936) suggested playing with Contra-Fixation Movements of the fingers and increasing the contractions of the finger muscles. This causes a shake up and down in the base of each finger stroke. Hence, all that is needed to change a Contra-Fixation Movement into a Trans-Fixation Movement is an increase in the contraction of the muscles operating the playing unit (Schultz, 1936).

Trans-Fixation Movements have an advantage in tonal intensity over Contra-Fixation Movements. Compared with Contra-Fixation Movements, Trans-Fixation Movements show a disadvantage in terms of velocity, control of intensity, and control of legato, though they can create legato at a relatively slow tempo. They are useful in circumstances where Contra-Fixation Movements are impractical, specifically when extreme staccato or fast and loud playing are required. Trans-Fixation Movements should be used sparingly and should not be used simply because they require less muscular energy than Contra-Fixation Movements and are therefore more comfortable (Schultz, 1936).

Finger Coordinations

The particular focus that made Schultz unique from other writers was his detailed description of the uses of the three phalanges of the fingers. The importance of finger coordination "has never before been properly understood, and it constitutes probably the greatest single conditioning factor of a first-rate piano technique" (Schultz, 1936, p. 12). Good finger

coordination, according to Schultz, is rare, although everything a pianist does at the piano is dependent on the facts of finger coordination. Schultz suggested that perhaps the workings of the three finger phalanges and their joints are not usually discussed by writers on piano technique because in daily life it is rarely required for the three phalanges to be discriminated into individual parts.

The three phalanges of the finger are divided by three joints: the hand knuckle, mid-joint, and nail joint. The hand knuckle is a modified ball and socket joint that permits vertical and lateral motion. The mid-joint is a simple hinge joint with an arc of 120°. The nail joint is a simple hinge joint with an arc of 90°. Schultz (1936) labeled the phalanges in order from the hand knuckle out to the tip as the 1st, 2nd, and 3rd phalanges.

In order to understand the finger conditions Schultz (1936) described, Illustrations 6 and 7, containing diagrams of the musculature of the finger, are provided.

Illustration 6

Musculature of the Finger (Schultz, 1936, p. 103)

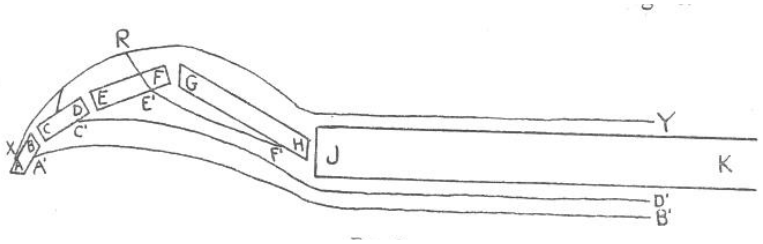


Table 16

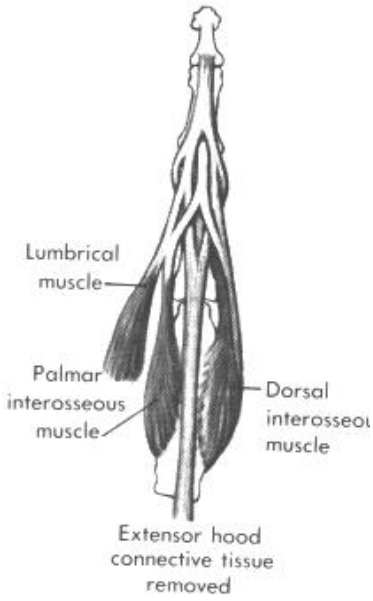
Musculature of the Finger from the Diagram in Illustration 6 (Schultz, 1936, p. 103)

Muscle	**Function**
- XY, tendon of the *extensor digitorum communis*	- Raises the finger.
- A^1B^1, *flexor digitorum profundus*	- Flexes the 3rd phalanx.
- C^1D^1, *flexor digitorum sublimis*	- Flexes the 2nd phalanx.
- E^1F^1, *lumbricales*	- Flexes 1st phalanx and gives slight extension to the 2nd

	and 3rd phalanges without contraction of the extensor.
- Palmar *interossei*	- Moves the fingers laterally. - Assists the *lumbricales* in their task of flexing the 1st phalanges. - Adducts the 1st phalanges.
- Dorsal *interossei*	- Moves the fingers laterally. - Assists the *lumbricales* in their task of flexing the 1st phalanges. - Abducts the 1st phalanges.

Illustration 7

Muscles of the Finger (Gardner & Osburn, 1973, p. 206)



Schultz (1936) described finger coordinations possible in piano playing that combine with the three movement types discussed in the section entitled "Tone Production." After analyzing each finger coordination, Schultz explained why certain coordinations are more efficient than others. The available finger coordinations are:

1. Small Muscles Alone
2. Small Muscles plus Long Flexors
3. Small Muscles plus Extensor

4. Long Flexors Alone
5. Long Flexors plus Extensor
6. Extensor Alone
7. Long Flexors plus Extensor plus Small Muscles (Schultz, 1936).

Schultz (1936) dismissed three of the seven coordinations (3, 4, and 6) as impractical for piano playing for various reasons, leaving the following:

1. Small Muscles Alone
2. Small Muscles plus Long Flexors
3. Long Flexors plus Extensor plus Small Muscles
4. Long Flexors plus Extensor (Schultz, 1936).

These four finger coordinations will be discussed, the last one briefly since it should generally be avoided because it causes stiff fingers. In the exercises given to develop the feeling for these coordinations, the pianist should play with a closed position of the hand and be sure that the finger is working through the entire distance of the key descent. The keybed is the goal of each finger stroke, which will ensure evenness when applied to fast passagework. Also, legato depends on effective work done on the key after it has reached its bed. Therefore, when learning these coordinations, it is helpful to exaggerate the pressure on the keybeds, provided the muscular coordination of the finger is not altered (Schultz, 1936).

Small Muscles Alone. To feel this coordination, the pianist should press the finger into the thigh without movement in any of the joints and without contraction of the extensor, and then relax. Next, the pianist should allow the mid-joint to break when pressing the finger into the thigh. Then, the pianist can alternate between the two movements, comparing the sensations of tension across the mid-joint on the ventral side. There will be a higher degree of tension under the mid-joint in the first act than in the second. Tension disappears when the mid-joint collapses. As a further test of sensations, the pianist can press down on a right hand finger's first phalanx and compare the sensation under the mid-joint. The finger will feel no tension under the mid-

joint. A finger operated by the small muscles alone should also show virtually no tension (Schultz, 1936).

Another way to recognize this coordination is to study the sensations at the hand knuckle. Again, the pianist should press the finger into the thigh without movement in the mid-joint and follow this by an action in which the mid-joint collapses, noting the sensations in the hand knuckle. In the first action, the movement of the first phalanx feels hampered in its hand knuckle joint. In the second, when the mid-joint collapses, the first phalanx feels freer. Then the pianist should press the first phalanx down with fingers of the left hand, allowing the mid-joint to collapse. In this way, the hand knuckle feels like a well-lubricated hinge. The sensations at this joint in actual playing must be as similar as possible to this feeling of freedom in the hand knuckle joint (Schultz, 1936).

When learning this coordination at the piano, the left hand may support the right hand under the palm to provide a firm base while practicing a five-finger pattern non-legato, slowly, with a free, uninhibited swing of the finger in the hand knuckle and complete absence of tension under the mid-joint. After the finger depresses the key, it should be retained upon the keybed for a moment without changing the muscular coordination. Then when the pianist relaxes, the key-action returns to key-level before the next finger plays (Schultz, 1936).

As the tempo increases, it is not possible to focus attention on each individual finger stroke. The following general sensations certify that the prescribed finger coordination is in use (Schultz, 1936):

1. The path of finger-movement feels close to a vertical line.
2. The depression of each key feels definite, decisive, and controlled because of the fixed fulcrum.
3. The keys feel heavy and the fingers sensitive to their resistance. This is because the small muscles are relatively weak.

4. The fingers feel soft and pliable and capable of great velocity, because muscular tension is limited.
5. The wrist feels light and ready.
6. The hand feels divorced from the arm.
7. Sensations of fatigue in the form of sharp pain will be felt at the base of the hand where the *lumbricales* have their origins. This pain is often diffused over the whole palm and sometimes is felt on the ventral side of the phalanges also (Schultz, 1936).

This finger coordination shows extreme advantages for velocity and control over tonal intensities and does not interfere with hand movements. Its disadvantage is that it has a limited range of intensity. This coordination can be used with either bent or flat finger positions (Schultz, 1936).

Small Muscles plus Long Flexors. To feel this coordination, the pianist should lay the right arm on the thigh with the fingers loose and in normal playing position. Each finger except the thumb in turn presses into the thigh so that there is downward movement in the mid-joint and in the nail joint. There should be no movement on the part of the hand in the wrist joint and no contraction on the part of the finger extensors. Schultz (1936) described this as a "throw" (p. 150) of the finger as a unit from behind, which facilitates the breaking-in of the mid-joint.

At the piano, this coordination feels like the mid-joint is relatively loose while the wrist joint is fixed in order to prevent the hand from moving up in reaction to key depression. Using the left hand as a support for the right hand under the palm may help in mastering this coordination. A five-finger pattern should be practiced non-legato with a pause after each tone to evaluate each finger stroke. After mastering the coordination, the artificial fulcrum provided by the support of the left hand can be removed, and speed can gradually be increased. In spite of the collapse the mid-joint, the keys must feel placed on their beds, the key descents controlled, and the actions of the fingers definite (Schultz, 1936).

This finger coordination shows a smaller advantage for velocity and control over intensities than the coordination of Small Muscles Alone, but possesses a wider range of intensity. It has the disadvantage of interfering appreciably with the velocity and control of hand movements. This coordination is only possible when the fingers are in a relatively flat position (Schultz, 1936).

Long Flexors plus Extensor plus Small Muscles. This finger coordination is sometimes necessary, because passagework generally requires some raising of the fingers. The extensor raises the finger, and its antagonist, the flexor, lowers the finger. If one finger is raised, the others must become rigid in order to retain their positions. This degree of rigidity is usually slight. However, students have the tendency to fix their fingers considerably in excess to the degree needed. Keeping tensions under the mid-joint at a minimum and keeping the hand knuckle as free as possible help to eliminate unnecessary stiffness (Schultz, 1936).

For this coordination, the pianist should practice finger strokes first with the arm lying along the thigh, all unused fingers resting in a condition that is as relaxed as possible. Finger lift should be kept to a minimum when practicing at the piano. Practice should be slow, with all key attacks carefully prepared. If stiffness is suspected because of excessive use of the extensor, the sensation of "dropping" (Schultz, 1936, p. 161) the end of the finger during key depression may help. To drop a finger means to relax all muscles and abandon it to the force of gravity. Combining the idea of drop with an active depression of the finger usually results in a decrease in the activity of the extensor. As tempo increases, there must be a general attitude of hugging the keys.

This finger coordination is only to be used when necessary, since it offers no advantages and, compared with the coordination of Small Muscles Alone, it shows a disadvantage for velocity and interferes with hand movements. Slight fixations are unavoidable during most piano playing, making this coordination necessary. Larger fixations can and must be avoided. This coordination can be used with either bent or flat finger positions (Schultz, 1936).

Long Flexors plus Extensor. In this coordination, the flexor and extensor contract simultaneously, stiffening the finger and binding the three phalanges into one solid unit. According to Schultz (1936), this is a very common touch in piano technique, because it is simpler to lock the three phalanges of the finger into a unit than to apply three separate muscular pulls to three distinct phalanges. There is an unconscious tendency to contract the extensor when arm weight is lapsed onto a finger. The finger may not feel stiff even if stiffness is present due to the contraction of the extensor.

This finger coordination shows extreme disadvantages for velocity and control of intensities and interferes with the velocity and control of hand movements. Its only advantage is a wide range of intensity, which justifies its use on rare occasions. This finger coordination can be used with either bent or flat finger positions (Schultz, 1936).

Table 17

Summary of Four Viable Finger Coordinations

Coordination	Description	Advantages	Disadvantages
Small Muscles Alone	- Allow mid-joint to break. - Feel uninhibited swing of the finger in the hand knuckle. - Bent or flat finger.	- Velocity. - Control of intensity. - Does not interfere with hand movements.	- Limited range of intensity.
Small Muscles plus Long Flexors	- Collapse in the mid-joint and nail joint. - "Throw" of the finger as a unit from behind. - Flat finger only.	- Wider range of intensity than Small Muscles Alone. - Still an advantage for velocity, but less than with Small Muscles Alone. - Still an advantage for control of intensity, but less than with Small Muscles Alone.	- Interferes with the velocity and control of hand movements.
Long Flexors plus Extensor plus Small	- Necessary finger lift causes some tension, but finger lift and tension	- None, but necessary since slight fixations are unavoidable.	- Velocity. - Interferes with hand movements.

Muscles	should be kept to a minimum. - Drop the finger end to lessen excessive contraction of extensor. - Bent or flat finger.		
Long Flexors plus Extensor	- Flexor and extensor contract, binding three phalanges into one unit, creating a stiff finger. - Used rarely. - Bent or flat finger.	- Wide range in intensity.	- Velocity. - Control of intensity. - Interferes with velocity and control of hand movements.

Playing Apparatus

Muscles

The muscles of the body are not under direct control of the human will. A person does not decide to contract the biceps muscle and then discover that the forearm moves. Instead, a person decides to move the forearm and then discovers that the biceps muscle has contracted. Often a muscle primarily controlling movement at one joint contributes secondarily to movement at another joint, and the number of muscles involved in a movement at a single joint may vary with the extent or force of the movement. Therefore, Schultz (1936) stated that teachers must concern themselves with the teaching of correct movements and correct fixations rather than with drawing the student's attention to the names and contractions of specific muscles.

Body

The relationship among parts of the playing apparatus is described by Schultz (1936) in terms of leverage and anchorage. Therefore, the units used in playing include:

1. The three phalanges of the finger swinging as a unit in the hand knuckle.
2. The hand and finger swinging as a unit from the wrist joint.
3. The forearm, hand, and fingers swinging as a unit in the elbow joint.
4. The whole arm swinging as a unit in the shoulder joint.
5. The forearm, hand, and fingers rotating in the radio-ulnar joint,

6. The whole arm rotating as a unit in the shoulder joint (Schultz, 1936).

Also possible is the body and arm swinging as a unit in the hips. But, according to Schultz, this combination is not required in piano technique.

Shoulder and Arm

The human shoulder, arm, forearm, hand, and fingers contain more than 20 joints directly involved in piano playing (Schultz, 1936).

Fingers

The three phalanges of the finger are divided by three joints: hand knuckle, mid-joint, and nail joint. Generally, a flatter position of the fingers is better. In most finger coordinations, described under Tone Production, the mid-joint and nail joint are allowed to collapse, and the small muscles of the hand and fingers are found to be useful (Schultz, 1936).

Thumb. The action of the thumb should be entirely confined to the first phalanx in the joint near the wrist, with no supporting contractions at the other joints. Vertical movement of the thumb playing on its side is the natural thumb movement (Schultz, 1936).

Contraction and Relaxation

The emphasis on relaxation in piano technique has been excessive to the point of absurdity. No muscle is ever completely relaxed. Tension is always present, owing to a slight intensity of neural stimulation known as muscle tone. Muscle tone contributes to the efficiency of movement and is usually greatest after a period of activity, least after a period of inactivity, and changes with various degrees of emotional excitement. For instance, muscle tone is low after sleeping, resulting in physiological awkwardness. Schultz (1936) did not recommend movements in joints that are strongly fixed above the normal muscle tone, since this causes fatigue. Normal muscle tone is adequate for the control of most pianistic movements.

Antagonistic muscular contraction is not necessarily detrimental. If it was, most sports would be unhealthy, since antagonistic muscular contractions are constantly engaged to stiffen joints when playing sports. Every neural impulse to contract a muscle is accompanied by the

impulse to relax the antagonistic muscle. Movement is controlled not only by the rate of contraction in an active muscle, but by the rate of relaxation of the antagonistic muscle. In piano playing, contractions of antagonistic muscles are absolutely necessary for precision. However, the unnecessary simultaneous contraction of a muscle and its antagonist is a waste of energy in piano playing and should be avoided. Besides unnecessarily excessive contractions, exaggeratedly loose joints should also be avoided. Both are physiologically inefficient (Schultz, 1936).

Mind/Body Relationship

Though Schultz (1936) mainly focused on the movements and conditions of muscles and playing units, he did mention the important relationship between the mind and body when he stated, "All the movements of piano technique have their origin in the volitional centers of the brain, with the pianist willing each of his touch-forms in accordance with some kind of mentally perceived mechanical pattern. The basic function of pedagogy is to establish correct patterns in the student's mind" (pp. 297-298).

III. Exercises

Exercises

Though Schultz (1936) provided exercises for sensing the different touches, he said that strengthening fingers through copious finger exercises is unnecessary. Aside from following general rules of health, practice that induces fatigue by using muscles moderately over a long period of time or by exerting them powerfully for particular passages promotes growth of the individual muscle fibers, which builds endurance. Therefore, all piano playing strengthens the playing apparatus. The purpose of exercises is not to strengthen the muscles, but to gain voluntary control over the muscles. Care must be taken to avoid injury by ceasing practice before extreme fatigue sets in and by avoiding contractions of an inordinate degree.

IV. Movement at the Keyboard

Physical Movement

Schultz (1936) noted that the beginner comes to the piano with an unconscious knowledge of most of the movements used in piano playing, which have been learned through everyday experience. With the exception of finger action, almost no movement is required at the piano which the student has not already used elsewhere. Teaching students appropriate movement-types for various effects at the piano, rather than creating these movement-types, constitutes the larger part of technical education. Students need to be able to select movement types based on their mechanical appropriateness to the music and also must have the ability to change quickly from one movement type to another. A highly coordinated movement is one that fulfills certain mechanical requirements with a minimal expenditure of physiological energy. This economy of energy is the result of good coordination, not the cause.

Hand Expansion

In Schultz's (1936) exercises for practicing the finger conditions, the hand remains in a closed position as much as possible. After the finger has played, it must not remain over its key, but instead the lateral muscles relax as the hand moves toward the finger that is in the act of playing. The span of the hand is, therefore, always somewhat less than the distance of five keys. In performance as well as in exercises, the hand reverts to the closed position as soon as the necessity for a stretch is finished.

V. Fundamental Forms

Rotation

Schultz (1936) believed that rotation aside from that necessary to bring the hand into playing position is only useful in *tremolo* figures and in balancing the weight over the supporting finger during arm touches. He said it is a "regrettable feature" (p. 180) that modern pedagogy to has emphasized forearm rotation to the extreme.

According to Schultz (1936), key depression is not made by simple rotary movement of the forearm, since this type of movement is at a disadvantage for velocity. Such movements are combined with the release of arm weight, the weight more than the rotation being responsible for tone production. Rotary motion should be combined with independent finger movement only when finger strength is incapable of producing the required degree of tonal intensity. However, since this arrangement involves a movement of two playing units into the key at once, it results in poorly controlled intensity. This forearm rotation with alternating contractions, as Schultz termed it, usually takes place either partially or entirely in the shoulder joint and is valuable for arm touches and weight transference. Schultz said that the rotary adjustments made to assist fingers in rapid passagework are absurd because of the double rotation needed when the hand rotates back on itself to give impetus for the next finger.

In *tremolo* figures, the axis of rotation is in a line that passes through the 4th finger. However, if the hand is abducted in the wrist joint, the 3rd finger becomes the axis, creating a line approximately midway between the thumb and 5th finger around which the *tremolo* can take place (Schultz, 1936).

Scales

Schultz (1936) stated that the problem of lateral movement of fingers resolves itself to moving each finger, as soon as its key depression is completed, toward its next key as swiftly as possible. In passing the thumb under the hand or the fingers over the thumb, care must be taken to avoid lateral movements of the hand in the wrist joint.

In playing a C major scale ascending in the right hand, the thumb plays C, followed by the 2nd finger on D. As soon as the D has sounded, the thumb passes swiftly under the hand to F, its tip remaining close to the key surface. All three phalanges of the thumb are flexed when passing under the hand. When the 3rd finger sounds E, the 2nd finger rises and crowds against the 3rd finger, its tip being actually over the playing finger. The thumb then plays F as the entire arm is moved over to the next five-finger position. The 2nd and 3rd fingers play G and A. As the 4th

finger plays B, the 3rd finger is crowded to the right, its tip being high enough to permit the tip of the 2nd finger to reach between it and the 4th finger. In descending scales, each finger is crowded against its predecessor, and the thumb is extended in all three phalanges (Schultz, 1936).

Lateral movements of the thumb are accomplished principally by movements of the first phalanx. However, movements of the 2nd and 3rd phalanges are also involved. Slow, exaggerated practice establishes these habits of movement. In fast scales, there is not enough time to actually reach the crowded positions of the fingers, but the tendency to reach it still exists (Schultz, 1936).

Chords

Chords are easier to play with flat fingers. To attempt an arched hand position in a spread chord position is to ignore physiology (Schultz, 1936).

VI. Basic Musical Inflection

Articulation: Legato

Legato is an important factor in the perception of good piano tone quality. Schultz (1936) believed that too often legato is seen as an academic duty owed to a phrase mark rather than "one of the chief joys which a tonal succession…can give to the human ear" (p. 196). Legato is produced in the following ways.

Weight-Movement

The weight of the arm depresses the key, and immediately after key depression, all the weight is again supported by the shoulder except for the light weight needed to hold the key down. The wrist joint is raised by bringing the upper arm forward and bending the forearm. If a considerable portion of the arm weight is now released without further contraction of the hand flexor, the arm will fall through the wrist joint. After the fall is underway, the flexor of the hand contracts to deliver the force of the falling weight to the next finger that is to play. The finger that played first relaxes the moment the second tone is sounded. However, some tension must always be present throughout the touch form if legato is to be secured. In summary, Weight-Movement

produces legato through a series of weight-movements with incomplete support at the wrist joint and without independent downward movements of the fingers (Schultz, 1936).

Contra-Fixation Movement

Legato with the arm or finger as the playing unit is possible in Contra-Fixation Movements. As in Weight-Movement legato, the arm connects the tones by moving up and down in the wrist joint. The mechanics of the two touches are the same, except that in Contra-Fixation Movement the downward force into the key results from muscular contraction rather than from weight alone. Contra-Fixation Movements of the fingers are the most efficient legato touch to use when the rate of succession exceeds that which the arm touches can produce, because the base does not need to be retrieved before the next finger plays (Schultz, 1936).

Trans-Fixation Movement

The base moves after every key depression, but because the base returns rapidly, a series of tones can be connected if the tempo is relatively slow (Schultz, 1936).

Articulation: Staccato

A staccato tone must fulfill two conditions: it must be both short and isolated from other tones. Staccato depends on the speed with which the playing unit releases its key after tone has been produced, which depends on the shortness of effective contact between the playing unit and the key after the keybed has been reached. Trans-Fixation Movements, which involve the return of the base simultaneously with the release of the keys, are suited to the production of staccato. Contra-Fixation Movements can also produce staccato if the length of staccato is not too short (Schultz, 1936).

Staccatissimo is produced using unprepared key attack in conjunction with Trans-Fixation Movements of the hand or fingers. This is the only justification for unprepared hand or finger touches (Schultz, 1936).

Dynamics and Tonal Control

Tonal intensity is in direct proportion to the speed of key descent, which depends on the extent of the movement and the degree of muscular contraction. Velocity and tonal intensity are inversely proportionate to each other (Schultz, 1936).

In Weight-Movement, the range of tonal intensity is wide (Schultz, 1936).

In Contra-Weight Movement, the range of tonal intensity is somewhat at a disadvantage but is generally adequate for most legato passagework and for chords of moderate intensity. This movement type does, however, allow for greater control of variations in intensity than other movement types (Schultz, 1936).

Trans-Fixation Movements show an advantage for the degree of intensity but a disadvantage for control of intensity (Schultz, 1936).

Tone Quality

Beautiful tone quality is one of the most important measures of a pianist's artistry. Schultz (1936) said that tone quality is dependent on tonal intensity. There cannot be a change in quality without a change in intensity, and vice versa. Schultz credited Otto Ortmann and Dr. William Braid White with experiments that determined this relationship between tone quality and tonal intensity.

Besides the main determinant, tonal intensity, the following factors also influence perceived differences in tone quality.

First, Schultz (1936) said that the absence of true legato is the most important factor that results in the perception of a bad piano tone. Schultz stated that "the greatest single point of neglect and inattention in modern teaching and playing relates to the manner in which tonal units follow upon one another" (p. 196).

Producing a legato in a slow tempo is not difficult. Even the beginning child can merge tones of the first exercises quite successfully. It is in moderate to fast successions of tones that the execution of legato becomes difficult. Unsatisfactory legato usually produces a non-legato rather than a staccato sound. Teachers and writers almost always discuss legato playing in terms of slow

successions of tones, while in rapid successions the musical effect can become even more beautiful. The pianist must listen carefully and make sure that the fingers really bind the keys together at all tempos. Because Contra-Fixation Movements have a fixed base, control of legato is easiest with this movement type (Schultz, 1936).

Second, percussive noises influence tone quality. These noises result from an impact of the fingers on the keys and from the impact of the hammer on the strings in an unprepared stroke. The amount of percussive noise depends on the speed with which the finger comes in contact with the key surface. The speed varies with the size of the playing unit. The greater the mass of the playing unit, the less quickly it needs to move to produce a given tonal intensity, and the less noise it creates. Therefore, percussive noises are most offensive when the smallest playing unit, the finger, swings in the hand knuckle joint with an unprepared key attack (Schultz, 1936).

Third, disproportionate intensities in a phrase, heard as dynamic imperfections, spoil the expressiveness of the phrase and contribute to the impression of bad tone quality (Schultz, 1936).

Fourth, extremely loud tonal intensities, such as extreme noises, are disturbing and unpleasant and are heard as bad tone quality. There is a range of pitch and a range of duration that the ear prefers. Pitches outside this pitch range and of too long or too short duration are perceived as having bad tone quality. A tone that is moderate in pitch, intensity, and duration is most satisfying to the ear (Schultz, 1936).

Three of the above factors, legato, absence of percussive noises, and controlled intensities, depend on a single technical principle: the controlled key descent, making this the most important component of technical training (Schultz, 1936).

Tempo

The correct coordination of finger muscles is important to velocity. Two requirements for velocity are that the movements be confined to the slightest distance possible, the depth of key descent; and that the movements be confined to the playing unit without the displacement of

the base. Because of these factors, very rapid finger and hand passages cannot be played *forte* even by the greatest technicians, and high lifted fingers are inconsistent with velocity (Schultz, 1936).

Because a small playing unit cannot produce a large intensity, while a large playing unit can produce large and small intensities, it is musically and technically wisest to use as large a playing unit as can be compatible with the velocity of a passage in order to secure both velocity and a wide range of tonal intensity (Schultz, 1936).

Weight-Movements have a disadvantage in terms of velocity, because in movements of the whole arm, muscular exertions are superior in velocity to movements by weight alone (Schultz, 1936).

Contra-Fixation Movements fulfill the requirements for velocity, because a finger may rise from the keybed immediately after key depression without waiting for the next finger to assume the support of the base (Schultz, 1936)

Trans-Fixation Movements, though the fastest of the trans-movements, are slower than Contra-Fixation Movements due to displacement of the base for every key depression (Schultz, 1936).

Table 18

Advantages and Disadvantages of the Movement Types

Movement Type	**Advantages**	**Disadvantages**
Weight-Movement	- Tonal intensity.	- Velocity.
Contra-Fixation Movement	- Control of intensity. - Velocity. - Staccato that is not too short. - Control of legato.	- Tonal intensity (slight).
Trans-Fixation Movement	- Staccato. - Tonal intensity.	- Velocity. - Control of intensity. - Control of legato.

Table 19

Elementary Level Technical Concepts According to Schultz

Elementary Level Technical Concepts	Arnold Schultz
I. Philosophy	

Philosophy of Technique	- Technique is about beauty of interpretation, not just about velocity playing.
	- The intended interpretation is more important than physiological ease.
	- Choose the best touch form for a passage after weighing the advantages and disadvantages related to:
	  - Control of intensity.
	  - Control of duration.
	  - Degree of intensity.
	  - Velocity.
	  - Physiological ease (least important).

Philosophy of Teaching	- Method in teaching is indispensable. - Imitation and trial and error are important teaching strategies. - When imitation and trial and error fail, conscious analysis of physiological facts can help the student who is not naturally gifted find the way to technical ease.
II. Basic Components	
Posture	- Upper arm is lifted somewhat forward. - Forearm is level with the keys. - Hand is supported to keep weight from pressing on the keys. - Fingers hang loosely from bridge. - Trunk leans slightly forward rather than back.
Hand Position	- Wrist is level or slightly lower than the keys, neither too high nor too low. - Flat finger condition is used the most. This is not very flat, but is found as the natural shape of the fingers if the arm is hung at the side and all the muscles are relaxed. - Bent position of fingers is used only if legato is not needed and intervals of the passage are a second or less. - Teach the flat finger condition first.

Tone Production	- Controlled key descent is the first objective.
	  - Force through the whole course of key descent.
	  - Retain some force on keybed for the required duration.
	- Three practical movement types:

	- Weight-Movement: Weight alone. For slow passages. - Contra-Fixation Movement: Muscular contraction with an unmoving base of fixation. Normal piano touch. For passages of moderate intensity at all tempos and for staccato. - Trans-Fixation Movement: Muscular contraction with a moving base of fixation. For *staccatissimo* and fast and loud passages. - Four possible finger coordinations: - Small Muscles Alone. - Small Muscles plus Long Flexors. - Long Flexors plus Extensor plus Small Muscles. - Long Flexors plus Extensor.
Playing Apparatus	
- Muscles	- Teach body movements and fixations, since movement of limbs, rather than movement of the muscles, can be willed. - Muscles primarily involved with the movement of one joint also affect other joints, making description of muscular movement complicated.
- Body	- The relationship among the body members is one of anchorage and leverage. Each part of a limb swings in the next joint closest to the center of the body. - The body and arm swinging in the hip joint is not used in piano playing.
- Arm	- The shoulder, arm, forearm, hand, and fingers contain more than 20 joints directly involved in piano playing.
- Fingers	- Three phalanges divided by three joints: hand knuckle, mid-joint, and nail joint. - A flat position of the fingers is best. - The mid-joint, as well as the nail joint, collapses, and the small muscles of the hand and fingers are used.
Contraction and Relaxation	- Muscle tone is always present. No muscle is ever completely relaxed. - Movement in joints strongly fixed above normal muscle tone cause fatigue and is not recommended. - Antagonistic muscle contraction is necessary for speed and control of movements. - Unnecessary, simultaneous contraction of a muscle and its antagonist is a waste of energy. - Exaggeratedly loose joints are detrimental.
Mind/Body Relationship	- All movements of piano technique have their origin in the volitional centers of the brain. - The basic function of pedagogy is to establish correct

	patterns in the student's mind.
III. Exercises	
Exercises	- Purpose of exercises is not to strengthen the muscles, but to gain voluntary control over the muscles. - There is no need for copious exercises to strengthen the muscles. All piano playing strengthens the apparatus.
IV. Movement at the Keyboard	
Physical Movement	- Movements from everyday life are used in piano playing except for certain types of finger action. - Coordinated movement fulfills certain mechanical requirements with minimal expenditure of physiological energy. - Economy of energy is the result of good coordination, not the cause.
Hand Expansion	- Play with a closed position of the hand as much as possible.
V. Fundamental Forms	
Rotation	- Key depression using rotation results more from weight than from rotation. - Balances the weight over the supporting finger during arm touches and adds intensity to finger touches. - *Tremolo* figures. - Not to be used in rapid passagework.
Scales	- Move each finger toward its next key as quickly as possible, crowding against the other fingers. - The thumb moves quickly to its next key when passing under, using flexion of the three phalanges. - The arm shifts to each new five-finger position. - Descending, the three thumb phalanges are stretched out. - All phalanges are used in lateral movement of thumb. - Establish movement habits through slow, exaggerated practice.
Chords	- Play with flat fingers for wider lateral reach.
VI. Basic Musical Inflection	
Articulation: Legato	- Weight-Movement: Weight movement with incomplete support at the wrist joint and without independent downward movements of the fingers. - Contra-Fixation Movement: Same as Weight-Movement, except muscular contraction, rather than weight alone,

	causes key depression. The best legato touch for faster successions than arm touches can produce. - Trans-Fixation Movement: The base is moved after every key depression. Can only connect tones at a relatively slow tempo.
Articulation: Staccato	- Depends on the speed with which the playing unit releases its key after tone has been produced, which depends on the shortness of contact between the playing unit and the key after the keybed has been reached. - Contra-Fixation Movements can produce staccato that is not too short. - Trans-Fixation Movements are best for *staccatissimo*. - *Staccatissimo* is the only justification for unprepared hand or finger touches.
Dynamics and Tonal Control	- Determined by speed of key descent, which depends on the extent of the movement and the degree of muscular contraction. - Tonal intensity and velocity are inversely proportionate. - Weight-Movement: Wide tonal range. - Contra-Weight Movement: Sufficient tonal range for most passages. Greater tonal control than other movement types. - Trans-Fixation Movement: Large tonal intensity, but less tonal control.

Tone Quality	- Beautiful tone quality is important to artistry.
	- Tone quality is dependent on:
	  - Tonal intensity.
	  - Legato.
	  - Percussive noises.
	  - Proportionate intensities in a phrase.
	  - Avoidance of extremes in intensity, pitch, and duration.
	- Control of key descent is important for producing good tone quality in relation to factors above.

Tempo	- Use the smallest movement possible. - It is impossible to play very loud and fast at the same time. - Use as large a playing unit as is compatible with the velocity of the passage in order to secure both velocity and a wide range of tonal intensity. - Contra-Fixation Movements are best for velocity.

William S. Newman

Source

The Pianist's Problems (1950/1984).

I. Philosophy

Philosophy of Technique

Concerning problems in piano technique, Newman (1950/1984) believed that "with all the advances in the psychology of training… there should be, by now, if not one right answer to each question, at least a preferred answer that will be right for the large majority of pianists" (p. 2). He said that these preferred answers can substantially help the average students avoid pitfalls and can smooth the "torturous road" (p. 2) from beginner to accomplished pianist. The answers presented in Newman's book grew out of research by Breithaupt, Ortmann, Leschetizky, Matthay, and Busoni.

Newman (1950/1984) noted that a simple test of basic mechanical talent, developed by Carl Seashore, is to observe how many times per second a student can tap his hand on a table. Newman reported a marked correlation between tapping speed and technical fluency in his own students. However, technical capability is not synonymous with technical achievement. Technical achievement requires, besides a good hand, an intelligent approach to technical problems, a perception of technical fluency as a musical need, and hard work.

Newman (1950/1984) remarked that all sorts of "hokum" (p. 44) are found in elementary piano methods, which say to rotate the elbow in one passage, raise the wrist in another passage, or to play with soft fingertips in yet another. Newman aimed to cut through the "junk" (p. 44) by restating the basic leverage principles that are the foundation of piano playing.

Philosophy of Teaching

Newman (1950/1984) advocated an interesting approach to teaching beginners found in Leonhard Deutsch's *Guided Sightreading* approach. In this *gestalt* approach, the teacher seats the beginner at the piano in front of the piano music, puts the student's finger on the starting note,

and has the student start playing based on the direction of the notes. The teacher plays along in a higher octave to provide an idea of the sound and to support the rhythmic flow. Explanations are given only when necessary. Deutsch's argument was that the beginner does not learn effectively step-by-step but wants to reproduce the total result. Refinements come later. In this way, the meanings and relationships in the music are discovered by the student apart from the teacher, and immediate success is experienced.

All practice is supervised at first, since it is unreasonable to expect independent practice from a young beginner. According to Newman (1950/1984), this approach would work best if the student had lessons three times a week for 10 minutes each, rather than one 30-minute lesson per week.

In teaching beginners, Newman (1950/1984) stressed that the object of the first years is not perfection but a broad keyboard experience that is as varied as possible. Therefore, technique work should be limited to simple exercises that give the student a familiarity for the whole keyboard. By advocating Deutsch's approach, Newman showed his support of a philosophy of teaching that embraces exploration by the learner, emphasis on student discovery rather than on teacher lecture, and an open-minded approach to piano development that begins with the broad musical picture and allows the student to polish the details gradually.

II. Basic Components

Posture

The ideal position is a pliable, adaptable, easy, yet alert posture that is halfway between a rigid and a slumped position. The average student who is healthy and normally graceful needs only a little instruction to establish good habits of posture (Newman, 1950/1984).

The pianist should sit on the front half of the bench. The knees are not be more than an inch or two under the keyboard. This position, although it may seem far away from the keyboard, allows the body to be poised for action and the arms and shoulders to achieve full freedom and keeps the wrists from being cramped (Newman, 1950/1984).

Regarding bench height, Newman (1950/1984) said that about 10 inches from the surface of the keys down to the top of the bench is normal, although variations exist based on individual body proportion. Shorter people or those with short arms may prefer to sit as much as an inch higher than this. Sitting too low is more detrimental than sitting too high, because it constrains finger action by forcing the wrists and knuckles to rise to accommodate for the low sitting position. On the other hand, sitting too high constrains hand action by forcing the wrists and elbows to lower to accommodate for the high position. Awkwardness at the piano is most commonly caused by sitting too high or too low. In addition to the proper sitting height, it is important to remember that the legs, arms, and back work as a unit. Improper alignment in the body leads to fatigue and faulty hand action.

The elbows should be several inches out from the body. This helps compensate for unequal finger lengths and allows the arm, forearm, and hand to be free in their movements. The elbow tips will usually be on a level with the fingertips if the pianist is sitting at the right height (Newman, 1950/1984).

Hand Position

A fixed, rigid position with uniform attacks is undesirable. Finger, hand, and arm positions vary with the type of technique. The student can observe body and hand positions in a mirror while playing, and the teacher should move around the student, observing from different angles (Newman, 1950/1984).

The stereotypical position of the hand where the wrist is lowered, the fingers are neatly rounded, and the knuckles are held in is not an ideal position for all pianists or for all music. A fixed position interferes with the constant adjustments and extensions, both lateral and vertical, that must be made to play in and out of the black and white keys with short and long fingers. The most natural hand position is found by letting the hands hang freely at the sides, which will produce a finger position that is not too curved. Excessively curved fingers are detrimental, because this position reduces lateral stretch and constrains hand action (Newman, 1950/1984).

Wrist height differs depending on the playing unit that is used. A slightly low wrist is advantageous to finger touch, especially with flatter finger action. When the hand, forearm, and upper arm are the playing unit, a higher wrist is better (Newman, 1950/1984).

When teaching children in the beginning stages, forcing refinements in hand position at a time when gross motor controls are still begin learned could be harmful. Instead, it is normal for the child to "totter precariously" (Newman, 1950/1984, p. 196) with the movements and then eventually correct the form.

Tone Production

Newman (1950/1984) described the act of touch leading to tone production in terms of leverage. The lever of the trunk has its fulcrum in the hips and its base in the lower body. Newman described the stationary base for the fulcrum as everything beyond the fulcrum, with the hand as the base for the fingers, the forearm for the wrist, the upper arm for the elbow, and the trunk for the shoulder. The force comes from the muscles embedded in the base, which works the levers up and down through inflexible tendons. The key is the object of the force of the levers.

In order for a lever to work efficiently, the base of the lever must remain stationary, and only one lever should be used at a time. Departure from these two points makes playing more difficult and provides less control over tone production. A stable base allows the pianist to predict how much effort will be needed to depress a key for a desired tonal outcome. Failure to fix the base sufficiently to withstand the lever action abandons that lever and transfers responsibility to the next lever closer to the center of the body (Newman, 1950/1984).

Another factor in tone production is that of weight, which must be carefully apportioned. Dropping too much weight causes unnecessary effort, since the more weight is dropped, the more must be lifted again and replaced. The pianist should use only as much weight as is necessary for the desired musical effect. "Plopping" (Newman, 1950/1984, p. 51) weight can never achieve the same control as the deliberate placing of weight.

According to Newman (1950/1984), the four playing units of tone production are the finger, hand, forearm, and upper arm. These are used separately and in combinations. The choice of touch depends on the musical need. At first the student should complete a deliberate touch analysis of each new piece. So that any playing mechanism may be specified where needed and avoided where not, the student should first learn to use each mechanism by itself.

To develop a feel for each playing unit, the student should work each lever through the full orbit of motion that its hinge permits, although when playing, economy of motion is the goal. Each lever can then be practiced at the piano in a C major five-finger pattern. To help ensure that the base remains stationary, the middle finger of the non-playing hand can press just beyond the lever's hinge, i.e., on the small of the wrist beyond the hand or the small of the shoulder beyond the upper arm (Newman, 1950/1984).

To achieve a controlled key descent, the pianist must employ only one touch at a time, avoiding any give in the intervening joints. The fingers make use of a prepared attack, starting on, not above, the key surface. This enables the pianist to increase the speed of descent slightly but constantly and to stay in contact with the key right down to the bottom of the keybed. Touches of the hand, forearm, and upper arm depend primarily on unprepared attacks, which begin above the key surface (Newman, 1950/1984).

In most piano playing the fingers and hands are responsible for the majority of the playing. However, it is rare for the other playing units not to contribute as well. The full arm is used for sudden accents and drops on the start of two-note slurs. Without instruction, students tend to play using impulses from the arm more often than is necessary, with the fingers moving just enough to keep the whole hand from striking at once. In other words, the student fails to make a stationary base of the hand, transferring the responsibility to the trunk. This results in a jogging or bouncing motion of the hand and arm and reduces speed and control. This loss of control is most evidenced through a lack of legato. Arm jogging results from an ignorance of

finger action, laziness, or a misguided effort to exploit the weight of the arm (Newman, 1950/1984).

Playing Apparatus

Trunk

The trunk working in one piece from the hips to the finger pads has limited application, because it is too large to be used other than for single, separated attacks and releases. But because of its size and weight it can supply exceptional control (Newman, 1950/1984).

Upper Arm

The upper arm plays single notes, intervals, chords, and detached successions that do not require the forearm's added power. It is the prime agent in combination touches, serving as the impetus for a series of two or more notes played by the hand or fingers while providing a source of additional strength and endurance (Newman, 1950/1984).

Forearm

The forearm provides a maximum source of power and accuracy for single tones, intervals, and chords in need of emphasis. It, along with the upper arm, is the prime mover of the hand to different locations on the keyboard. The forearm also combines with the upper arm in rotary motion and other combination touches (Newman, 1950/1984).

Hand

Newman's (1950/1984) ideal hand, one that "achieves the greatest technical wizardry with the least effort" (p. 38) is chubby, pliable, and square and is moderate in size and in the lengths of the fingers. The chief function of the hand is to play staccato, but the hand can also contribute to a legato articulation when it is flexibly combined with finger action. The hand is used to play double notes, chords, and all single notes that are not too fast for wrist action.

Fingers

Newman (1950/1984) stated that "the use of the fingers must not become a lost art" (p. 53)! The fingers are used for legato playing, for nearly all single and double note playing, and for

fast playing. Newman recommended flat fingers, because tightness at the base of the hand results chiefly from playing with high and very round fingers. Newman cited Schultz's preference for flat fingers and stated that flat fingers offer advantages such as avoiding the long tendons that cause wrist binding and conserving energy, because they are smaller and stay close to the keys, thereby focusing their work only on the down finger stroke. In addition, a flat finger achieves a more direct stroke than a curved finger, allowing for maximum transfer of force. By starting on the key surface with a prepared attack and using the small muscles, better legato and faster speed in light playing are obtained, because there is an economy of energy due to the shorter distance of finger travel. When small muscles are used, allowing the finger to rise above the key becomes a waste of time and energy. However, this does not mean that the fingers should never be worked with conscious pressure and effort.

Newman (1950/1984) noted that playing with flat fingers aggravates the collapsing of the finger nail joints, especially in long, thin fingers. However, the solution to this problem is not to play with curved fingers. Newman instead recommended that the student allow and encourage the caving in so that the weak muscles of the fingers will get the needed exercise to grow stronger and will eventually be able to hold the desired shape. Tightly rounded fingers are unnatural and impractical.

Contraction and Relaxation

Relaxing completely is limpness and collapses the leverage system. A firm, contracted base must provide support for the use of the levers (Newman, 1950/1984).

Mind/Body Relationship

Newman (1950/1984) cited the *gestalt* ideas of Deutsch, Bonpensiere, Whiteside, and Mackinnon as being helpful new approaches to learning the piano. The idea, Newman said, is to avoid getting sidetracked by minutiae and abstract intellectualism. Newman favored a practical approach that is of real use to students.

Although Newman (1950/1984) admired these authors who set forth new ideas of concentrating on the whole rather than the parts, he cautioned that details must also be learned by way of analysis, planning, and wise practice. Throughout the process of learning and practicing, intelligent concentration is necessary, as opposed to a method that emphasizes brute force with constant repetition. In order to be of the best practical help to the student, Newman recommended that teachers break through the divide between subjective and objective teaching to find an approach that fits each individual student.

III. Exercises

Exercises

According to Newman (1950/1984), no one questions the need for some exercise and drill. The question instead is whether teachers choose exercises that meet a need or merely assign any and all exercises on the assumption that something practiced in an exercise will apply to the music. Newman believed that technique does not generalize and that each technical feat must be learned separately, noting that psychologists have discarded the theory of transfer of learning. Therefore, for the most part, using exercises such as those by Pischna (1931) and Hanon (1873/1900) is a sign of laziness in teaching, because the teacher allows the student to practice without concentrating.

Newman (1950/1984) instead recommended that exercises be created by the student from technical problems in the music being studied. The best exercises are those that use a perpetual motion figure with the least possible alteration from the music. Very often this figure will be a rotary passage that reverses its direction. For correcting passages in which notes are slurred over or skipped without sounding, practicing exercises in rhythms different from the source is recommended. Then fingers falling on the weak beats will be exercised due to the changed accents.

For beginners, Newman (1950/1984) recommended simple exercises that develop a sense of the spacing and geography of the keys and an awareness of the four playing mechanisms:

fingers, hand, forearm, and upper arm. For the fingers, students should play the chromatic scale in standard fingering. Sequential patterns such as the first Hanon exercise are also useful. For the hand, parallel thirds played by the 2nd and 4th fingers up and down the white keys are recommended. The forearm can do triads in root position in the same manner, and for the full arm the beginner can invent his own hand over hand patterns that repeat at each octave, "dog-paddle style" (p. 197). The smallest children will have to walk rather than sit to accomplish this.

Etudes

Newman (1950/1984) believed there may be some justification for practicing etudes by Czerny, Clementi, Cramer, etc., because their music has charm and some depth. However, he noted that it is important to remember that the practice of a Czerny study leads to perfection of that Czerny study rather than to success in playing Beethoven. The way to learn Beethoven is to practice Beethoven. The practice of Czerny can only help with playing Beethoven if the same passage appears in both. Each specific muscular coordination must be practiced to meet a particular situation, since technique does not generalize.

IV. Movement at the Keyboard

Physical Movement

Newman (1950/1984) warned against excessive arm rotations which are sometimes made in slow, expressive playing, including undulating wrists and "elbows like wing tips" (p. 62), because their doubtful use to free the arm or stimulate rhythmic flow is canceled by their mechanical disadvantage and distracting appearance.

Newman (1950/1984) said that the pianist who leans far to the left or right to play passages in the extreme ranges of the piano upsets support. Also, by moving the arms and body as a single unit, the pianist sacrifices freedom at the shoulders. Exercises in contrary motion from the center to the extreme ends of the keyboard can help correct this problem.

Keyboard Topography

As mentioned under Exercises, beginners should practice exercises that move over the entire keyboard in order to develop a sense of keyboard topography (Newman, 1950/1984).

V. Fundamental Forms

Rotation

According to Newman (1950/1984), rotation should only be used within narrow limits. It is too often prescribed for all pianistic ailments. Rotary motion helps to compensate for the short thumb and 5th finger. It is most successful when the figure spans at least a sixth, when the tempo is moderate or fast, and when the passage actually rotates. Rotation fails when the stretch is less than a sixth, becoming impossible when trilling. It also tends to fail when the volume grows too great, causing the forearm to lock. In addition, correct posture is important when using rotary motion, as no rotary motion will succeed if the posture is slumped.

Scales

Newman (1950/1984) recommended instructing students to play a scale outward from the center as if the hand was pulled along a lateral track with the elbow leading, yet not so rigidly as to restrict some compensatory movement at the wrist joint. The thumb then trails along the edge of the keys and has no difficulty in taking its place in turn with the other fingers. Snapping the thumb under might be successful at a slow tempo but becomes a hindrance in fast scale playing. In scales moving in toward center, the elbow pushes the hand instead of pulling. Newman recommended playing scales with the metronome in ones, twos, threes, and fours to the beat, and especially in fives, sixes, sevens, and eights to the beat, as this helps to bring scales under control.

VI. Basic Musical Inflection

Articulation: Legato

Legato can only be simulated on the piano, since it is a percussion instrument. The hand is the vehicle for legato, and the fingers cause the legato, because they start on the surface of the

keys. A very pliant legato with a secure grasp of the keys can be achieved if the student learns to move the fingers and hand laterally at the knuckles and wrist at least as much as they are moved vertically. This type of legato feels like it comes from within the hand. The pianist should imagine fitting into the varied molds formed by the myriad positions among the black and white keys similar to kneading dough or the walking of a big, slow spider. This yields a pleasurable and confident sense of being in control (Newman, 1950/1984).

Articulation: Staccato

The chief duty of the hand is to play staccato. A crisp staccato requires leaving the key quickly as if the key was a hot coal. Anything that delays the release spoils the crispness. The hand must play in one piece without collapsing at the finger joints, and the forearm must provide a firm base for the wrist fulcrum, with no forearm jogging (Newman, 1950/1984).

For one staccato note at a time, the hand starts on the keyboard and draws back sharply at the wrist. For a series of staccato notes, the hand starts above the keys and is dropped on a finger with joints firm from knuckle to fingertip. The wrist rebounds for each note (Newman, 1950/1984).

Rhythm

The metronome, in spite of its dangers of producing mechanical results, is a necessary practice tool. The student who does not or cannot practice with the metronome up to the point of being able to stay with it risks not understanding the music at all (Newman, 1950/1984).

Dynamics and Tonal Control

Tone volume requires power. However, too much power can be a nuisance. For utmost efficiency, the pianist should use the least powerful mechanism that will answer the need. When the volume demand is too great for one playing unit, the next bigger playing unit should be substituted (Newman, 1950/1984).

Tone Quality

Differences in tone quality are produced in two main ways: by the volume of each tone, and by the balance of tones when more than one tone is played at the same time. Four other factors also influence the perception of tone quality by the listener: legato; pedal; direction of phrasing, rhythmic groups, and harmonic inflections; and external noises (Newman, 1950/1984).

Tempo

There is an inverse ratio of speed to power. Much faulty playing and many harsh sounds could be avoided by remembering that an increase in speed requires a sacrifice in power and vice versa (Newman, 1950/1984).

Table 20

Elementary Level Technical Concepts According to Newman

Elementary Level Technical Concepts	William Newman
I. Philosophy	
Technique Philosophy	- There is a preferred answer for most technical questions based on past researchers and writers. - Technical achievement requires a good hand, an intelligent approach to technical problems, a perception of technical fluency as a musical need, and hard work. - Use scientific facts as the basic for technique. - Leverage is the basis for technique.
Teaching Philosophy	- *Gestalt* approach. Whole concept first. Polish the details gradually. - At the beginning of piano study, the goal is a varied musical experience, not perfection. - The learner discovers meaning. The teacher intervenes and explains only when necessary. - It is unreasonable to expect a young beginner to practice independently.
II. Basic Components	
Posture	- Pliable, adaptable, easy, alert posture halfway between a rigid and slumped position. - A healthy pianist with graceful movements needs little instruction to find the proper posture.

	- Legs, arm, and back work together. - Sit on the front half of the bench. - Knees are not more than an inch or two under the keyboard. - Height is about 10 inches from key level to bench top. Sitting too low is more detrimental than sitting too high, but a medium position is best. - Variations will exist depending on the proportions of the individual. - Elbows are several inches out from the body, level with the fingertips.
Hand Position	- Natural hand position is found by observing the hand when it hangs at the side of the body. - A fixed, rigid hand position is undesirable. - The hand makes constant adjustments due to touch form, keyboard topography, and to compensate for short and long fingers. - Low wrist for finger passages. Higher wrist for arm, forearm, and hand touches. - Children should not be expected to have a refined hand position at the beginning of piano study, because they are still getting control over their gross motor skills.
Tone Production	- Students should do a touch analysis of new pieces. - Leverage with a fixed base. - Apportion weight carefully. - Upper arm, forearm, hand, and fingers are the four playing units, used individually and in combination. - The trunk is also a lever, with the lower body as base. - For controlled key descent, the base must remain stationary, and only one lever can work at a time. - Students should not substitute arm jogging for finger work. - Fingers and hands are responsible for most playing. - Fingers use a prepared attack. Other units use unprepared attacks.
Playing Apparatus	
- Trunk	- Can only be used for single, separated attacks and releases. - Can achieve exceptional control because of its size and weight.
- Upper Arm	- Use for single notes, intervals, chords, and detached successions. - Prime mover, along with the forearm, for movement to different locations on the keyboard. - Prime agent in combination touches, serving as an impetus for a series of two or more notes played by the

	hand and fingers.
- Forearm	- Provides a maximum source of power and accuracy for single notes, intervals, and chords that need emphasis. - Prime mover, along with the upper arm, of the hand to different keyboard locations. - Combines with upper arm for rotary motion and other combination touches.
- Hand	- A chubby, pliable, square hand with moderate size and lengths of fingers is best. - Plays staccato and helps with legato of the fingers. - Plays double notes, chords, and all single notes that are not too fast for wrist action.
- Fingers	- Legato playing, single and double notes, and fast playing. - Hand and fingers do the most work in playing. - Flat fingers are better, because they stay close to the keys and allow strengthening of finger muscles to remedy the collapsing of the nail joints. - Tightly rounded fingers are unnatural and impractical.
Contraction and Relaxation	- Complete relaxation is just limpness and collapses the leverage system. - A firm base is needed to support the levers.
Mind/Body Relationship	- Intelligent concentration is necessary. - Though a *gestalt* approach is useful, the teacher should be able to distinguish between the subjective and objective for each individual student's benefit.
III. Exercises	
Exercises	- There is need for some exercise and drill. - Technique does not generalize. - Mindless practice of Pischna and Hanon is a waste of time. - Perpetual motion exercises should be created by the student from the music. - Beginners should practice exercises for keyboard geography and awareness of the playing mechanisms. - Fingers: Chromatic scale and Hanon No. 1. - Hand: thirds on the white keys with fingers 2 and 4, ascending by step. - Forearm: Triads on the white keys, ascending by step. - Whole Arm: Hand crossing exercises.
Etudes	- Etudes that have musical charm and depth may be worth studying. - Studying an etude leads to perfection of that etude. It does

	not generalize to other pieces.
IV. Movement at the Keyboard	
Physical Movement	- Do not make distracting and exaggerated movements with arms, wrists, or elbows. - Do not move the body to the extremes of the piano as a unit.
Keyboard Topography	- The beginner should practice exercises in keyboard topography all over the piano.
V. Fundamental Forms	
Rotation	- Rotation is used only for figures that span at least a sixth, are of moderate or fast tempo and moderate tonal intensity, and with a passage that actually rotates. - Posture must not be slumped.
Scales	- Traveling out from center, the hand is pulled along by the elbow with compensatory action of the wrist. The thumb trails along on the edge of the keys and takes its turn with the other fingers. - Snapping the thumb under is to be avoided. - Play with the metronome from one up through eight notes per beat.
VI. Basic Musical Inflection	
Articulation: Legato	- Hand and fingers are the vehicle for legato. - Fingers start on the surface of the keys. - Hand and fingers move laterally in the wrist and knuckles as much as vertically, fitting into the varied molds formed by the black and white keys.
Articulation: Staccato	- Hand plays staccato and must release quickly. - For a staccato note, draw the hand back sharply from the wrist. - For a series of staccato notes, unprepared attack. The hand drops on a finger with firm joints, followed by a rebound of the wrist for the next note.
Rhythm	- Playing with the metronome to the point of being able to stay with it is useful for understanding the music.
Dynamics and Tonal Control	- Use the least powerful mechanism that will answer the need. - When one playing unit cannot meet the demand, use the next bigger unit.

Tone Quality	- Differences in tone quality are produced by: - Volume of each tone . - Relative volume of one tone as compared to other tones being sounded (balance of tones). - Legato. - Pedal. - Direction of phrasing, rhythmic groups, and harmonic inflections. - External noises.
Tempo	- Speed and power are inversely proportional.

Luigi Bonpensiere

Source

New Pathways to Piano Technique (1953).

I. Philosophy

Philosophy of Technique

Bonpensiere's (1953) ideas about piano technique are highly original. He called his system of piano playing ideo-kinetics, which he defined as, "A technique which grants to voluntary acts the wisdom and competence displayed in the voluntary functions of the organism" (p. 16). Ideo-kinetics was also described as state of mind whereby, without the least conscious effort, the pianist can reproduce the most elusive and complicated techniques at the piano by using volition in overcoming physiological stimuli. Volition, or the will to execute a certain movement, guides the realization of ideated, or pre-thought, results.

If conscious volition is designated by the symbol V, then V2 is the complex of activities that responds to V. In physio-kinetics, the standard procedure for bringing about movement at the piano, an action is willed (V) and then carried out by physiological effort. In ideo-kinetics, V wills an action and V2 carries out the ideation without conscious effort by the physiological mechanism. Music and technique are integrally linked in ideo-kinetics, because the musical idea is the object that is ideated. The music should never be thought of in terms of execution but only in terms of interpretive rendering or what the sound would be like if a "performer from heaven" (Bonpensiere, 1953, p. 69) were to play it. The technique to carry out the idea is then produced without conscious thought. A passage should never be played for the sake of mere execution.

Ideo-kinetics brings the concepts of faith, humility, and self-control into the realm of piano playing. Faith is built through experimenting with ideo-kinetics and coming to the realization that the body will respond to the will without the pianist forcing the action through the conscious movement of the physiological mechanism, as would occur in physio-kinetics. When playing the piano ideo-kinetically, the pianist is completely unconcerned about what the hands are

going to do, releasing them with an unshaken assurance that the ideation will be realized (Bonpensiere, 1953).

Humility is important in ideo-kinetics, because the desire to show off or the preoccupation with self leads to a fear of not playing up to the expectation of the audience will ruin ideo-kinetics and bring the pianist back to the realm of physio-kinetics. Ideo-kinetics must be accepted with a reverent, selfless spirit (Bonpensiere, 1953).

Self-control is essential for the mastery of ideo-kinetics, because keeping V (conscious volition) from taking over V2 (ideation that leads unconsciously to the required physical action) takes much restraint of the physiological mechanism (Bonpensiere, 1953).

Philosophy of Teaching

To make an instant change from physio-kinetics to ideo-kinetics is usually asking too much of a person. Therefore, it is expedient to reach the unknown (ideo-kinetics) through the known (physio-kinetics), gradually taking steps toward a departure from the idea of physical effort. In procuring release, the pianist is simply transforming a voluntary motion into an involuntary one (Bonpensiere, 1953).

Bonpensiere (1953) wrote his book for advanced pianists who had already been trained in the standard physio-kinetic way of practicing and playing the piano. He said he did not know whether an advanced stage of development is necessary for obtaining good results with ideo-kinetics. Although he did not create a method for teaching piano through ideo-kinetics for beginning students, he did believe that a perfect physical predisposition to piano playing could be acquired ideo-kinetically before even touching the instrument. Therefore, he believed that it is not only possible to start learning piano by ideo-kinetics, but that it would be enormously economical in time and patience to do so. Bonpensiere said that if pianists and other musicians would work ideo-kinetically, many hours of useless toil would be avoided, and the musician could limit practicing to the perfecting of interpretation rather than to keeping strength in condition.

Since ideo-kinetics places so much emphasis on ideation of a musical idea before the mechanism is allowed to execute it, there is no room in ideo-kinetics for trial and error practice in perfecting technique. If the ideation is strong and the pianist has faith in the playing apparatus to carry out the ideation, pianistic results corresponding to the ideation will follow (Bonpensiere, 1953).

Mental, visual, or aural symbols, which represent a certain musical idea or a written passage of notation, are an important component of ideo-kinetics. Teachers need to be aware that responsiveness to the various types of symbols may not develop simultaneously in students. For instance, response to keyboard patterns may be the first to develop completely. The student should put the most emphasis on the symbol that brings the best response until all the following symbols have been mastered:

- Keyboard patterns.
- Graphic mental images.
- Names of the notes, mental images of their spelling.
- Acoustic images, fixed with either a graphic or denominational pattern.
- Repetition in different octaves by the visualization of a cipher representing a particular octave (Bonpensiere, 1953).

II. Basic Components

Hand Position

Bonpensiere (1953) said that the pianist should forget about notions such as hand position, lifting of the fingers, etc. The playing apparatus will find a way to fulfill all ideated musical ideas.

Tone Production

In physio-kinetics, all the physical units that will bring success to a movement are summoned. The pianist tries to produce the mental image of a musical thought and knows that

there are chances of success or failure. The pianist hopes to be successful. If there have been successful attempts in the past, the sense of trying lessens, and hope for success increases. If there are many physical factors involved, there is a greater need for coordination, making the task more complicated. If the exercise is repeated many times, the only help nature can give, since the pianist's self is asserted, is to transform gradually the kinetic act into a conditioned reflex. "The process is not one of pre-established infallibility, as one would expect from the majesty of nature" (Bonpensiere, 1953, p. 24). It is instead a process of trial and error.

In contrast, ideo-kinetics turns the practice of physio-kinetics on its head. In ideo-kinetics, instead of trying to play a passage correctly, there is absolutely no concern about the hands and what they are going to do. The pianist should not guide them even mentally. The conscious mind functions only as an ideative causation. The moment the pianist is even unwillingly helping the hands by thinking about where they should go, the physiological processes of physio-kinetics are revived, subtracting from the freedom and release of the physical mechanism found in ideo-kinetics. The pianist should let the hands release and be willing to risk playing wrong notes. When the pianist does not care about missing the notes but has a greater regard for the ideated musical idea, the danger of playing wrong notes decreases (Bonpensiere, 1953).

The following process was set forth by Bonpensiere (1953) as an experiment in ideo-kinetics.

1. Place the hand on a second inversion C major chord with the whole arm relaxed. Choose any fingering that comes spontaneously, which will depend on the build and dimension of the hand (Bonpensiere, 1953).
2. Look at the same chord two octaves higher. Perceive the structure of the chord (Bonpensiere, 1953).

3. With closed eyes, prepare for ideo-kinetics by giving the hand permission to go to the chord two octaves higher. If the hand does not move, full release has not been accomplished (Bonpensiere, 1953).
4. Keep the mental image of the chord in mind. If the image fades, look at the chord on the keyboard again. The movement depends on the clearness of the mental image. Because of the effort necessary to keep the mental image clear, it is impossible to think about the hand as well (Bonpensiere, 1953).
5. Decide that the chord must be struck (Bonpensiere, 1953).
6. The hand jumps to its destination. Do not intercept the motion by the desire to watch. Do not allow the mental image to fade or become blurred, or the chord will be missed (Bonpensiere, 1953).
7. If failure results, try again until familiar with the experience of letting the hand be free, rather than guided physiologically. Do not try to help the hand. Let it go limp even if it plays wrong notes (Bonpensiere, 1953).
8. Once the experiment is successful, practice the same thing with eyes open (Bonpensiere, 1953).

After the initial concepts of ideo-kinetics have been mastered, symbols are assigned to groups of notes, which are connected in ever larger groups of both melodic and rhythmic patterns. Practicing with shifted accents and stops also is helpful for ideating groups of notes in patterns. The symbols are necessary to keep the mind from being vigilant about physical activity. Once perfect coordination is established, the pianist can hold onto the idea of a symbol and forget about the action of the hands (Bonpensiere, 1953).

The more complete the pianist's release, the more powerful and perfect the playing. Even reading the score is done with greater precision. The pianist's attention is enhanced by the act of release, and great stimulation takes place in all the faculties of the mind. If the pianist occasionally

plays a wrong note, it is because the mind has been reading falsely. The hand will never fail to do the bidding of the mind (Bonpensiere, 1953).

Playing Apparatus

Muscles

Instead of cultivating strength through physio-volition, the pianist who has been trained ideo-kinetically evokes release and rejoices in the management of volition. If the pianist feels the least sign of neuromuscular contraction, something is wrong with the initial ideation (Bonpensiere, 1953).

Body

The limbs must be inert, as if refusing to move, for ideo-kinetic release to be successful. The perfection of ideo-kinetics results in complete limb automatism. The kinesthetic sensation of limb motion must become lighter and lighter as if the limbs were becoming ethereal and immune to gravitational pull. In ideo-kinetics is found a system whereby the pianist can be emancipated from all concern about detailed physiological knowledge. In fact, physiological knowledge is a hindrance to ideo-kinetics, because it allows physio-kinetics to infiltrate ideo-kinetics (Bonpensiere, 1953).

Arms

Hands and arms must become so released that they respond to the least suggestion of ideation (Bonpensiere, 1953).

Hands

Hands should be considered as outsiders of the integrated, conscious self. They are the wards of the pianist. The pianist may wish for a certain behavior by the hands, but must relinquish any right of physical hold over them. The hands are simply appended to the body, although they partake in the pianist's biological activity (Bonpensiere, 1953).

Contraction and Relaxation

Absolute release in every joint must always be ideated. If pressure or tension of the muscles occurs, it means that the pianist is ideating that tension (Bonpensiere, 1953).

Mind/Body Relationship

The mind is the instigator of all bodily movement in ideo-kinetics. The statement, "I want to perform this act" (V) is replaced by the ideo-kinetic idea of "I want this act to be performed" (V2) (Bonpensiere, 1953, p. 6). The conscious guidance of an individual's volition (V) is replaced by the guidance of the complex of involuntary processes (V2). The sole contribution of V to the motor act is the ideation of expected end results. The remainder of the unfathomable processes of transmission, transmutation, and neuro-physiological mechanics are the work of V2.

The action of V does not stop after issuing of the volitional ideation. It continues to follow the doings of V2 closely and continues its guidance over V2. V2 carefully obeys V's guidance within the limits of possible physiological mechanics. An example of this interaction between V and V2 is found in turning on a light switch. A person wants a light turned on (V). The person knows the hand is going to move accurately to the switch but does not think about the motion (V2), focusing only on the effect brought about by the hands, the light being turned on (V). Ideo-kinetics delivers individuals from the obligation of supervising voluntary acts (Bonpensiere, 1953).

The mind may anticipate the moment when the hands are going to fulfill a volitional idea, but if the release is complete, the pianist may look at the hands and their action objectively without in any way pushing them toward the accomplishment of their goal. The ideation is concerned with results only, not with the means or ways to obtain the results. It is possible for the pianist to look, watch, and even think of the special motion of the hands. However, the pianist must govern the will so as to avoid physio-kinetic effort in connection with the hands (Bonpensiere, 1953).

Symbols are an important part of ideo-kinetic processes. A single symbol can represent a group of notes. These symbols can in turn be grouped into systems of different points in space, similar to a constellation of stars. The dynamic action of ideation does not necessarily need to be utilized at the moment of its origin. A person can ideate an act and keep it in storage for any amount of time. When recreating a system mentally, any system of points in space already established in the consciousness can be resumed after the relocation in space of a minimal amount of its points. In other words, by means of a quick glance at one portion of the keyboard or by touching a silent chord, the interrelationship of points composing a system is rebuilt (Bonpensiere, 1953).

The repetition of a series of symbols along the extension of a system, as in repeating a chord or other group of notes in different octaves, establishes a temporary subsystem within the various periodic partitions of a larger system. The use of symbols and systems helps the pianist overcome fear, bondage, and effort, because the symbols monopolize the pianist's attention, allowing no room for negative emotions (Bonpensiere, 1953).

III. Exercises

Exercises

Bonpensiere (1953) said, "All exercises should be for the training of the mind alone to realize liberation from physical bondage" (p. 53). Exercises for training muscle strength are not necessary, since the muscles are capable of doing 20 times the amount of work implied in a skilled task such as playing the piano. It is the coordination of a rightly selected group of playing units adequate to the task that brings success. A pianist should never select the muscles to be used, because the wrong ones will often be chosen. Nature alone is suitable for selecting the correct muscles for the task.

Though practicing has no influence on anatomical elements, the pianist must have a restricted group of well-planned exercises to keep ideo-kinetic consciousness alive. These exercises should include octaves, three-note chords repeated at intervals of two or three octaves,

and broken chords within the range of an octave. If the player feels uncomfortable and fears backsliding in ability, arpeggios and occasionally some scales may be added. In addition, exercises do not need to be practiced with both hands. Whatever benefit one hand achieves from practice, the other hand also receives, not only in equal share but in a considerably greater proportion (Bonpensiere, 1953).

Shifting chords in all positions and tonalities is one of the best exercises in ideo-kinetics. In the beginning, it is best to use few chords to practice the shifting. In all exercises, it is best to repeat the same group of notes over and over until they acquire great clarity and precision. This permanently establishes freedom from spatial distance and measurement (Bonpensiere, 1953).

IV. Movement at the Keyboard
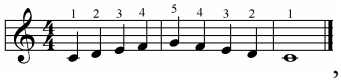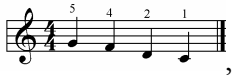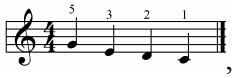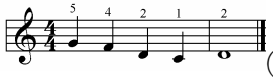
Lateral Movement

The fundamental exercise in ideo-kinetics is one of lateral movements of chords shifting by octave across the keyboard. When moving, the eyes should look at the place where the hand is to go, but they should not accompany the hand when it is moving. The glimpse at the goal on the keyboard serves to revive the symbol and provides ideological rather than mechanical help (Bonpensiere, 1953).

V. Fundamental Forms

Five-Finger Patterns

After the chord shifting exercise, a five-finger exercise should be practiced. While the hand is lying inert, the pianist establishes the symbols in the brain, and a release produces the five-finger pattern. The hand rolls from thumb to 5th finger and back, possibly with a rapid motion that is quicker than planned. Although the pianist ideates the expectation of the motion, the time interval between each note is not determined at first. The pianist should just expect the whole passage to be performed with ideo-kinetic release. After practicing the five-finger pattern with no ideated time interval, the pianist should alternate between letting the hand follow its spontaneous motion and ideating an assigned time sequence for the pattern (Bonpensiere, 1953).

When the hand shows a tendency to develop a new regular motion, it should never be interrupted. Nature must be allowed to build the right coordinations, which will be established forever. After practicing a regular five-finger pattern, , different note combinations in five-finger position may be practiced, such as , then , and then  (Bonpensiere, 1953).

Scales

Scales are not essential but can be practiced if the pianist feels insecure. Generally, scale practice is a waste of time in ideo-kinetic playing. If practiced, the goal should not be agility but rather recalling scale structure for practice in ideation (Bonpensiere, 1953).

VI. Basic Musical Inflection

Articulation: Staccato

To produce a staccato touch, all that is necessary is to imagine the effect. Thinking about the physical process of producing staccato by jumping or jerking a finger is not necessary. Ideo-kinetics does the work of translation between the ideation and the physical process (Bonpensiere, 1953).

Rhythm

If certain fingers show unevenness in a pattern and if repeating it does not bring improvement, the pianist should stop at once. The thinking must be changed (Bonpensiere, 1953).

Dynamics and Tonal Control

All the possible nuances of gradations of intensity can be rendered ideo-kinetically by thinking about the intended effect. The playing apparatus will then take care of the acceleration, angles of pressure, etc. Absolute release of every joint must be ideated (Bonpensiere, 1953).

Tempo

The hand will jump to a place corresponding to the speed of thought. However, visualization is at times a slow process, and if very rapid playing is needed, symbols are needed to group notes for ideation (Bonpensiere, 1953).

Table 21

Elementary Level Technical Concepts According to Bonpensiere

Elementary Level Technical Concepts	Luigi Bonpensiere
I. Philosophy	
Philosophy of Technique	- Ideo-kinetics vs. physio-kinetics. - Faith, humility, and self-control relate to piano playing. - Music and technique are intricately connected.
Philosophy of Teaching	- Make the switch from physio-kinetics to ideo-kinetics gradually. - It is possible to train people to play from the beginning using ideo-kinetics. - No trial and error practice. - Responsiveness to all symbols may not develop at the same time.
II. Basic Components	
Hand Position	- Forget about hand position. The playing apparatus will find a way to fulfill the musical idea.
Tone Production	- Ideate the musical thought, release the mechanism, and the physical mechanism will realize the idea. - Symbols are assigned to groups of notes. - The hand always does the bidding of the mind.
Playing Apparatus	
- Muscles	- Do not cultivate strength. Evoke release. - Neuromuscular contraction is a sign of wrong initial ideation.
- Body	- Limbs must be inert. - Perfect ideo-kinetics results in complete limb automatism. - Detailed physical knowledge is detrimental to ideo-kinetics.

- Arms	- Arms and hands are released to respond to ideation.
- Hands	- Hands should be considered outsiders of the conscious self, appended to the body.
Contraction and Relaxation	- Absolute release must always be ideated.
Mind/Body Relationship	- The mind is the instigator of all bodily movement. - Symbols represent passages and form systems. - Symbols can be kept in storage and do not need to be acted upon at the moment they are ideated.
III. Exercises	
Exercises	- All exercises are for training the mind, not the muscles. - Well-planned exercises should be practiced to keep ideo-kinetic consciousness alive. - Shifting chords between octaves. - Octaves. - Broken chords in the range of one octave.
IV. Movement at the Keyboard	
Lateral Movement	- Eyes look at the place the hand is going but do not follow it along the keyboard.
V. Fundamental Forms	
Five-Finger Patterns	- Practice after exercises with chords shifting by octaves. - Practice with and without concentrating on ideating the time interval between notes. - Practice different finger combinations.
Scales	- Not essential, a waste of time. - Scale structure can be helpful for practice in ideation.
VI. Basic Musical Inflection	
Articulation: Staccato	- Ideate the effect.
Rhythm	- If fingers are uneven, stop and change the thinking.
Dynamics and Tonal Control	- Ideate the effect. - Absolute release of every joint is necessary.
Tempo	- Visualization is a slow process, and symbols of groups of notes need to be ideated for fast playing.

Sources

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I. Philosophy

Philosophy of Technique

Last (1980) said, "The piano is…the most intimate of [the] keyboard instruments, able to reflect musical character through the sensitive skill and control of the *fingers*. This is what technique is all about" (p. 9).

All playing must be motivated by a musical intention, or a "listening desire" (Last, 1960, p. xii). Technique must be studied in order to fulfill this definite artistic desire, but technique must be the servant of music, not its master. Last (1954/1972) believed wholeheartedly in technical training for students at the early levels of piano playing and is the only one of the Technique Authors whose writings are completely devoted to teaching young people. She said, "Success or failure as a pianist depends largely on the early years, when good or bad habits are being formed. One must, at all costs, train the hands and arms into good habits, so that the pupil is not constantly struggling to express himself against the handicap of a poor technique" (p. 21).

Philosophy of Teaching

The teacher's task is to analyze technical movements, to detect faulty muscular action, and to help students build a secure technique. Teachers should start their teaching from where the movement begins, with sitting posture, rather than where it ends, at the fingers (Last, 1980).

II. Basic Components
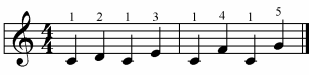
Posture

The pianist is to sit only on a part of the bench with feet supported on a footstool if they cannot reach the floor and with the right foot a little ahead of the left foot. The height should allow the elbow to be in line with the knuckles. The arm is lightly poised, supporting the hand rather than dragging it down. Leaning forward slightly helps the pianist control the arms and fingers. Proper distance from the piano is found by reaching for a high note with the left hand and a low note with the right hand. If these notes can be played without leaning backwards, the distance is correct (Last, 1980).

Hand Position

The proper hand position is found by dropping the hand naturally at the side of the body or by grasping the knees with the hands. The fingers in this position are neither straight nor curled. Over insistence on curved fingers in the beginning stages causes problems. The pad of the finger, rather than the finger tip, is in contact with the keys. The fingers become less curved when a stretch is required. (Last, 1980).

In a five-finger position, fingers 2 and 3 fall near the black keys while the 5th finger is near the edge of the key. The thumb rests on its side a little beyond the length of the nail. Beginners should not play too near the edge of the keys, because this results in a jerk when the thumb is played and makes playing the black keys more difficult (Last, 1954/1972). The wrist is flexible and slopes slightly from the wrist up to the knuckles, from which the fingers work downwards to the keys. The hand should not have an arched wrist or caved-in knuckles, as this causes tension (Last, 1980).

One exercise recommended for helping the student maintain a good hand position is a rotation exercise in five-finger position, 

. This keeps the hand well

balanced and prevents any falling off the keyboard, which sometimes occurs with the 4th and 5th fingers when the hand is allowed to slope down toward the 5th finger (Last, 1954/1972).

Tone Production

Tone production in beginning stages is based on the careful release of a "resting weight" (Last, 1980, p. 21) similar to that type of weight that is present when people sit with their hands in their laps, where the weight can be felt, but the hands do not push into the legs. Some weight behind the fingers is necessary even in the student's first attempts at the piano, because weight makes the early exercises less arduous than if the fingers were to work from the knuckles alone. However, this weight must be released carefully, because adding too much weight to weak fingers causes collapse in the finger joints.

The teacher should be careful that the weight added by a beginning pianist is not a series of jerks that drives the key past the sound spot, which lies just above the keybed, called "keybedding" (Last, 1980, p. 24), because continuous downward pressure is damaging and must be eradicated at the earliest stages of study. The teacher can test for the amount of weight being released by putting a hand under the student's forearm, feeling the tension in the lower forearm muscles and trying to push the arm up. Release is more difficult than exertion. Down-up movements are important in the early exercises to allow the student to learn to sense this change of weight and pressure.

One exercise for weight touch that can be done at the first lesson is for the teacher to call out finger numbers or note names and have the student press the key with the 3rd finger, using a little weight from the arm. Each note is held four counts and then released while feeling the rebound of the key. Playing notes at different dynamic levels will help the student feel the difference in the force required (Last, 1954/1972).

For a singing tone at a slow speed, a little arm weight is added to the fingers. The arm gently relaxes, allowing the weight to be transferred to the sound spot (escapement level) by a firm finger. At a moderate tempo, the student should move from one arm drop to the next with a

slight outward swing of the elbow, bringing the arm into a position to strike the next key. This creates a series of small circular movements (in the right hand they are counterclockwise) and prepares the hand for the next note. This must not be exaggerated by a jerk before the note is sounded, because this hampers the tone by causing the key to be released before the sound spot has fully resonated (Last, 1980).

In finger touch, the finger action starts from the knuckle without any hand movement. This produces only a limited tonal range (Last, 1980). Because the fingers are unruly in the beginning stages, the fingertips must be kept close to the keys, and the movement must be limited until the finger ends are strong enough to carry the extra energy. To increase the tone, the keys are struck from a slightly greater height, but they do not lift upward after the key has been released. The finger lift should never be strained upward to a degree of discomfort, as the upward movement of the finger is only a preparation for a downward movement (Last, 1954/1972).

Playing Apparatus

Shoulder

The shoulder supports the arm and is never either relaxed or hunched to stiffness (Last, 1980).

Arm

The arm is self-supporting, equally balanced between the shoulder and the fingertip. One of the arm's main roles is to control movement up and down the keyboard and to carry the hand to its destination (Last, 1980).

Wrist

The wrist plays a significant role in the control of tonal intensity. It must be free and flexible to meet the requirements of the music and should not be either flabby or rigid. The flexibility of the wrist controls the transmission of the weight from the arm to the fingers (Last, 1980).

Fingers

The finger pad is the most sensitive part of tone production and should never lose its feel for the keys. Fingers should not be forced for strength and agility. It is important to take into consideration the contribution of the hands, arms and the weight distribution of the body in order to avoid straining the fingers (Last, 1980).

Thumb. The thumb has limited downward power by itself. It requires a slight push from the forearm. However, too much assistance from the forearm results in a heavy thumb (Last, 1980).

Contraction and Relaxation

Last (1980) believed that the word "freedom" should replace "relaxation" (p. 6). Although relaxation is not the goal of technique, any muscles not needed for a particular movement should be relaxed for the moment.

III. Exercises

Exercises

Exercises are an expected part of piano study in Last's technical system. Her three books of exercises, *Freedom Technique,* Books 1-3 (1971), provide short exercises for beginning and intermediate students. Most exercises are for one hand alone, and Book 1, which is designed to be assigned from the first lesson, includes practice for rotation, hand crossing, arm weight, moving around the keyboard, slurs, five-finger melodies, staccato, scale preparation, triads and inversions, mixed articulations, arpeggios, and chromatic scales. One exercise Last (1980) specifically warned against is that of holding down the thumb and repeating another finger, because this restrains the arm and results in tension.

IV. Movement at the Keyboard

Physical Movement

Last (1960) said that it is easier to work with a student who appears to move too much than with one who sits very still and seems to have no connection with what the hands and

fingers are doing, because it is easier to check extra bodily movement than to impose spontaneous movement. Movements at the keyboard are of two types:

- Arm and hand movements necessary for the job at hand, combined with an unconscious bodily movement related to the rhythmic urge of the music.
- Extraneous movements that appear to have no bearing on the music and that detract from the visual concept of continuity. This type of movement is a form of showmanship and is undesirable (Last, 1960).

Lateral Movement

Lateral movements across the keyboard are important, because being restricted to one position leads to stiffness. Students should play over a wide range of the keyboard and learn by rote at the beginning stages (Last, 1980).

In this lateral movement, the arm supports and carries the hand. An outward swing of the arm guides the hand toward the extreme reaches of the keyboard. This is used to a greater or lesser degree in scales, arpeggios, and broken chords that are larger than the span of the hand (Last, 1980).

In leaps, the note before the leap is treated as a springboard. The arm and hand are propelled in one piece to the next note by a gentle, arching motion (Last, 1980).

V. Fundamental Forms

Five-Finger Patterns
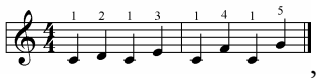
Five-finger patterns are important for shaping the hand and acquiring the feel of the keys (Last, 1980).

Rotation
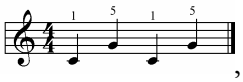
Rotation is necessary in order to place the hand in a playing position. However, this placing causes some forearm tension, which is released by swinging away from center. Therefore, rotation is an outward, not an inward swing. Last (1980) differentiated rotary movement, which is visible, from rotary freedom, which does not need to be visible. To feel the freedom of the rotary

muscles, the teacher can place a hand under the student's forearm and try to swing the arm outwards away from center as the student plays the 5th finger in a scale or five-finger pattern. If the rotary muscles are free, the arm will swing.

Rotation is also used for rotating passages and broken octaves. However, rotation must not be used at the expense of finger technique. The fingers must remain firm, especially the 5th finger. When learning rotation, the first exercise, which can be taught at the first lesson, should be



, not



, because it is difficult to use the 5th finger at first, and the hand will become stiff. It is better to work up to the 5th finger (Last, 1980).

Scales

It is important to introduce scale technique properly, because once established, habits are difficult to change. Some common faults in scale playing are:

- An uncontrolled thumb turn where the pianist starts the scale with the hand lying at a right angle to the keys, the thumb turns the hand and arm out of this position, and the elbow returns to this position after each thumb note. This produces jerks and bumps when the thumb is passed under (Last, 1980).
- Slow playing with separate arm weight action for each note. It is impossible to reach even a moderate speed with this "pump handle" method (Last, 1980).
- White keys played very near the edge of the keyboard, necessitating a forward lurch for every black key (Last, 1980).
- High lifted or over-round fingers, often accompanied by caved-in knuckles. No future facility is possible with this stiff and unnatural position (Last, 1980).

Perfection in scale playing requires complete equality of tone and controlled finger articulation. In a scale moving out from center, the elbow swings away from the body when the thumb passes under, causing the fingers to lie obliquely over their keys and allowing the thumb to be ready to move (Last, 1980). The thumb must be agile and able to move quickly at all times

(Last, 1954/1972). After the thumb has played its note, it immediately moves under the 2nd finger. Traveling continuously, the thumb is always in position when needed. The thumb is carried along by the elbow, which moves outward and pulls the hand along. The arm is supported from the shoulder and assisted by freedom of body movement. To practice discerning this movement, the student can play a fast four-octave scale with one hand while keeping the head and eyes over the traveling fingers as much as possible. This exaggeration of movement helps promote a free body balance (Last, 1980).

For scales moving in toward center, the elbow leads the hand while the arm supports and guides by gently pushing instead of pulling (Last, 1980).

Last recommended practicing scales in the following ways:

- In rhythms, because the necessity for quick exertion and release calls for a quick release of the natural resting weight of the arm. These exercises stop every other note for two octaves, every three notes for three octaves, and every four notes for four octaves (Last, 1960).
- With dynamic contrasts. When practicing with a *crescendo* ascending and a *diminuendo* descending, it is helpful with young students to compare the one-octave scale to the ascent and descent of a steep hill and the four-octave scale as a gentle slope up and down (Last, 1960).
- In a two against three rhythm (Last, 1980).
- Starting on a note other than tonic (Last, 1980).

Chords

In the first lesson, Last (1954/1972) assigned an exercise of sixths moving up by step for arm weight touch. This can be used for chords also. The feeling is one of "sinking into a nice comfortable chair" (p. 12). The hand rests on the position for playing before striking the notes. With the fingers gripping the keys, the arm relaxes slightly.

For staccato chords, the student should think the chord shape and then pounce on the chord (Last, 1980).

VI. Basic Musical Inflection

Articulation: Legato

A true legato is attained only by carefully listening to the end of the sound as well as to the beginning. When the tempo is slow, each sound must be given enough resonance to bridge the gap between the striking of one note and the next, taking tone decay into account. Production of legato is dependent on an appreciation of the rhythmic impulse of the music and the corresponding nuances of tone (Last, 1960).

Legato is produced by a finely judged timing of the transference of weight from one key to another. Legato should be introduced from the first lesson, since inability to play legato from the beginning is the root of many difficulties in piano playing. Since it is easiest to play legato when rotating, rotation exercises should be used to teach legato (Last, 1954/1972).

Legatissimo is a slight overlapping of the sounds. It is not wise for the student to experiment with *legatissimo* touch unless under guidance, because overlapping of sounds sometimes causes the fingers, particularly the 4th and 5th, to be sluggish in their action (Last, 1960).

Articulation: Staccato

When introducing staccato to a beginning student, the teacher should not describe the details of the wrist and hand movements. Instead, on the keyboard cover, the student taps a rhythm as if knocking on a door, starting a little distance from the keyboard cover. The hand, with its flexible (but not flabby) wrist, bounces back to the place from which the knocking action started. The height of the rebound depends on the speed of the knock and the distance from which the movement began. Next, the 3rd finger taps a rhythm on one note. Then the student plays a scale with the 3rd finger moving in toward center, which is the easiest natural direction for the hand and arm to move. This is called hand touch. The hand and fingers act as a unit, and the

fingers have no independent down and up action. For quiet intensities, the finger protrudes toward the key at the last moment, and the movement starts at the wrist. For louder intensities, the forearm takes control (Last, 1980).

Fast staccato passages call for finger staccato. The fingers are active at the key surface and initiate definite down and up movements. The stroke is played as if the key was shallow, just reaching the sound spot before being withdrawn. This pure finger action cannot be loud (Last, 1980).

Dynamics and Tonal Control

Louder sounds are caused by adding energy to the hand and resting weight to the arm (Last, 1980). Tonal control is mainly attained through mental discipline, where the ear and finger are completely attuned. The pianist must always consider the notes preceding and following the note that is being played to assess tonal intensity and quality. To practice dynamics, the student can take a single note or a chord and gradually build up repeated chords from *pianissimo* to *fortissimo* and back to *pianissimo* (Last, 1960).

Last (1960) said that in the early stages, insufficient stress is given to the importance of controlling balance between the hands. The average child will be much more fascinated by trying to make a specified sound than by just pressing the right key. An exercise for balancing tone between the hands is to play a scale a tenth apart using arm weight for the singing hand and finger touch for the accompanying hand. This can be practiced within the first term of study (Last, 1980).

When voicing notes in one hand, the hand span of children may not be big enough to voice by tilting the hand toward the finger that is to be emphasized. Instead, the singing finger must be isolated and given extra speed, tension, and exertion. This also is necessary when voicing a finger in the middle of the hand (Last, 1980).

Tone Quality

Tone quality is gauged by developing a sensitivity of both ears and fingers (Last, 1960). A "listening finger" (Last, 1980, p. 24) controls tone.

Tempo

Speed and strength can be attained only by physical discipline of the arms, hands, and fingers (Last, 1960). Less accomplished pianists should play at a slower speed and aim for evenness of tone by using no more movement than is required to strike the keys. When playing faster, the fingers stay closer to the keys (Last, 1980).

Slow practice is essential. It helps the pianist overcome technical difficulties and lays a safe foundation for quick passages. Even after a piece is learned, practicing slowly will continue to ensure reliable finger control under the stress of public performance (Last, 1960).

A section or phrase being practiced should be as alive in its conception as it would be at the original speed. Slow practice is like looking at a small picture through a magnifying glass. The detail becomes more apparent, leading to increased appreciation of the whole. Therefore, in slow practice, it is better to exaggerate the dynamics than to omit them. This focuses the mind and forces the pianist to concentrate. Slow practice should always be done intelligently (Last, 1960).

Table 22

Elementary Level Technical Concepts According to Last

Elementary Level Technical Concepts	Joan Last
I. Philosophy	
Philosophy of Technique	- Success or failure depends on the early years. - Technique is important for young pianists. - Reflecting musical character through sensitive skill and control of the fingers. - All playing must be motivated by a musical intention.
Philosophy of Teaching	- The teacher is to analyze and detect faulty muscular action and help the student build a secure technique. - Begin with posture rather than with the fingers.

II. Basic Components	
Posture	- Sit on the front part of the bench. - Feet on a footstool. - Elbow in line with the knuckles. - Arm lightly poised. - Leaning slightly forward. - Cross hands and reach for high and low notes to find a proper distance from the keyboard.
Hand Position	- Drop the hand naturally at the side, or grasp the knees. - No flat hands. - Fingers are not too curved. - The pad of the finger is in contact with the keys. - Fingers are less curved when stretching. - Wrist is flexible with a slight slope up to the knuckles. - Use a rotation exercise to develop hand position.
Tone Production	- Use resting weight behind the fingers to help them, but not too much. - For singing tone at a slow speed, the arm gently relaxes, transferring weight to the sound spot. - For moderate tempos, move from one arm drop to the next by small circular arm movements. - Finger touch starts from the hand knuckle with fingers close to the keys. For a louder sound, use a slight finger lift.
Playing Apparatus	
- Shoulder	- Supports the arm and is never relaxed or hunched.
- Arm	- Self-supporting. - Controls movement up and down the keyboard.
- Wrist	- Controls tonal intensity. - Free and flexible to control transmission of weight of the arm to the fingers.
- Fingers	- Finger pad is the most sensitive part.
Contraction and Relaxation	- "Freedom" replaces "relaxation." - Relaxation is not the goal of technique. - Relax muscles that are not needed.
III. Exercises	
Exercises	- Exercises are to be used from the first lesson. - Do not use an exercise where the thumb is held while

	other fingers are repeated.
IV. Movement at the Keyboard	
Physical Movement	- Two kinds: - Movements related to the rhythm. - Undesirable, extraneous movements that have no bearing on the music.
Lateral Movement	- Students should play all over the keyboard and learn by rote in the beginning stages. - Outward swing of the arm leads the hand to the extremes of the keyboard. - In leaps, the note before the leap is a springboard, propelling the arm and hand in an arch to the next note.
V. Fundamental Forms	
Five-Finger Patterns	- Important for shaping the hand.
Rotation	- Necessary for placing the hand in playing position. - Used for rotating passages and broken octaves. - Can start at the first lesson.
Scales	- Moving out from center, elbow swings out to help the thumb move under. Thumb must be agile and moves continuously. Arm pull. - Moving in toward center, arm pushes hand. - Practice in many ways.
Chords	- Sink into the chord. - For staccato chords, think the shape and pounce on the chord.
VI. Basic Musical Inflection	
Articulation: Legato	- Listening is important. - Take sound decay into account. - Transfer weight from one key to another. - Introduce at the first lesson through a rotation exercise.
Articulation: Staccato	- Hand bounces from the wrist. - Finger staccato for fast passages.
Dynamics and Tonal Control	- Add energy to the hand and resting weight to the arm for loud sounds. - Mental discipline and gradation. - Balance between hands should be taught early. - Voicing in one hand, instead of tilting the hand, gives the singing finger extra speed and tension.

Tone Quality	- Gauged by listening.
Tempo	- Speed and strength are attained by physical discipline of arms, hands, and fingers. - Slow practice is essential for overcoming difficulties and for laying a foundation for playing fast. - Keep the conception of the piece when practicing slowly. Exaggerate dynamics.

József Gát

Source

The Technique of Piano Playing (1958/1980)

I. Philosophy

Philosophy of Technique

Gát (1958/1980) believed that pianists and teachers should search for general laws of technique that are applicable to all pianists, saying, "It is not a new, more modern method of piano playing we need, but good piano playing" (p. 9). Throughout his book, Gát emphasized the connection between technique and music. He stated, "The most important technical task in piano playing is the production of tones corresponding to our musical concept…Piano technique in its entirety thus depends strictly on the musical concept" (p. 266). Gát believed that good technique is within the reach of every pianist. If a pianist is unable to acquire a reliable technique, it is usually the result of trying to attain it independently from the music.

Philosophy of Teaching

Gát (1958/1980) said, "That which a few people can achieve by instinct can be attained by everybody as a result of consciously directed teaching" (p. 203). According to Gát, piano teaching should begin with developing the student's musical imagination. Gát provided two ways of accomplishing this.

First, teachers should provide an introduction to musicality before the child begins to play the piano. This is attained through rhythmic walking to folk songs, movement gestures in the air to music, and games that develop imagination. The ease of movement produced through such exercises can then be transferred to movements at the piano that will evoke the emotion desired.

The second way to help students develop a musical imagination is for the teacher to play for the student. Gát (1958/1980) said, "Good playing by the teacher is not only helpful in developing the musical conception, but also an important sign-post towards attaining the proper mechanical balance on the part of the pupil" (p. 270). Through observation, the student hears the

musical nuances of the teacher and almost involuntarily finds the most appropriate movements for the correct solution to a technical problem. Gát warned that when playing for the student, the teacher must apply simple mechanical solutions. Not that teachers need to play in a special style just for children, but "just simple, direct, pure playing" apart from any "excessively passionate interpretations" (p. 270) is what children need to hear and see.

II. Basic Components

Posture

Gát (1958/1980) devoted a large section of his book to an explanation of posture, because good posture is essential to a proper swing stroke, Gát's main key stroke. A correct posture begins with a firm piano bench so as to allow no swaying or shifting in any direction. Cushioned benches do not provide this support. Pianists should sit on a hard surface.

In correct posture, the body is in a relaxed and elastic state, not slumping but not rigid, since both stiffly upright and slumped positions are hindrances to good tone production. The pianist sits ready to transmit sound through a large hall. To practice proper postures and positions, Gát recommended that the pianist cultivate natural and simple movements in everyday life, as these will transfer to piano playing (Gát, 1958/1980).

When properly seated, the pianist is on the feet though the weight of the body rests mostly on the bench. The trunk is free to move in any direction in order to aid the arms, but unnecessary swaying or bending should be avoided. The pianist should not sit too far back on the bench. Otherwise the supporting action of the body will diminish, and the motion of the trunk will become uncertain. On the other hand, stiffness results from sitting too near the edge of the bench. A short person needs to sit forward on the chair in order to obtain support for the feet, but as much as possible, the pianist should place the body weight on the bench. In teaching children, Gát (1958/1980) recommended the use of a footstool. If the feet are left to dangle, the student will need to hold the trunk stiffly or even lean on the piano. Teachers should ensure that

children are sitting at the proper height and are using a footstool at home as well as at their lessons.

Regarding height, Gát (1958/1980) said sitting height is often confused with the height of the bench. Ideally, the piano legs as well as the piano bench would be adjustable. Sitting height is mainly determined by the proportion of the trunk to the upper arm. A pianist with a short trunk and a long upper arm must use a higher seat, while a pianist with a long trunk and a short upper arm requires a lower chair. Sitting with forearms held lower than the level of the keyboard makes velocity and finger playing easier. However, sitting too low hinders the motion of the thumb. Arms should not be allowed to hang down, as this overburdens the fingers. In other words, as far as height is concerned, the pianist needs to take into account the relationship between the trunk length and the upper arm length and find a sitting height that is neither too high nor too low. According to Gát, in general, sitting too low is less detrimental to technique than sitting too high. Gát points out that in photos of famous pianists, no really high seat is seen.

Gát (1958/1980) said that "a generally valid distance of the chair from the piano cannot be even approximately determined" (p. 56). This distance is influenced by the lengths of the forearm and upper arm and their proportions. Gát suggested sitting at a distance from the piano that allows the pianist to use the forearm and upper arm with perfect freedom and to move the trunk freely forward and backward.

Hand Position

Gát (1958/1980) did not prescribe any set hand position. Instead, he advocated that hand position be determined by the shape and topography of each passage through the use of "adapting movements" (p. 33). Gát defined adapting movements as those movements that adjust the active swinging unit to different key positions, bring the fingers into a proper striking position as determined by the different combinations of white and black keys, and help regulate noise effects by changing the angle of the stroke. The arm must find the most comfortable position at which the fingers will attain the escapement level with a maximum force and at which the work of

the fingers can be executed as easily and simply as possible. A frequent error on the part of pianists and teachers is to confine the adapting movements to regular geometrical forms, such as semi-circles or circles. Seldom does the adapting movement fit into such a simple movement shape.

Because a medium position of the muscles is most amenable to an economical use of levers, Gát (1958/1980) advocated a medium position, not too flat or too curved, as the best position for the hand and other levers. However, this medium position is determined by the muscle tone of the individual and therefore may change as the muscles develop. Therefore, according to Gát, it is wrong and even dangerous to teach a predetermined finger position. In fact, the mechanical setting of the hand or the unnatural forcing of the hand form results in a diminishing of the total muscular energy in beginners as well as in advanced players. Gát believed that much harm is caused by the superstition that a finger should touch a key exclusively in one definite position. The position of the hand depends on the configuration of keys to be played. "Active work of the fingers will always create the most expedient hand-forms. The teacher's explanations should help the pupil to find the natural movements and consequently the most suitable momentary hand position" (p. 139).

Though Gát (1958/1980) did not advocate any specific, fixed hand position, he did provide some aspects of a generally efficient hand position.

Pronation is required to bring the hand into a position for piano playing. This is uncomfortable for beginners, who tend to lay down the 5th finger. Teachers must insist on attaining the degree of pronation that enables freedom of action on the part of the fingers. Only that degree of pronation necessary for executing movements freely should be demanded, however. Therefore, the degree of pronation will not be the same during all playing. Finger technique, for instance, will require more pronation than the playing of harmonic intervals of a sixth, where the 5th finger will reach the key somewhat from the side (Gát, 1958/1980).

The forearm should be lower rather than higher, in order that the force of the finger can reach a maximum at escapement level. A high position of the forearm and elbow takes the fingers out of a medium position and makes the exact apportioning of the force more difficult, leading to dynamic unreliability of the finger technique. In addition, the wrist should not be too high or too low, and knuckles and wrists should not cave in, as this will prevent full energy transmission (Gát, 1958/1980).

The thumb position should not be rigidly set, as it will vary with the span of a passage (Gát, 1958/1980).

As for the question of whether a flexed or a stretched position of the fingers is best, Gát (1958/1980) believed that though the fingers should play in medium position, extended fingers can more easily attain the sensation of a perfect amalgamation of the fingers with the keys. Therefore, playing with extended fingers is more expedient than playing with flexed fingers, and the pianist should always play with entirely extended fingers as much as possible. However, playing on white keys with extended fingers does not allow the thumb to reach the keys. Hence, the pianist must flex the fingers. Thus, playing with extended fingers as far as possible may sometimes mean playing with fingers in a strongly flexed position. Also, in order for the full amount of energy to be transmitted to the key, the finger should be lined up parallel with the key.

Flexed fingers are used when playing loud or slow, or for passages with sharp contours. Quiet effects are more easily obtained with extended fingers. An extended position of the fingers also has an advantage for velocity and tone volume, because small movements of the muscles bring about large movements at the finger ends. In this way, the activity of the muscles becomes less tiring. Gát (1958/1980) mentioned that one common problem found among students is the excessive flexing of the 3rd finger. Correction of this fault leads to an improvement in velocity, freedom of expression, and an increase in tone volume.

Striving for delicate, colorful playing as well as consciously ensuring that the arm is free to carry out the appropriate movements is the most reliable guide in finding the proper adapting

movements, which are subservient to the active strokes of the fingers and act as an aid to the fingers (Gát, 1958/1980).

Tone Production

Swing Stroke

Gát's (1958/1980) main method of tone production is the swing stroke, of which there are two kinds. The first type is the direct swing stroke, where the finger clings to the key and is brought into motion as an elongation of the arm. This is the kind of technique used in playing a clavichord. Gát recommended clavichord study for children as way to accommodate their weak fingers and to show them the right way to handle the keys. The second type is the indirect swing stroke, where the finger is not in contact with the key at the beginning of the movement. This type has less control and creates more noise effects.

To strike with energy, the fingers must lift before the stroke, making direct swing stroke impractical. Therefore, since indirect swing stroke is unavoidable, the pianist must find ways of bringing it as close as possible to a direct swing stroke. This is done through raising the fingers only as much as is necessary for producing the desired tone color and by slowing down and braking the movement. This allows the finger to cling to the key but requires intense nerve impulse control. In a correct swing stroke, the speed gradually increases to the escapement level, then decreases rapidly after passing escapement level (Gát, 1958/1980).

As the finger strikes the key, the arm and body absorb the rebound of the key so that the hand is not moved from the position required by the active function of the fingers. The arm has the sensation of adding weight to stave off the rebound of the key, called "weight-effect" (Gát, 1958/1980, p. 27) though there is no actual weight being used, but rather resistance.

Although the pianist should strive for the most natural and least tiring way of playing, comfort should not become the purpose of playing. According to Gát (1958/1980), producing the musical concept is most important. Playing the piano requires a certain amount of work. Relaxing the muscles between each key depression is often used for greater comfort in playing.

However, this allows the weight of the arm or body to press on the keybed, which results in forced tone and mechanical playing.

Play the Strings

Gát (1958/1980) emphasized that the pianist should not aim at playing the keys, but should concentrate instead on playing on the strings by aid of the keys, similar to clavichord technique. When a pianist only plays the keys, a short swing stroke is used that results in cold, dry playing. Gát provided the following experiment for sensing the difference between playing a key (a one-armed lever) and playing the strings by way of the keys (a two-armed lever). The pianist holds one end of a ruler in the left hand, forming an axis with two fingers. Rhythms are played on a table with the right hand by tapping on the end of the ruler. The ruler is used as a one-armed lever. Now, the ruler is held in the middle, thus transforming it into a two-armed lever, and the rhythms are played with the right hand in such a way that the other end of the ruler strikes the table from below. The motion is entirely different.

Teaching Children

Gát (1958/1980) said that the beginner should, even before playing the first melodies, be led to feel the sensation of playing on the strings by aid of the keys. This is difficult for children, because even bringing the keys into motion is a difficult task. The teacher must lead the student again and again to the right way of producing tone by means of feeling the key as a tool for producing sound through the strings, thereby making the piano sing.

Beginners prefer to use their whole arm to play, because it is easier to set the keys in motion when using the whole arm. However, this is detrimental to their later technique. Teachers should choose material for beginners where upper arm strokes are rarely needed. This applies mainly to melodies, and later the teacher may gradually introduce repeated tones and staccato touch (Gát, 1958/1980).

Playing Apparatus

Body

According to Gát (1958/1980), the body's main function is to provide a firm base and to absorb the rebound of the swing stroke. This absorption gives the pianist a sense of sureness. The body remains free, because the delicate work of increasing the speed up to the escapement level can only be executed with a relaxed body functioning as an elastic support, just as the finest invisible movements executed by a surgeon require the preparedness of the surgeon's whole body.

Breathing

A correct body posture contributes to free breathing. Beginners should be taught free and even breathing as a kind of polyphonic task. Breathing is not apportioned to fit the musical phrase, but pianists should breathe continuously and freely throughout their playing (Gát, 1958/1980).

Trunk, Hips, Back

The trunk, hips, and back should be stable and free from unnecessary movements. This will allow them to be an elastic support and to aid the swing strokes of the arm. The trunk should have mobility to allow for lateral movement around the keyboard (Gát, 1958/1980).

Shoulder and Upper Arm

The upper arm plays the most important role in the function of the body as an elastic support. Visible movements of the upper arm can be executed to keep it from becoming stiff. If the upper arm hangs down loosely, it will be unable to allow the rebound of the key. The rebound will shock the arm and move it from its place. The functioning of the shoulder is correct if the pianist has the feeling that the trunk is an elongation of the arms. A swing stroke of the upper arm can produce great force with comparatively small movements, moving the forearm and hand easily (Gát, 1958/1980).

The playing mechanism coordinates in that the upper arm performs vertical movements, to which are added the rotation of the forearm, the passive movement of the wrist, and a slight bending of the elbow joint. With these movements, but independently of them, the fingers perform their own precision work. Gát (1958/1980) called the movements of the upper arm used in facilitating the apportioning of the weight effect that is transferred to the fingers "synthesizing movements" (p. 32).

Elbow and Forearm

The forearm acts as a continuation of the upper arm stroke in transferring the force into the fingers and is also important in rotation (Gát, 1958/1980).

Wrist

The structure of the wrist makes it unfit for quick movements. Its function is to soften and balance the work of the other joints (Gát, 1958/1980).

Fingers

Gát (1958/1980) said, "The most important subdivision of piano playing is finger technique" (p. 190). Passive, loose finger ends increase noise effects and result in unreliability of tone production. Therefore, the fingers must always be active, and the finger ends must remain taut. The pianist should not focus on the actual fingertips but should instead imagine that the fingertips are elongated to reach the strings. In active finger work, some lifting of the fingers is indispensable, since continuous tone sounding can only be carried out by continuous motion. In order to fill up the time between the notes with motion, it is necessary for the fingers to leave the keyboard.

The fingers play from the first phalanx, while the job of the 2nd and 3rd phalanges is to adjust themselves to the keyboard by bending or extending the fingers, depending on the topography of black and white keys in the passage. Within the swing stroke, no passive hitting with the fingers, no unnecessary bending, extending, or other extraneous movements should be tolerated. The fingers approach the key by the shortest route without gliding along the key after

the stroke and return to their beginning position by the shortest possible route. Although it is impossible to prescribe in advance which part of the finger should touch the key, the pianist should always try to strike with the soft part of the finger pulp. In addition, a "finger-end feeling" (Gát, 1958/1980, p. 196), the ability consciously to touch the keys with the active finger ends, should be cultivated.

Teaching Children

Children should practice playing melodies in the air before playing on the piano in order to join the finger movements to each other. From the first lessons the student must be taught that the piano can be made to sing and that the keys are nothing less than handles to make the strings sing (Gát, 1958/1980).

Gát (1958/1980) said that the easiest way to teach active finger work executed from the first joint to children is by imitation. Finger work must be exactly even from the first attempts at piano playing. A simple exercise for development of the free action of the swing stroke of the fingers is to place the hand in a five-finger position without depressing the keys. Then, using a swing stroke with high fingers, each finger plays four or five times. The resting fingers are allowed to accompany the working fingers in order to gain a free movement, and the accompanying fingers return to the keyboard after each stroke. The arm floats freely and aids the fingers by constant adjusting movements. If the student allows the finger to grasp the key, the collapsing of the nail joint and superfluous movements of the mid-joint will be avoided. Although the active work of the fingers starts from the knuckle joint, the pianist should have the feeling of moving the keys directly from the chest.

According to Gát (1958/1980), a finger is independent if its work is not hindered by the other fingers. The fingers may respond to each other's movements and must not be forced to remain still, or stiffness will result. The pianist should focus on the finger performing the stroke instead of what the other fingers do in the meantime. Therefore, exercises that require keys to be

held down while other fingers play are not helpful in the basic finger training of beginners. These polyphonic finger exercises are useful only in the highest levels of study.

The teacher should not be led astray by the fact that the child will sometimes achieve a good musical effect by shaking the forearm, which is a wrong movement. Instead, the teacher must insist only on technical solutions that may be considered as final and that fit into the perspective of the student's musical and technical development. Conversely, the teacher, in combating shaking of the forearm, should not go to the other extreme of preaching entirely pure finger technique that excludes the work of the arm. If the fingers are deprived of the assistance of the arm, they will grow clumsy instead of becoming agile. Shaking of the forearm is mechanical and hinders the development of finger technique, because it compels the forearm to do active work for which there is no need. It can almost be said that the fingers dictate to the forearm to what extent they require help, not the other way around. To ensure that the student employs only the extent of arm motion required to complement finger work, the foundation of active finger technique must first be cultivated (Gát, 1958/1980).

Specific Fingers

Concerning specific fingers, Gát (1958/1980) made the following comments.

Thumb. The thumb has the important function of supporting the arm by lightly touching the keyboard. This makes possible the free suspension of the arm that would otherwise be impeded by the exhaustion of the muscles. The thumb can make a free swing stroke only if the arm is also free to move. The wrist is then able to assume a higher position and will not hinder the motion of the thumb. A five-finger formula such as Hanon is the best exercise for practicing the free swing stroke of the thumb (Gát, 1958/1980).

2nd finger. The 2nd finger is generally believed to be a strong, skillful, and reliable finger. However, it can be overburdened and stiffened by movements required in everyday life such as holding, grasping, or pressing (Gát, 1958/1980).

3rd finger. The 3rd finger is the longest finger and is therefore inclined to become passive. The pianist must concentrate on keeping it taut so that the nail joint does not collapse inwards after the stroke (Gát, 1958/1980).

4th finger. Because of its connection with the 3rd finger, the motion of the 4th finger is impeded, is often seen as weak and slow, and is therefore avoided. However, the 4th finger will only develop if given the same opportunity for use that the pianist provides the other fingers. The 4th finger is hardly ever used in daily life, and therefore the pianist must take special care to develop it in piano playing (Gát, 1958/1980).

5th finger. The 5th finger should be actively engaged, not laid down flat. Its strokes are weak, not because the finger is weak, but on account of its shortness and small mass (Gát, 1958/1980).

Contraction and Relaxation

Relaxation cannot be complete, as muscle tone excludes any complete relaxation. Gát (1958/1980) said that what pianists need is not relaxation, but elasticity, like the springiness of a fencer. Gát did not view piano playing as an alteration between activity and relaxation, as he believed relaxing after each muscle action ruins both technique and musical imagination. Instead, he recommended a continuous flow of energy both musically and technically.

Mind/Body Relationship

A natural movement is one that is associated with conditioned reflexes. Every movement is determined by momentary intentions to give expression to the music, thus forming a conditioned reflex. If the concept of a tone and the corresponding movement are repeated often enough, a conditioned reflex will develop (Gát, 1958/1980).

There is a need for a certain conscious element in piano playing. The pianist must accommodate the movements to the mechanisms of the piano, and consequently many movements must be executed consciously (Gát, 1958/1980).

However, the pianist cannot be completely conscious of every movement, because this will cause awkwardness. The pianist should not concentrate on the functioning of the hands while playing but should instead focus on the strings of the piano, just as when using a machine in everyday life, a person concentrates on the function of the machine and not on the movements of the body. The pianist should only concentrate consciously on a movement if it is inappropriate (Gát, 1958/1980).

III. Exercises

Gymnastic Exercises

Gát (1958/1980) believed that the development of technique for pianists of all levels of development may be furthered by practicing systematic gymnastic exercises away from the piano. These exercises develop muscular strength and assure the proper innervation of important movements. Teaching new kinds of movements directly at the piano without preparatory work can result in the formation of wrong interconnections.

Besides exercising muscles and developing coordination in new movement patterns, practicing gymnastic exercises can also remedy deficiencies in hand structure. Gát (1958/1980) believed that hand structures with short fingers, long 1st phalanges, relatively equal finger lengths, long thumbs, and thick fingers are most favorable for piano playing. However, quickness of the nervous system, spontaneity of muscle work, and the ability to simultaneously perform different movements are also important to natural mechanical ability. Gát believed that the teacher needs to be able to recognize the advantages and disadvantages of each student's hand structure. Otherwise a technical problem may be diagnosed as a lack of musicality rather than a deficiency of hand structure. Specific gymnastic exercises are found in Appendix K.

Exercises

Exercises must be connected with the music and should not be practiced in a mechanical way. Gát (1958/1980) said, "A large number of wrong innervations may arise if the beginner is allowed to get musical experience only through hundreds of technical exercises" (p. 273). Gát

recommended having the student construct little finger exercises from difficult parts in the music. Since these exercises are linked directly with the music, the student will be less likely to play mechanically and indifferently. In fact, Gát said that special finger exercises are only needed with beginning students in the exceptional cases of students with bad movement patterns. However, Gát did believe that all students should learn and practice the fundamental forms of scales, chords, etc.

Gát (1958/1980) stated that once the mechanical aspect has been mastered, technical work at the elementary level can be done through the playing of pieces. Everything the student plays assists in creating movement associations corresponding to the musical concepts and aids the student in acquiring mastery over the arms and fingers. In summary, Gát said, "The road to the acquisition of good technique does not lead through a dense thicket of finger exercises but through a profound living of the music itself in the course of re-creating it with a full sense of responsibility for each single tone produced" (p. 276).

Etudes

Gát (1958/1980) believed students should play etudes, which he defined as "…musical compositions having as their aim the overcoming of a certain technical difficulty. This is attained by repeating the respective difficult technical formula as often as possible and in as many forms as possible" (p. 233). However, Gát warned that if an etude is devoid of any valuable musical content, the playing of that etude is harmful, because if the technical formula does not express anything, the pianist's work is only mechanical, a mere muscle training of the fingers. If a pianist plays an etude mechanically, one of the most important elements of piano technique, the development of an increasing sensitivity to resistance, is neglected. According to Gát, piano technique is not acquired through the playing of etudes or exercises. Rather, a technique is learned first by playing pieces, and then this technique is further developed by practicing good etudes and exercises.

IV. Movement at the Keyboard

Physical Movement

Preparatory teaching of beginners away from the piano enables the student to develop freedom of movement. Since it is a difficult task to correct stiff movements during piano playing, Gát (1958/1980) believed that by practicing playful movement exercises, even students who initially use cramped, jerky movements can acquire relaxed, loose, and light movements. Movement exercises are best done in a class apart from the private lesson but can also be implemented in the private lesson if the student is unable to attend classes.

In the movement exercises, students walk to music at different tempos; imitate how a soldier walks, a bunny runs, or a turtle creeps to develop character movements; and make rhythmic hand movements, such as a bird flying or a hammer swinging. Freedom and ease in clapping rhythms is also practiced. If the beginning student claps with cramped, clenched hands or moves stiffly, i.e., if the preparation of the clapping and the clapping itself is not executed as a single unit, harmful movements may be transferred to the piano. Gát (1958/1980) also believed that marking the rests by active movements is harmful, because this causes stiffness.

Making circles in the air and conducting are good ways to practice synthesizing movements. To develop the more delicate nuances of synthesizing, the student should feel as if the fingers move from the heart or chest and as if the tone flowed through the whole body and fingers, through the keys and strings, and into the air. If the streaming of energy is made perceptible to the student, the functioning of the whole body as an elastic support will have been attained (Gát, 1958/1980).

V. Fundamental Forms

Rotation

Gát (1958/1980) described two kinds of rotary action. First, there is the pronation and supination that compensates for the different lengths of the fingers. Adaptation of the arm through supination and pronation brings the hand and finger into position behind each key. This

shifting of the center of gravity achieved through rotation is very important to the swing stroke of the arm.

The second use for rotation is for playing *tremolo* or rotating passages such as broken sixths. *Tremolo* motion is prepared through gymnastic exercises, because they help bring about an increase of rotary motion. The work of rotation is done entirely by the forearm. The upper arm has a synthesizing function but does not provide any weight effect. Finger ends remain taut to prevent the changing of the hand position either during the rotation or after the stroke. Care should be taken that the fingers do not lean or press into the keybed. The axis of a rotary motion lies approximately between the 2nd and 3rd fingers if a straight line is drawn from the elbow to the fingers. In slow practicing, the rotation should be carried out around this axis (Gát, 1958/1980). This does not address a rotation between fingers 3 and 5, leading one to believe that Gát only advocated pure rotary motion of the forearm in special cases like broken sixths or octaves rather than for smaller intervals.

Scales

Gát (1958/1980) said that scale playing is one of the most difficult phases of piano technique, and he cautioned that scales should not be attempted by the child until the arms have become free and easy and the work of the fingers is firm and reliable. If the student has mastered small pentachord pieces to the point of reading them, scales may be learned. This is usually during the 2nd year of piano study.

According to Gát (1958/1980), scale playing consists of the coordination of a free, synthesizing movement of the arm over the whole scale, energetic finger work, and passing of the thumb under the hand. Gát differentiated between the playing of scales in slow, medium, and fast tempos.

Slow Scales

In slow scale playing, the arm provides synthesizing movements that move the hand in a smooth progression along the keyboard in groups divided by the passing of the thumb. These

synthesizing movements of the arms are important not just to move the hand to the new positions, but to keep the arm from hanging down passively, which overburdens the fingers, hinders the free motion of the fingers, and replaces clean finger work with shaking of the forearm (Gát, 1958/1980).

Since the thumb tends to be clumsy and slow, its stroke must be prepared very carefully. As soon as the 2nd finger strikes, the thumb passes under the palm. The thumb strikes the key by way of an oblique swing stroke so that the rebound of the key does not brake, but aids the progression of the arm. To strike obliquely, the thumb will need to stretch further than would seem necessary. If the thumb reaches the key by an oblique horizontal stroke executed in the direction of the arm movement, it will counteract the arm's progression. Thus, the only possibility of a smooth performance is to execute the thumb stroke in a direction contrary to that of the playing. In this manner the resistance of the key does not hinder the arm's progress, but facilitates it. Thus the preparation of the thumb movement is in the opposite direction from direction of the arm, and it then strikes the key obliquely (Gát, 1958/1980).

The thumb, after striking, immediately begins to pass under the palm so that it reaches its next place while the 2nd finger strikes. This is important, because in the fastest tempos the thumb will reach its place only if it begins the preparatory movement simultaneously with the stroke of the 2nd finger. The arm shifts at the same time the thumb shifts so that the scale is divided into two arm movements corresponding to the thumb movements. The arm should not wait for the thumb stroke before assuming a new position, because this would result in leaning on the thumb (Gát, 1958/1980).

The hand elongates the arm either in a straight line or at an angle, then toward the thumb or 5th finger. These hand positions are chosen to facilitate the finger work. The thumb does not require any particular help from the hand other than ensuring that the thumb is not hindered in its lateral movement by the hand pressing down. The most natural feeling of the hand can be attained if it is a straight continuation of the forearm over the keyboard. This works especially

well with a scale that moves inward toward the center of the keyboard (Gát, 1958/1980). The fingers should sound each tone energetically, moving in toward center and executing comfortable, free swing strokes (Gát, 1958/1980).

Fast Scales

Gát (1958/1980) said that a beginner's slow scale cannot be developed into a fast scale merely by gradually increasing the tempo, because the slow scale requires that the complicated adapting movements be reduced gradually in the course of practicing. Therefore, Gát advocated practicing slow scales first, then fast scales, and lastly medium tempo scales. The difference between a slow scale and a fast scale is that in a slow scale, there are two arm movements per octave, while in a fast tempo, the whole scale is taken by one smooth, synthesizing movement of the arm, similar in motion to a *glissando*. Gát said that dividing the scale into two movements per octave will not impede the synthesizing of the fast scale into one movement, provided the pianist never loses the sensation of the upper arm's readiness for the synthesizing motion. In the fast scale, the hand bends in the direction of playing in order to assist the fingers and thumb.

Even in advanced levels, scales should be practiced hands separately at slow and fast tempos in succession. In the beginning, both fast and slow scales must be practiced only in one direction, several times one after another. The two directions must not be joined until the pianist is able to play scales perfectly with great speed in one direction. Practicing one-octave scales is unnecessary. From the beginning, scales should be practiced over two octaves, and when mastered, over four octaves. This aids the student in mastering the synthesizing movements of the whole scale (Gát, 1958/1980).

Medium Tempo Scales

Medium tempo scales are more closely related to fast scales than to slow scales in terms of arm movements and should be practiced after slow and fast scales have been mastered (Gát, 1958/1980).

Chords

According to Gát (1958/1980), the most important playing units in chord playing are the forearm and the fingers. Gymnastic exercises prepare students for chord playing by developing the formation of the forearm and hand as a unit and making the fingers taut.

The forearm carries out the swing stroke with help from the upper arm in synthesizing the movement. The fingers should be taut so that they will not collapse as the chord is struck. Firmness of the hand is a prerequisite to the shaping of the chords. If the fingers keep the chord grip, the pianist will be able to attain a large volume with a small amount of energy and also to produce the most delicate dynamic nuances. If the fingers hang loosely, the chords will not be reliable dynamically, because there will be uncertainty as to how much force of the arm will be transmitted to the keys (Gát, 1958/1980).

Although the hand stays in a chord position as a unit, the constant change in the position of the fingers from one chord to the next requires maximum finger activity. When striking the keys, the pianist should always feel the finger ends. Fingers and forearm work together in that chords must always be practiced as if the finger ends were moved directly from the elbow joint. The fingers function as an elongation of the forearm and should not execute any striking movements simultaneous with the movements of the forearm (Gát, 1958/1980).

Balance of sounds within a chord is achieved partly by a shift of the center of gravity with the aid of rotation and partly by adjusting the fingers to different stroke heights. A finger held somewhat lower than the others strikes the key with a larger force (Gát, 1958/1980).

Gát (1958/1980) said that special practicing of chords does not become necessary until the 3rd or 4th year of study. If chords occur earlier, they can be practiced by dividing each chord into groups of two tones and repeating the groups several times.

VI. Basic Musical Inflection

Articulation: Legato

Gát (1958/1980) said that although the piano is unable to reproduce a true legato, a perfect legato effect can be attained by sounding the new tone as imperceptively as possible (smuggling the new note into the melody), minimizing noise effects caused by the hammers or by the fingers as they strike the keys, adapting the dynamic level to the duration of the tones, choosing the most appropriate dynamic level, and shaping the dynamic contours of the melody. From these factors that contribute to legato, Gát made the following observations:

- It is more difficult to arouse a legato sensation at a fast tempo than at a medium tempo because of the noise effects.
- *Forte* playing causes difficulties in creating a legato effect because of the noise made by the strings.
- The more slowly the tones follow each other, the more quietly the pianist needs to play in order to attain legato because of the decay of the sound.
- Because high notes die away sooner than low notes, it is easier to obtain a legato effect in the low register (Gát, 1958/1980).

As for the technique of playing legato, Gát (1958/1980) recommended gymnastic exercises for the preparation of legato technique. He said that swing strokes of the upper arm are appropriate for legato playing only in a slow tempo and that legato effect can most easily be obtained by applying finger technique, because this is the easiest means of carrying out the changes in notes. Precise finger action and synthesizing arm movements should have equal parts in legato playing. This cooperation should not be disturbed by shaking of the forearm or overburdening of the fingers, which is usually caused by wrong body position. The fingers execute conscious striking movements, and the student should concentrate on the stroke and not on the finger lifting process.

Gát (1958/1980) stated that the basic task of teaching technique to the beginner is to teach legato playing. This is difficult, however, because the keys are of a size and weight made for the hand of the adult. The teacher should guard against the child's tendency to shake with the forearm rather than to play with intently controlled finger swing strokes. Gát advised teaching children the kind of legato needed to play Bach or folk songs rather than an overlapping legato used in Romantic music. A folk song where the words can almost be heard while playing requires the type of legato that is most useful to the child. When teaching legato, the teacher should demonstrate for the child with finger movements that are larger than usual, especially during the first months of lessons, since the child will only gain a satisfactory legato tone by applying more finger work and striking from somewhat higher than an adult would need to do.

Articulation: Staccato

Gát (1958/1980) defined staccato as "every kind of playing in which the tones are not sustained to their full value, but are separated from each other by gaps" (p. 70).

The following guidelines are provided for staccato playing based on the behavior of the piano mechanism.

- The longer the time interval between successive tones and the shorter the single tones, the more distinctly the staccato character will prevail.
- Noise effects reinforce the staccato character, because they accentuate the introduction of the new tone. The beginning of a staccato tone needs to be stressed through a vigorous touch.
- In a slow tempo, a staccato effect may be obtained in quiet playing, because the fading of the tones and the long gap between key depressions will accentuate the new tone.
- The gaps will shorten with an increase in tempo, and staccato can be separated from non-legato only by its more energetic attack.

- The dynamic level may be quiet in slow tempos, but in faster tempos a higher dynamic level is required to preserve a staccato character (Gát, 1958/1980).

Gát (1958/1980) stated that only upper arm or forearm swing strokes should be employed in staccato playing, because the fingers are not strong enough for staccato technique. Quick, short finger strokes do not evoke a staccato impression but are more suited to *leggiero* playing. The fingers participate in staccato tone production only as an elongation of the arm. Rapid staccatos are played from the forearm but should be avoided during the first years, because execution of this type of staccato requires an absolute sureness in the synthesizing movements of the upper arm.

Rhythm

Gát (1958/1980) approached the concept of rhythm in relation to technique in terms of the exact timing of the swing stroke. He noted that the movement in the hand of the pianist playing in good rhythm will seem lazy. The reason for this is that the observer sees only the beginning of the movement. The setting in motion of the two-armed lever that results in the swinging action of the hammer takes more time than one would think. The hand takes into consideration the movement of the key, hammer, and the setting in motion of the strings to bring about tone production. Therefore, if the pianist concentrates strictly on the tone production of the strings instead of on key-hitting, the rhythms will determine exactly what and how much time it will take for the movements to be executed.

Gát (1958/1980) said that an almost universal fault with beginners is that they do not sustain rests exactly. It is the teacher's job to make the child understand that a rest marks an increase in intensity. Counting is recommended to counteract this fault.

Dynamics and Tonal Control

The dynamic level depends on the velocity of the hammer at the moment it strikes the string, which depends on the velocity the key has attained at escapement level. Therefore, the

pianist must feel the escapement level of the key exactly in order to apportion the force required for swinging the key with the appropriate velocity (Gát, 1958/1980).

To shape dynamics, the weight effect increases or decreases according to the requirements of the dynamics, which are determined by the shape of the phrase, the emotional content of the piece, and the space through which the sound needs to be transmitted. Even with beginners, the teacher should make transmitting tone across a large distance a principal requirement of piano playing (Gát, 1958/1980).

The more sensitively the weight effect is apportioned, the more colorful the playing is. Playing absolutely equal notes does not mean uniform dynamics. It only means a restricted dynamic shape. Gát (1958/1980) said that the most varied color effects are brought about by means of dynamic and agogic shading aided by the corresponding noise effects. The pianist's aim is that the movements reliably transmit even the smallest nuances of dynamic contrast. This is brought about by exactly following the contours of the melody and intensively imagining the corresponding tone color. To increase the tone volume through the individual swing stroke, the pianist may either increase the mass by using a bigger lever or increase the velocity of the stroke.

Gát (1958/1980) warned that when teaching dynamics to children, the teacher should play for the student with a tone volume adjusted to the physical capacities of the child, taking care not to force the student to wrong technical solutions by demanding excessive tone volume. In the initial stages of piano playing, the tone volume depends entirely on the size of the hand and the weight of the arm. A child will often strain the muscles and press the keys down jerkily when the expected tone volume is not achieved. Pressing down on the keybeds should always be avoided even if it seems to reinforce a sense of muscular stability in learning a piece, because pressing causes passivity of the fingers and forearm and renders impossible the delicate accommodating movements of the upper arm. Wrong technical solutions should not be tolerated even temporarily.

Children will gradually find the tone corresponding both to their musical concept and to their level of intellectual and physical development. Hence, it would be a mistake to fix the tone volume by some general standard or to demand the same tone volume from a small child as would be required from a hand weighing three times as much. On the other hand, it is also an error to demand of the beginner a small tone volume, because this leads to timidity even after the muscular ability has been developed (Gát, 1958/1980).

Tone Quality

Gát (1958/1980) believed that tone quality is influenced by five factors:

1. Change of tone color is possible only in direct proportion to changes of tone volume.
2. The construction of the instrument influences tone quality and depends on the type on coating of the hammers and the quality of the felt.
3. Noises influence tone quality. Gát (1958/1980) described three kinds of noises. First, there are noises caused by vibrations of the hammer and string at the moment of striking, which are increased in the upper register. Second, there are noises caused by the collision of the wood of the key and the keybed, called lower noises. Third, there are noises caused by the collision of the hand with the key, called upper noises. Gát said that noise effects can be reduced by using the upper arm swing stroke, because the weight and force of the arm produces a correspondingly round, full tone even with minimal motion. Upper noises are avoided by starting with the fingers on level of the keys.
4. Very little change of tone color is possible with a single piano tone, which is dependent on the speed of the hammer. However, in combination with other notes, many tone colors are available. Gát (1958/1980) specifically mentioned using dynamics and agogics to change tone color. Therefore, he said it is absolutely wrong to associate tone color with a specific kind of touch.
5. Gát (1958/1980) said that tone quality is influenced by anatomic structure, because the weight effect comes more easily to pianists with short, massive arms. A short, thick finger

transmits the force of the muscles more fully than does a long, thin finger. However, Gát noted that the teacher can help students compensate for defective endowments. The fingers can be taught to transmit the impulse given by the knuckle joint to the aid of the finger and then to pass on to the keys the weight effect given by the arm.

Tempo

Gát (1958/1980) described the differences in playing and practicing at different tempos. In slow playing, many adapting motions are used to accommodate the use of the fingers and thumb. In fast playing, there is not time for minute adapting motions. Synthesizing movements of the arm take their place.

Gát (1958/1980) said that the quest for velocity is senseless, because the muscles and nerves are able to execute very fast movements without any special practicing. The only problem is how to make this velocity applicable to the piano.

In solving this problem, Gát (1958/1980) discussed slow practicing of velocity playing. When practicing a fast passage slowly, Gát said that adapting movements are not as important as in slow playing, as they will be subsumed into synthesizing movements at a fast tempo. The most important prerequisite for velocity is the speed of the musical concept. From a mechanical standpoint, only the perfecting of the swing strokes is necessary. In slowing down the swing strokes in slow practicing of velocity playing, the character of the movement should not be changed. Therefore, the swing strokes must be entirely free when practicing a fast passage slowly. That is, the fingers are raised high but are not strained, and they strike with an energetic, resolute, downward stroke. This way the pianist obtains a maximum tone volume using a minimal amount of energy. Gát further noted that when playing at a fast tempo, the rebounds of the keys require a considerable amount of muscle work on the part of the elastic support. However, less resistance is needed in slow playing than in fast playing. Thus, when practicing velocity playing slowly, the pianist should diminish the weight effect considerably so that it is practically weightless.

Table 23

Elementary Level Technical Concepts According to Gát

Elementary Level Technical Concepts	Józef Gát
I. Philosophy	
Philosophy of Technique	- Technique is connected to musicality. - Good piano playing is needed, not a new way of playing.
Philosophy of Teaching	- Develop musicality in the child before beginning to play the piano. - Play rhythmic moving games. - The teacher should demonstrate at the piano for the child with simple, direct playing.
II. Basic Components	
Posture	- Hard bench, no cushions. - Elastic, relaxed posture, ready to project sound. - Sitting height: Forearm slightly lower than keyboard level, but depends on proportions of upper arm to trunk. Lower is better than higher. - Distance: Depends on proportions of forearm to upper arm. The forearm and upper arm must be able to move with great freedom. - No unnecessary bending or swaying. - Use a footstool to keep feet from dangling.
Hand Position	- No set position, only momentary hand positions. - Medium position of muscles, determined by muscle tone. - Adapting movements of the arm bring the hand and fingers into proper striking position parallel to the key. - Both flexed and extended positions of the fingers are essential. However, extended fingers are most frequently used. - Forearm lower rather than higher. - Wrist not too low or too high. - Wrist and knuckles firm, not caved in.

Tone Production	- The goal is to play on the strings by means of the keys.
	- Two kinds of swing stroke
	  - Direct swing stroke— Finger starts on the key, impractical.
	  - Indirect swing stroke— Finger begins above the key.
	- Make an indirect swing stroke as close as possible to a direct swing stroke by raising the fingers as little as possible and by braking the movement.

	- Accelerate the movement to the escapement level. - Do not relax between movements. - Do not allow beginners to use whole arm movements exclusively.
Playing Apparatus	
- Body	- Whole body is involved in every aspect of playing. - Provides a firm base for and absorbs the rebound of the swing stroke.
- Breathing	- Maintain even breathing while playing.
- Trunk, Hips, Back	- Free from unnecessary movements. - Flexible trunk to allow for movement around the keyboard.
- Shoulder and Upper Arm	- Plays the most important role in the function of the body as an elastic support.
- Elbow and Forearm	- Important for rotation.
- Wrist	- Softens and balances the work of the other joints.
- Fingers	- Fingers move actively from the knuckle joint while mid- and nail joints adjust to the topography of the passage. - Avoid unnecessary movements. - Fingertips are taut. - Strike on the finger pulp, and imagine the finger ends as elongating to the strings. - Some lifting the fingers is indispensable. - Non-working fingers are allowed to accompany the working fingers by sympathetic movement as long as they do not interfere with the working fingers.
Contraction and Relaxation	- Elasticity, the springiness of a fencer, is what is needed, not relaxation. - Keep a constant energy flowing both technically and musically without relaxing after every key depression.
Mind/Body Relationship	- A musical intention leads to a movement, which if repeated often enough forms a conditioned reflex. - Some consciousness is needed in playing the piano. However, full consciousness of every movement leads to awkwardness. - Concentrate on the piano, not on the playing apparatus.
III. Exercises	
Gymnastic Exercises	- Useful for all levels of advancement. - Very important for developing muscles and teaching new

	movements. - Useful for remediation of deficient hand structures.
Exercises	- Useful only if derived from the music, not mechanical. - Fundamental forms are necessary for all pianists.
Etudes	- Musically valuable etudes are useful. - Students should learn technique first with pieces that later can be developed through good etudes and exercises.
IV. Movement at the Keyboard	
Physical Movement	- Preparatory games away from the piano in walking and moving are practiced by beginners before attempts at moving at the piano are made. - Movements are free, light, and loose.
V. Fundamental Forms	
Rotation	- Two Types: 1. Supination and pronation that allows the arm and hand to be behind each finger and compensates for different finger lengths. 2. Broken sixths or octaves. - Prepare through gymnastic exercises. - Fingers stay taut. - Keybedding should be avoided. - Only the forearm moves. - Axis of rotation is between 2nd and 3rd fingers.
Scales	- Slow scales. - Arm provides synthesizing movements in two groups per octave corresponding to thumb shifts. - Thumb prepares its stroke in the opposite direction from the arm, strikes the key obliquely, and moves under the hand to the next spot as soon after striking as possible. - Fingers produce energetic tones with free swing strokes. - Hand accommodates finger movements by shifting. - Fast scales. - Arm provides one long, synthesizing movement for the whole scale. - Learn slow scales first, then fast, then medium tempo. - Scale study begins during the 2nd year of study - Practice scales mostly hands separately in one direction first, slow and then fast. Then join directions, two octaves first, then four octaves. One-octave scales are unnecessary.
Chords	- Gymnastic exercises prepare the use of the forearm and

	fingers, which are the most important playing units for chords. - Fingers remain taut while the forearm performs the swing stroke. - Chords can be broken into groups of two notes for practice. - Balance in a chord is accomplished by rotating toward the finger to be brought out and by holding that finger lower than the others. - Systematic practice of chords is not needed until the 3rd or 4th years of study.
VI. Basic Musical Inflection	
Articulation: Legato	- The basic task of teaching technique to the beginner is to teach legato playing. - Be aware of how dynamics and noises affect legato. - Teach children a Bach style legato, not a Romantic *legatissimo*. - Play legato with finger movements, not forearm shaking. - Demonstrate legato for children with large finger movements.
Articulation: Staccato	- Be aware of how dynamics and noises affect staccato. - Staccato requires a vigorous attack. - Swing strokes of the forearm and upper arm are used for staccato playing. The fingers act only as an elongation of the arm. - Fast forearm staccato is not introduced in the first years of playing.
Rhythm	- If the rhythm is exact, the hand will look lazy, because the pianist is concentrating not on key-hitting but on tone production in relation to the strings, which will take time for the hand to set in motion. - In teaching beginners, make sure children see rests as an increase in intensity to prevent shortening the rests.
Dynamics and Tonal Control	- Dynamics are increased by using a bigger lever or by striking the key with more velocity, which makes the hammer move faster. - From the beginning, pianists should concentrate on transmitting tone over a large distance. - Change in weight effect shapes dynamic contours. - Beginners should not be asked to play louder than are physically able, otherwise they will strain their muscles. - Always playing timidly should be discouraged as well.
Tone Quality	- Tone quality is influenced in five ways: - Tone volume.

	- Construction of the instrument. - Noise effects. - Combination of tones, dynamics and agogics. - Anatomic structure.
Tempo	- Slow playing requires adapting movements. - Fast playing requires synthesizing movements. - The nerves and muscles are able to execute very fast movements without special practicing. The problem is to make this applicable to the piano. - Slow practicing of fast playing requires free swing strokes, where fingers lift high without strain and resolutely strike the keys, combined with a practically weightless arm.

George Kochevitsky

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I. Philosophy

Philosophy of Technique

"Piano technique, in a broad sense, is the sum of all the means a performer has for realizing his purpose, his artistic, musical idea. Therefore, piano technique cannot be looked upon as something independent from the music and from the personality of the performer" (Kochevitsky, 1967, p. 37). Technique must move from the ear to the movement, not the opposite. Therefore, since technique is dependent on the ear and the conception of the pianist, there are as many different piano techniques as there are different conceptions. A great pianist does not have a technique, but many techniques. "Technical perfection should be measured, not by the degree of a pianist's mastery over this or that form of technique, but by the correspondence between his artistic intentions and the means of their realization" (p. 37).

However, though technique is individual, the basic laws of technical development are common to all, since all humans are subject to the same physiological laws. In the first stages of a student's musical and technical development, there is no place for individual technique. The student is under the influence of the teacher, and therefore his playing will express the musical ideas of the teacher. Gradually the student's own personality will begin to emerge as will an individualized technique. It is one of the piano teacher's problems to foster the emergence of the student's individuality without suppressing it in the course of helping the student overcome the unavoidable limitations of the initial period of study (Kochevitsky, 1967).

Kochevitsky's (1967) technical system is focused on the workings of the brain in the formation of technique. By practicing, stimulated cells in the auditory area of the cortex become

physiologically connected with the cells of the motor area, producing a chain of motor responses. Musical incentive provokes motor activity and makes piano study interesting, giving the student the necessary desire toward achievement of definite goals. Motivation is important for successful formation of conditioned reflexes. Students learn easier and retain more readily information that is interesting. If there is no musical incentive, technique can become an end in itself.

Philosophy of Teaching

Every piano teacher must have a method, as the absence of method leads to chaos. "Without an elaborate theory of pianistic movement there can be no real teaching of piano playing" (Kochevitsky, 1967, p. 36). However, the use of a definite method does not exclude an individual approach to each student. In addition to a method, every piano teacher must have knowledge of nervous processes and their relationship to motor activity. With beginners, the intelligence of the teacher is the guiding force. Teachers should explain the what, why, and how of technique as much as possible for the student to gain an understanding of technical processes.

It is important that the teacher strive to establish the following learning scheme from the very beginning of music study.

1. Auditory stimulus (inwardly heard tone).
2. Anticipation of the motor act.
3. Motor act resulting in sound.
4. Auditory perception and evaluation of the sound. (Kochevitsky, 1967).

Often, the process of a student's education lacks the auditory stimulation. In the beginning of study, the student should concentrate on tone production, starting with single, separate tones and focusing on tone quality. The student should play tunes by ear and be taught pieces by rote. In a short time the student will be able to hear inwardly without the teacher playing first. Next, transposition is introduced. Auditory-motor connections are strengthened and made more flexible through transposition (Kochevitsky, 1967).

Later, when the student has learned to read music, visual stimulation will be inserted before the auditory stimulus step in the process. At what point reading is introduced depends on the individual student. The teacher must be sure that the student is inwardly hearing the visually discerned notation correctly and that this auditory step is not skipped so that the connection between visual and auditory stimuli is strengthened. The auditory sense must always be the guide in movement so that the musical idea and technical movement go hand in hand. The musical idea always anticipates the technical means and stimulates technical development. If the technical aspect takes a leading role, there is a danger of degradation into superficial virtuosity (Kochevitsky, 1967).

Kochevitsky (1967) said that it is imperative for the pianist to develop a deep, strong concentration. The pianist must be completely absorbed in the activity at the instrument. Often it is necessary to be aware of several points at once: hand position, finger movement, fingering, and musical qualities. How many of these points the pianist has under control at one time depends on the level of development. The student must know how to organize the process of practicing in order to give the proper amount of time to each segment of practice and must use a detailed approach to any problems that are encountered. The best indication of real progress is the student's ability to work independently in solving new musical and technical tasks alone.

II. Basic Components

Hand Position

According to Kochevitsky (1967), the concept of hand position is broad, since the playing apparatus is in constant motion. The traditional position of a horizontal forearm and slightly curved fingers is to be considered as a point of departure only. Fingers are curved to different degrees depending on their length and on whether they play black or white keys. Making adjustments in hand position in relation to the passage must be preceded by inward hearing of the end result.

Kochevitsky (1967) supplied the following two definite suggestions regarding hand position.

First, the fingers and wrist must be firm and stable in order to transmit the weight and energy from the upper arm directly and freely to the keys (Kochevitsky, 1967).

Second, if the student complains about a weak 4th finger, the hand is not being used properly. Usually, the reason for this complaint is that the hand is in a supinated position sloping down toward the 5th finger. In this position, the 4th finger is at an angle and feels weak. Although the 4th finger is weaker than the 3rd, it is still strong enough for playing the piano. Pronation of the hand brings the fingers into a position where each finger can stand straight and be in a direct line with the key and forearm (Kochevitsky, 1967).

Tone Production

Although Kochevitsky (1967) did not explain arm stroke in detail, his writings imply that he preferred to introduce non-legato as the first type of articulation, followed later by legato. This is seen in his discussion of non-legato in connection with dynamics, after which he said, "As soon as we proceed to the production of a row of connected (legato) tones, the problem becomes infinitely more complicated" (p. 38), implying that the introduction of legato follows mastery of non-legato.

The development of finger technique requires more time and attention than the technique of the upper parts of the arm. The whole playing apparatus, including the muscles of the back and feet, must be absolutely free in movement and inner muscular functions. The action of the fingers is dependent on the upper arm, and these playing units must be fused into one motor entity. While the fingers and upper arm are self-sufficient playing units, the parts between them form a system of levers. The upper arm places the fingers in the most convenient position for executing the orders given by the cortical motor centers (Kochevitsky, 1967).

In finger stroke, the fingers are raised in order to obtain the most distinct sensations from their action. This strengthens inhibition of the flexors, which is necessary for a proper

balance between the excitatory and inhibitory processes of the flexor (bending muscle) and extensor (straightening muscle). The tendency to rush is observed in students who are not trained to raise their fingers while practicing, especially in slow practicing. Rushing is a sign that the flexors are excited while the inhibitors of the flexors are weak. The fingers are raised only as high as is needed for this purpose. The nail joint of the finger is never raised higher than the back of the palm, because higher raising causes strain in the muscles (Kochevitsky, 1967).

Firm, active finger work is imperative for achieving strong neurological sensations. A slight pressure into the key after full depression is recommended in slow practicing in order to strengthen the tactile sensations from finger muscle contractions. Lack of clarity in the sensations from finger activity results in indistinct finger technique. Best control is achieved by pressing the key rather strongly and trying to move the wrist down smoothly and evenly. Combining a strong finger grasp with a flexible wrist is important to good technique (Kochevitsky, 1967).

When first learning a new movement, some muscles around the working muscle may overstrain. This is because excitation of a muscle irradiates, or spreads, over a large part of the motor region, inducing work from those muscles that should not participate as an active part of the movement. Practice gradually eradicates these superfluous movements and unnecessary contractions, because with repeated movements of the playing apparatus, the excitation for that movement is greater, and the inhibition of surrounding muscles also increases. This reduces the irradiation and concentrates excitation to those muscles that should be contracted (Kochevitsky, 1967).

The fingers and upper parts of the arm are continually at work in piano playing. When the activity is predominantly concentrated in the upper parts of the arm, the sensations from movements of these parts overshadow the sensations from finger work. Therefore, balancing all parts of the playing apparatus must be at the center of the pianist's attention. The more the upper arm is involved in executing a movement, the more the attention should be directed toward polishing the finger's proprioceptive (self-perceiving) sensations. This is why practicing hands

separately, especially with the left hand, which receives much weaker proprioceptive sensations, is important (Kochevitsky, 1967).

Playing Apparatus

Muscles

Knowing the "names and addresses" (Kochevitsky, 1967, p. 38) of muscles is of no use for technical development, since much about muscle function is still unknown. Although the pianist cannot analyze exactly which muscles participate in a movement, limited control over their work can still be exerted. For instance, the pianist can control the condition of the muscles of the finger not engaged in tone production.

In piano playing, short muscular contractions are very important. In properly coordinated motor activity, the contraction of a muscle is instantaneously replaced by relaxation. Protracted contraction distorts the precise work of the cortex, hindering the perception of clear sensations from efficient movements. Therefore, muscles that are overstrained produce a disturbance of the whole mental activity. In addition, making excessive demands on muscles decreases their efficiency and does not increase their strength. It can even cause muscular atrophy. On the other hand, absolute relaxation is not conducive to elasticity of the muscles. A weak static tension stimulates cortical activity and exerts the most favorable influence on muscle preparedness (Kochevitsky, 1967).

Shoulder and Upper Arm

The participation of the upper arm in piano playing is constant. Kochevitsky (1967) quoted the Russian piano teacher, Leonid Nikolaev, who said, "Nothing by fingers without arm, nothing by arm without fingers" (p. 33). The upper arm places the fingers in the position where they can play most efficiently.

Hand.

Although many pianists believe that broad, thick fingers produce a full, luscious tone, it is nonsense to think that a bony hand will only be able to produce a thin, dry tone (Kochevitsky, 1967).

Fingers

The fingers of a newborn are strong enough to sustain the weight of the body when grasping a support. Therefore, it is hard to find the origin of the idea that strengthening the fingers will increase their agility. Fingers are directed by the arm, which lines up the fingers for work at the keys. The teacher should not direct special attention to the development of individual finger speed and finger muscles (Kochevitsky, 1967).

Contraction and Relaxation

According to Kochevitsky (1967), the idea of relaxation is as absurd as that of weight playing. No pianist ever played by throwing the weight of the relaxed arm onto the keyboard. Instead, degrees of contraction and relaxation are constantly at work in piano playing. The degree of contraction is determined by the speed of movement and by dynamic shading. The playing apparatus should never become stiff through excessive contraction, and usually two antagonistic muscle groups do not contract simultaneously, because this causes stiffness. The pianist's job is to contract the proper muscles with the appropriate force at the correct moment for the required length of time.

One frequently overlooked factor in contraction and relaxation in piano playing is the function of the extrapyramidal complex, which helps balance the body and the extremities in space. This complex is what prevents the beginner from being able to relax the arm completely, because when the student wants the arm to relax and releases its weight, the extrapyramidal complex interferes to prevent freefall. Another example is that when the student's attention is concentrated mainly on finger activity and the normal amount of tension necessary for this activity is exceeded, the muscles are over exerted. Then the teacher, in trying to free the student's

hand from excessive tension, may cause an overbalance to the other extreme by trying to incite too much relaxation, thereby working against the extrapyramidal complex, which seeks to keep the limbs in a proper balance between contraction and relaxation (Kochevitsky, 1967).

Mind/Body Relationship

The interaction of the brain and body is a complicated subject, because the brain contains billions of nerve cells that are connected to each other through nerve fibers. Because of these connections, the nervous elements of the brain influence one another (Kochevitsky, 1967).

Piano playing contains both conscious and automatized ingredients. In a new action, the motor activity of the "lower divisions" (Kochevitsky, 1967, p. 22) is overburdened with unnecessary movements and tensions that are expressed externally in awkwardness. Gradually the cortex of the brain learns to master the mechanisms and to reorganize the work. Regulated by the highest centers, motor activity becomes directed consciously and becomes skillful, graceful, and more flexible in appearance. As a consequence, muscles must perform their activity in different ways than are used when the movement is controlled by the lower centers. The contractions arise rapidly, last a short time, and constantly interchange with relaxation. By constant training, the pianist strives to achieve the maximal prevalence of the cortex over all lower motor centers. In this manner, old coordinations are replaced by new ones.

The interaction of the mind and body can be described by the following steps:

Step 1. A musical purpose initiates, maintains, and guides the effort toward acquiring a new motor act (Kochevitsky, 1967)

Step 2. A stimulus comes to the visual or auditory receptors as a sensation from the environment. This constitutes the first signaling system. Verbal symbolism, or words turned into signals such as printed notation, are signals of signals and constitute the second signaling system (Kochevitsky, 1967).

Step 3. The analyzing apparatus breaks up the incoming stimuli into very fine, separate, quantitatively and qualitatively different movements (Kochevitsky, 1967).

Step 4. Orders for reaction are passed on to the central nervous system and then to the muscles, which produce a movement. (Kochevitsky, 1967).

Step 5. Sensations from movements of the parts of the body are called proprioceptive (self-perceiving) sensations. These sensations must be clear and distinct for the brain to analyze and synthesize the sensations for the acquisition of a motor skill. Making proprioceptive sensations clear is aided by slow practicing, by slight exaggeration of movements, and by consciously perceiving the sensations. Therefore, movements in piano practicing differ from those in piano playing, because when practicing it is necessary to consider not only the artistic purpose but the physiological points as well. Although practicing with the motor apparatus cannot be dispensed with, utility of the motor apparatus depends more on the ability for fast musical thinking than on long hours of practicing and numerous repetitions of movements (Kochevitsky, 1967).

Step 6. At the foundation of activity lies the formation of conditioned connections. When excitation of a cell of the cortex's motor region coincides with the excitation of another motor cell or arises within a short time interval to it, a connection forms between these two elements (Kochevitsky, 1967).

Step 7. The proprioceptive sensation from one motor act becomes a stimulus for the next. The repetitions prepare and establish new cortex connections, resulting in a long chain of uninterrupted and flowing movements. (Kochevitsky, 1967).

In one form of practicing, called mental regrouping or technical phrasing, patterns that make up a musical or technical phrase are grouped for easier mental handling. Some groupings include:

- Patterns where notes move in one direction.
- Patterns of uniform groups that are repeated.
- Notes that can be grasped in one hand location.

- Constructions of phrases where the last note of the group falls on an accent

(Kochevitsky, 1967).

III. Exercises

Exercises

Many conscious, well-prepared repetitions are required for acquiring a new motor activity. However, if the spot is repeated too many times, attention is weakened. Unconscious repetition obliterates any positive results that may have been achieved. In repeating a section, there should be several seconds of rest between each repetition in order to give the pianist time to analyze the last repetition and to prepare for the next one. Children tend to repeat sections carelessly one after another. They have little or no patience and a short attention span. The abilities to analyze adequately, to discriminate between right and wrong, to organize the working process effectively, and to be cautious and patient develop with age. However, the shortcomings of the young are compensated for by the flexibility of their central nervous systems, which allow conditioned reflexes to be established easily and the subconscious process of choice in perfecting movements to occur naturally and spontaneously (Kochevitsky, 1967).

The number of repetitions needed to assimilate a new combination of movements depends on:

- The complexity of the new motor form.
- The type of nervous system of an individual.
- The concentration of the person's attention.
- The previously established connections (Kochevitsky, 1967).

Previously established connections are the foundation on which all subsequent learning is based. There are countless forms of motion in the motor storage that can be used as half-ready products in later technical development. With the conquering of each new motor problem, the

pianist adds new motor forms to the experiential cache, which makes later learning easier (Kochevitsky, 1967).

Kochevitsky (1967) said that no exercise is good or bad by itself. The usefulness of an exercise is based on how it is practiced. Practice of abstract exercises without practical application is a waste of time. Until the student achieves full command over the playing apparatus, the teacher should find appropriate material for exercises. However, when the first stage of conditioning a path between nerve centers and periphery is established, technical development becomes more an aspect of adjustment of the arm, hand, and fingers to technical tasks than of meeting musical demands.

Kochevitsky (1967) said that exercises in one hand position contribute little to broad technical development. Since it is difficult to estimate distances, exercises that move around the keyboard are preferable. One exercise Kochevitsky warned against was that of holding down fingers silently while other fingers play. He said that this is an unnatural form of practicing and deprives the pianist of the opportunity to develop the ability to regulate the energy with which each key should be pressed.

IV. Movement at the Keyboard

Lateral Movement

In moving around the keyboard, the new position is anticipated in the mind and formed while the hand is moving to its new place (Kochevitsky, 1967).

V. Fundamental Forms

No information given.

VI. Basic Musical Inflection

Articulation: Legato

Legato articulation requires smooth movements between key pressures. The idea of singing in legato represents the initial and most important part of the process. To practice legato, the fingers are prepared on the keys. Each finger then presses with a light downward movement

only, never leaving the key. Practicing with a deep legato, with each finger holding its key a fraction of a second after the next key is pressed, is a good way to form conditioned connections. It provides stabilization of the joints of transmission in transferring energy to the key. It also assists in isolating finger activity from the activity of the upper parts of the arm, especially when practiced quietly (Kochevitsky, 1967).

A clear sensation from the movement of each finger calls for the movement of the next finger, connecting the single movements into a complex motion pattern. Playing proceeds very slowly and *pianissimo* with the whole attention concentrated on the fingertips. The downward movement of one finger must be synchronized with the movement of the preceding finger as it lets its key rise. The pianist should stop if there is the slightest sensation of fatigue in the upper arm. This type of practicing gives the fingers a feeling of strength, not by muscle, but by nerve command over the fingers (Kochevitsky, 1967).

Articulation: Staccato

Legato passages should be practiced with staccato touch in order to more firmly engrave the order of notes in the memory. This will also sharpen the proprioceptive sensations, because the activity of the fingers is more distinct in staccato. This staccato practicing must be finger staccato, not hand or forearm staccato. A *piano* dynamic level should be employed, since *forte* requires the participation of the upper parts of the playing apparatus, which would overshadow fine finger sensations (Kochevitsky, 1967).

Rhythm

The excitatory and inhibitory processes are important in relationship between technique and rhythm. Fingers that do not begin to work at the right time, fingers that move out of time, muscles that do not relax when they should, and rushing the tempo are all symptoms of weak inhibition and an abnormal prevalence of excitation. Slow and extremely even playing are indispensable for strengthening the inhibitory process. This type of practice is sometimes necessary even after mastering a passage, because what was achieved must be preserved. The

ability to regulate *crescendo* and *diminuendo* and the ability to slow down and to stop at any moment are the best proof of the proper balance between excitatory and inhibitory processes (Kochevitsky, 1967).

Stopping practice helps the pianist control a pattern just executed and to detain the impulse for the next movement, which also helps to strengthen inhibition. To practice this way, the pianist first stops on each beat, and then the stops occur less and less often, stopping every two, three, or four beats. Stopping points should often be shifted to develop flexibility and to prevent fixation of any repeated pattern in the nervous system (Kochevitsky, 1967).

Another important subject relating to rhythm is that of regularity in a strong metrical-rhythmic feeling, which helps the nervous mechanism operate effectively. Passages should be divided into groups, each of which is the same duration. Often the failure to execute a scale, trill, or *tremolo* results from incorrect timing and accentuation. The accentuation should be very light and hardly audible. If the pianist plays a passage without regular natural accentuation, no matter how accurate the finger work is, the playing will be indistinct. The ability to distribute energy correctly can be developed by applying numerous metrical variants to exercises, scales, and passages as well as by executing scales and exercises with various dynamic shadings. Besides being clearly accentuated in regular metrical groups, an exercise must always finish on the strong beat to give the proper feeling for the end of the unit (Kochevitsky, 1967).

Dynamics and Tonal Control

Tonal intensity is controlled by the speed of key descent. Key pressure is not affected by the work of the finger muscles only, but also by the energy of the muscles of the whole playing apparatus. Regulating the speed of key descent is much more easily and securely realized if it is initiated at the shoulder. When playing quietly, the wrist and all the other joints of transmission must be firmly set to convey the necessary energy to the keys (Kochevitsky, 1967).

Besides regulating rhythm and speed, the inhibitory process also regulates tonal intensity. For strengthening the inhibitory process with regard to dynamics, the pianist should practice

pianissimo and extremely evenly in slow as well as at faster tempos. The student must be able to regulate the sudden and gradual increase or decrease in volume at any tempo (Kochevitsky, 1967).

Tone Quality

Tone quality depends mainly on the pianist's mental conception of the tone that is to be produced. The strength and sharpness of this inner conception guides the pianist's playing apparatus to find the means for realization of the musical ideal. The ability for self-listening is indispensable. The kind of movement and the amount of energy exerted for producing a certain tone quality are of secondary consideration (Kochevitsky, 1967).

Tempo

Velocity depends on mental agility in grasping the printed music and in coordinating finger movements. The limit of the speed of motion for each individual is the limit of mobility of the nervous processes. Kochevitsky cited Oskar Raif's experiments, conducted in 1901, which showed that a person can make from five to six movements per second by the 2nd and 3rd fingers, and from four to five movements per second by the other fingers. Also, some people who did not play the piano could move their fingers faster than trained pianists (Kochevitsky, 1967). Therefore, "It is a delusion that piano virtuosos need to develop a higher than inborn agility of individual finger movements" (Kochevitsky, 1972, p. 32).

Innate finger agility coincides with a natural ability for auditory perception. The ear cannot perceive more than 15 tones per second. The difficulty in piano playing is not in the rapidity of individual finger movements, but in the timing of these movements. This precision has its roots in the central nervous system. Each person's central nervous system has a determined degree of initial mobility. However, the central nervous system is capable of almost limitless improvement with training (Kochevitsky, 1967).

Training the weaker inhibitory process that regulates movement is more important for the development of speed than training excitation. This is difficult, because the nervous system strengthens excitation and suppresses inhibition when speed increases. Therefore, an increase in

tempo in practicing should always be gradual, and this increase must alternate with slow and careful playing (Kochevitsky, 1967).

Slow practicing is important, because when practicing slowly, the resulting changes are not in the fingers or hands but in the cells of the cortex's motor region. Modification of brain function results from training of the peripheral parts of the body and vice versa (Kochevitsky, 1973).

People with a sluggish demeanor, who are usually physically weak, do not achieve satisfactory speed in movements, because they have nervous systems where inhibition overbalances excitation. However, this is only a seeming overbalance. In fact, both processes are inert and weak. In such cases, it is important that all movements be executed energetically. Slow playing does not necessarily mean slow motion. Deep legato practicing with pressure on the keybeds is also extremely useful for strengthening weak nervous processes (Kochevitsky, 1967).

When a tempo increase is difficult for students with weak nervous process, dividing the passage into metrical groups and practicing the passage with stops on the strong beats can be beneficial. Also, if a scale or passage is played without dividing it into groups with regular accents, then a single finger impulse will be necessary for each movement. Uniting notes in a group by an accent enables the pianist to play a given succession faster, because only one impulse is needed to produce a series of tones. The faster the passage, the greater is the number of tones that must be united into one group (Kochevitsky, 1967).

Table 24

Elementary Level Technical Concepts According to Kochevitsky

Elementary Level Technical Concepts	**George Kochevitsky**
I. Philosophy	
Philosophy of Technique	- The brain stimulates formation of technique through a musical incentive that provokes motor activity. - Music and technique are linked.

	- Technique must move from the ear to movement. - Although technique is individual, basic laws of technical development are common to all. - In the first stages, there is no place for individual technique.

Philosophy of Teaching	- A method is important.
	- Order:
	  - Visual stimulation.
	  - Auditory inner visualization.
	  - Anticipation of motor act.
	  - Motor act.
	  - Auditory evaluation of sound.
	- Start with single notes by ear and rote. Then transposition. Then notation.
	- Strong concentration is necessary.

II. Basic Components	
Hand Position	- Broad conception of hand position. - Traditional hand position is a point of departure only. - Finger curve depends on finger length and white or black keys. - Fingers and wrist are stable and firm. - Hand stands tall so 4th and 5th fingers are not in a weak position.
Tone Production	- Non-legato is implied to be the first touch introduced, followed by legato. - Finger technique is harder to develop than arm technique. - Finger action is dependent on a free upper arm. The arm puts the fingers in the most convenient position for striking. - Fingers are raised slightly and are used actively and strongly with a slight pressure on the keys to form strong proprioceptive sensations. - Irradiation of muscle work will gradually lesson as excitation and inhibition get stronger. - Balance all parts of the playing mechanism. - Practice hands separately for building proprioceptive sensations.
Playing Apparatus	
- Muscles	- Knowing the location of the muscles is not necessary. - Short muscular contractions are important. - Instantaneously relax after a contraction. - Overstraining muscles disturbs the whole mental activity.
- Shoulder and Upper Arm	- Participation of the upper arm is constant.

	- Upper arm places fingers in their proper position.
- Hands	- All hand types can produce all kinds of sounds.
- Fingers	- Special attention given to the development of individual finger speed or finger muscles is not necessary. - Fingers are directed by the arm.
Contraction and Relaxation	- Degrees of contraction and relaxation are necessary. - Degree of contraction is determined by speed of movement and dynamics. - Usually two antagonistic muscles do not contract simultaneously, because this causes stiffness. - Contract the proper muscles with the appropriate force at the correct moment for the required length of time. - Extrapyramidal complex keeps the body in balance and may interfere with efforts to relax muscles completely.
Mind/Body Relationship	- Conscious and automatized ingredients. - Training allows maximal prevalence of the cortex over the lower motor centers, replacing old coordinations with new.
III. Exercises	
Exercises	- Much repetition is needed to perfect a new motor activity. - Repetition must be conscious, not unconscious. - Rest for several seconds between repetitions. - Conditioned reflexes are established easily in children. - Previously established connections are the foundation on which all subsequent learning is based. - Half-ready products in motor storage help conquer new technical hurdles. - The usefulness of an exercise lies in how it is practiced. - Practicing abstract exercises without practical application is a waste of time. - Exercises that move around the keyboard are more useful than stationary exercises. - Do not use exercises where fingers are held while others play.
IV. Movement at the Keyboard	
Lateral Movement	- The new position is prepared in the mind and then formed while the hand is moving.
V. Fundamental Forms	- No information given.
VI. Basic Musical Inflection	
Articulation: Legato	- Smooth movements between key pressures.

	- Each finger overlaps slightly into the next note to form conditioned connections, which strengthens nerve command over the fingers.
Articulation: Staccato	- Practice legato passages with a staccato touch to engrave the memory of the notes and to sharpen the proprioceptive sensations. - Practice this way with finger staccato, not hand or forearm staccato, at a *piano* dynamic level.
Rhythm	- Excitation and inhibition are related to rhythm and tempo. Use slow and even playing and stopping practice to make fingers even and strengthen the inhibitory process. - Ability to regulate dynamics and slow down and stop at any moment is proof of proper balance between excitation and inhibition. - Strong metrical feeling makes the nervous mechanism operate effectively.
Dynamics and Tonal Control	- Controlled by speed of key descent. - Practice *pianissimo*, evenly, slowly, and quickly to strengthen inhibition in relation to dynamics.
Tone Quality	- Depends on strength of mental conception and imagination. - Self-listening is indispensable. - Type of movement is secondary.
Tempo	- Velocity depends on mental agility and auditory perception, not on moving the fingers quickly. - All people can move their fingers quickly. Special training does not make the fingers move faster. - Various types of practicing produce changes in brain cells. - Excitation and inhibition are important. Therefore, an increase in tempo should be gradual and alternate with slow and careful playing. - Sluggish people may have an overbalance of inhibition. They should practice with energetic movements and pressure on the keybeds and divide the passage into metrical groups with stops on strong beats.

Gyorgy Sandor

Sources

On Piano Playing (1981).

I. Philosophy

Philosophy of Technique

Sandor (1981) defined technique as "…the sum total of organized motions executed by the performer. These motions produce sounds that recreate the moods of the composer in the performer's own interpretation" (p. ix). Sandor's basic premise was that technique should be based not on strength and endurance of the muscles, but rather on their optimal coordination. At the fundamental level, technique is not complicated, because the individual motions of the fingers, hand, arm, and shoulder are simple in scope and function. However, all these playing units must be coordinated and synchronized. "If any element fails to function, or if it does too much or too little, the entire apparatus is affected" (p. xi). Technique and musicianship are inseparable, because if the mechanism malfunctions, the musical results are damaged. Faulty technique results in faulty music.

In spite of the variety in body proportions among individuals, the human anatomy is basically the same for all people. Therefore, it is possible to reduce technique to a limited number of fundamental motion patterns that can then be integrated into composite activities that are applied to piano repertoire. A correct reading of the score reveals with surprising clarity which technical pattern is to be employed (Sandor, 1981).

The five basic technical patterns Sandor (1981) identified are:

1. Freefall.
2. Five-fingers, scales, and arpeggios.
3. Rotation.
4. Staccato.
5. Thrust.

According to Sandor (1981), practicing technique is nothing more than the process of assimilating the motion patterns through repetition. If these patterns are directed consciously, relatively few repetitions will suffice. Once the motion habits have been acquired correctly, the need to practice technique no longer exists. Technique continues to improve as the movement patterns are applied to the repertoire.

Philosophy of Teaching

Even the most complicated technical activities can be comprehended by anyone who wishes to master them. Some knowledge of anatomy and physiology is necessary to acquire knowledge of the equipment used constantly in piano playing: the fingers, hand, forearm, and upper arm. This knowledge will "bring common sense into the nebulous world of the 'art of piano playing'" (Sandor, 1981, p. 57). The technical solutions to pianistic problems are available. After gaining knowledge, the rest of the quest toward the attainment of technique depends on perseverance, imagination, talent, and intelligent practicing.

II. Basic Components

Posture

A good posture is one that allows both stability and mobility at the piano. Stability refers to a position that enables the pianist to sit comfortably, while mobility enables the pianist to move freely and effortlessly over the entire keyboard. Sandor (1981) did not present any definite laws of posture, because a fixed body position both causes and results in tension. Instead, he provided the following general principles for establishing a proper posture.

- Even if two people are exactly the same height, the bench height may have to be adjusted, because the proportions between the lengths of their upper arms and torsos may differ. As long as the playing is comfortable, the position is correct, because when the body is well-balanced and supported, the diaphragm and other muscles are free (Sandor, 1981).

- Most of the body weight rests on the bench, but some is supported by the feet so that the body is still supported when in motion. The body moves continuously though never in excess, because a change in position brings relief to the contracted muscles. A continuous and slight change of body position is beneficial, because it keeps the muscle tone alive and allows for free breathing (Sandor, 1981).
- The upper arm is not to be pressed against the body (Sandor, 1981).
- The upper arm must move forward the correct amount in order to allow the fingertip to descend vertically. Either too much or too little movement will cause an oblique descent (Sandor, 1981).
- The generally accepted rule that the forearm should be horizontal with the keys does not necessarily apply for every pianist. If the upper arm is very short, it is preferable to have the forearm at a slight angle to the keys. But if the upper arm is long, the elbow and forearm may need to be in a low position. Convenience and ease is the only ground rule (Sandor, 1981).

Hand Position

All vertical finger movements are executed by muscles located in the forearm. Therefore, a finger position is correct only when it is placed as if it were an extension of the corresponding muscles in the forearm and in direct line with them. A fixed hand and wrist position does not accommodate the different lengths of each finger. Therefore, there must be a slight horizontal adjustment of the position of the wrist, forearm, and upper arm for each finger (Sandor, 1981).

The wrist is the controlling factor in allowing the finger to reach the key perpendicularly. The wrist is to be in a central position that allows the finger to play its key vertically but without too much curvature. The hand, wrist, and fingers are also in a central position not too far to any extreme. There can be no fixed wrist position for all five fingers unless they play simultaneously

in chords. Fixed positions cause tension, fatigue, pain, chronic ailments, and a poor piano sound (Sandor, 1981).

An ideal position for each finger should be established rather than one hand position for all fingers. The height of the wrist will vary slightly with each finger, being considerably lower when the thumb plays and rising when moving by step from the thumb to the 5th finger. The wrist also adjusts laterally to allow the forearm to be in line with the finger that is playing, which causes a slight ulnar deviation when the forearm is aligned with the thumb. When playing several notes at the same time, the position of the arm and wrist should be halfway between the extreme fingers (Sandor, 1981).

Because the piano key moves up and down in a straight vertical line, the position of the nail joint of the finger should be as close to vertical as possible when making contact with the key so that the energy can be transferred in the most direct manner. A slanted approach to the key results in a waste of energy. However, sometimes a slant of the fingers on the keys is desirable to avoid an overtly direct attack in *espressivo* playing. Overly raised fingers, straight fingers, curved fingers, extremely low or high wrists, extremely bent hands in and out, pulled in elbows, and stretched arms should be avoided (Sandor, 1981).

Tone Production

Most children begin with a normal, natural position and play with broad arm and body motions that increase strength and build coordination. But when they are told to build strength in their fingers and wrist and assigned exercises in which four or five of the fingers are to hold down the keys while a working finger builds muscles, coordination is destroyed. The teacher should take advantage of the child's good coordination rather than interfering with it (Sandor, 1981).

Freefall. Basic Technical Pattern 1

There are two sources of energy available for movement: gravity and muscular energy. Most of the time, a pianist combines the two. However, it is more economical to use the force of gravity whenever possible to save energy, except in Basic Technical Pattern 5, Thrust. When using

gravity, the rate of acceleration is the same whether the weight is small or large. Therefore, it is most economical to use as little weight as possible (Sandor, 1981).

There are three stages to producing a freefall movement.

Stage 1. The fingers, hands, and arm are lifted about 10 inches off the surface of the keys and set in the proper position. However, each pianist must determine the optimum height to drop from, one that is high enough to gain acceleration but close enough not to crash onto the keys or miss the notes. This lift is accomplished through a slight upper arm movement, which then sets into motion the lift of the forearm and then the lift of the hand and fingers. The fingers and wrist are slightly curved in order to cushion the joints and transfer the energy to the keys upon impact (Sandor, 1981).

Stage 2. The arm, hand, and fingers fall simultaneously and passively through gravitational force. The arm is completely relaxed. The pianist must acquire the ability to let the parts of the arm fall freely as though the arm did not belong to the pianist, with no interference either by accelerating or by slowing down the arm (Sandor, 1981).

Stage 3. At the moment the playing mechanism lands on the key, the impact is transferred and cushioned by an instantaneous muscular contraction with a rebound in the hand, wrist, and fingers. The wrist is relatively low to cushion the landing. Contraction at impact is instantaneous and without continuous pressure on the fingertips. When landing on the black keys, a slightly higher arm position is necessary to allow the wrist enough room to cushion and rebound. The moment the rebound of the hand takes place, the shoulder muscles begin to retrieve the upper arm, thereby relieving any extended pressure on the fingertips (Sandor, 1981).

Sandor (1981) provided the following advice for executing a proper freefall.

- The head and body are immobile during freefall.
- The shoulder does not participate actively in the freefall. It merely holds and releases the arm.
- The upper arm is active and assists the forearm.

- Supination of the forearm while the arm is rising is to be avoided.
- The joints of the fingers and wrist are elastic, neither stiff nor loose.
- The role of the fingers is minimal. They act mainly as in recoil (Sandor, 1981).

Freefall can be practiced with fingers alone, hand, forearm, upper arm, or with a combination of playing units. It can be used in moderate tempo for single notes, intervals, and chords. Freefall is especially useful in producing loud sonorities. The longer the playing unit, the greater the speed it can generate, and the louder the sound will be (Sandor, 1981).

Finger stroke will be discussed under Five-Finger Patterns.

Thrust. Basic Technical Pattern 5

Thrust is used for moderately fast passages and slow chord sequences. It differs from freefall in that thrust uses the activity of the muscles instead of gravity or weight. The fingers are placed on the surface of the keys and pushed down vertically by a sudden contraction of the strongest muscles of the body, including the chest, stomach, back, triceps, and forearm flexor muscles. The fingers are in constant contact with the keys, which allows a very loud sound to be made without becoming harsh. Because the contraction is sudden and as short as possible, the motion feels effortless. The head, torso, and feet are immobile. They support the thrust and resist the rebound caused by the keys. The motion of the forearm and hand is slight (Sandor, 1981).

Playing Apparatus

Muscles

Sandor (1981) believed that muscles must not be built up. Instead, the muscles are used for their specific purposes to bring about coordination in the playing mechanism. The strong upper arm, shoulder, and body muscles assist the weaker muscles and prevent fatigue. The finer, smaller muscles of the forearms move the fingers and are responsible for precision work. The pianist's task is to determine what the position of the various components of the playing apparatus should be for activation, which groups of muscles to use, and how these muscles should function in order to achieve optimum technical and musical results.

There are frequent occasions where antagonistic muscles must contract simultaneously, but the fixation must be instantaneous, not extended, in order to prevent excessive tension (Sandor, 1981).

Body

The body assists the arms and hands by bringing them into the position where they can act to their best advantage. The parts of the body involved in tone production are in the service of the fingers, since the fingers are the only playing unit in contact with the keys. The pianist must possess knowledge about the range of the playing units, including the fingers, hand, forearm, upper arm, and shoulder, because there is an advantage to remaining within the central areas of the ranges of the parts and avoiding extremes whenever possible. When the work is well distributed throughout a completely involved body, the pianist seems hardly to move and yet can play with lightning speed and produce thundering sounds (Sandor, 1981).

Breathing

The diaphragm is one of the most important muscles in piano playing, because it regulates breathing. When it becomes tense and rigid, the diaphragm keeps the lungs from expanding properly and causes discomfort and tension. Breathing should remain normal (Sandor, 1981).

Torso and Chest

Muscles in the torso accommodate the arm's function while aiding the body in maintaining a mobile but secure condition. The chest, back, and shoulder muscles execute all downward and inward motions of the arms and are helpful in certain kinds of chord playing. The frailest person is capable of great energy and force at the piano, since the resistance of the piano key is only about two or three ounces, because the large muscles help the smaller ones. (Sandor, 1981).

Shoulder and Upper Arm

The main role of the shoulders is to lift the arm and to carry, guide, and control its

weight. The shoulder should not move much. If the shoulders feel tension, the pianist can move them slightly in a circular motion. Since the shoulder carries the full weight of the arm continuously, it needs to rest occasionally. This rest happens often during freefall, when gravity is used and the arm is dropped close to the body (Sandor, 1981).

Elbow and Forearm

The forearm contains the muscles that activate the fingers. These muscles are much smaller than those of the upper arm, shoulder, and chest. Therefore, they must be utilized effectively in transferring their full energy to the respective fingers in order to avoid fatigue. The biceps and triceps move the forearm (Sandor, 1981).

Wrist

The wrist moves vertically and laterally to accommodate the hand and fingers in aligning with the forearm muscles (Sandor, 1981).

Fingers

The fingers are extremely important in both their active and passive roles, because they alone are in contact with the keys. All the arm and body motions serve no other purpose than to help the fingers (Sandor, 1981).

Finger independence is essential, but it must be approached by selecting the correct positions in which the arm and hand can help the fingers work independently. This allows finger independence to be gained without forearm fatigue rather than through exercises that may cause damage to the forearm muscles. Finger exercises are useful only if they serve to create interdependence between the forearm and upper arm muscles (Sandor, 1981).

Thumb. The thumb requires a different wrist, hand, and arm position from the other fingers because of its dissimilar structure, having two phalanges instead of three. It is the strongest, most agile and independent finger, because its metacarpal bone is free from the other bones and not tied to them by ligaments. The thumb moves vertically from the point where the metacarpal bone is attached to the wrist (Sandor, 1981).

4th Finger. The 4th finger feels weak, because its flexors and extensors are joined with the 3rd finger's muscles. However, the 4th finger does not lack strong muscles. Although it is not possible for the 4th finger to be entirely independent of the 3rd, the horizontal and vertical adjusting motions are so precise that the 4th finger can be activated effortlessly (Sandor, 1981).

5th Finger. The 5th finger is one of the strongest fingers in spite of its small size, because in addition to the forearm muscles, it has a special set of muscles on the outer side of the hand. These muscles can be developed substantially to give added power to the 5th finger. Since most of the fundamental bass and melody notes are played with the 5th finger, this strength is necessary (Sandor, 1981).

Contraction and Relaxation

There is no such thing as complete relaxation during piano playing. Partial relaxation alternates with muscular activity. The goal in playing is not relaxation but making music and being involved in all its drama and emotions without physical strain (Sandor, 1981).

Although complete relaxation is detrimental to piano playing, the pianist must take care to maintain a proper level of contraction and to guard against excess tension by using the proper degree of contraction and by only fixing the muscles momentarily. Though simultaneous contraction of antagonistic muscles is necessary, their extended activation is unproductive and should be avoided or stiffness, immobility, and poor sound will result. The most common source of trouble in piano technique and tone production is extended fixation, stiffness, and rigidity in the muscles and joints. The pianist should be careful not to equate inner musical intensity with continuous muscular tension nor to cultivate inner emotional feeling by pressing on the keys (Sandor, 1981).

Mind/Body Relationship

Repetitious practice is necessary to acquire motion habits, but it must be purposeful, not mechanical, and must be consciously controlled by the mind. In time, most conscious activities

become subconscious and automatic when they are completely mastered. It is not necessary to be aware of all the playing processes at all times (Sandor, 1981).

The power and motion of the arm can be either completely held by the shoulder or transferred in part to the fingertips. The tactile nerve endings of the fingertips regulate the interplay between the shoulder and the fingertips by sending messages to the nervous system (Sandor, 1981).

There are three layers the human mind uses to cope with experiences: the conscious, subconscious, and unconscious.

The conscious mind is responsible for selecting, analyzing, and assimilating the skill to be acquired. In learning music, the conscious mind converts the written image into its respective technical patterns and finds the best way to apply these patterns. The conscious mind is intellectual and does not take part in creative process (Sandor, 1981).

The unconscious mind stores and manipulates most of the instinctive procedures related to vital functions, and it stores the acquired skills after they have become automatic. This level of the mind has little to do with the processes of learning and acquiring skill. Once a technique is ingrained and automatic, it is in the domain of the subconscious and unconscious mind. Therefore, once a playing skill is acquired, it does not need to be practiced (Sandor, 1981).

III. Exercises

Exercises

Exercises should be used only to learn the pure form of the five Basic Technical Patterns impeccably. After learning the patterns, the pianist should look for repertoire in which to apply the patterns (Sandor, 1981).

Sandor (1981) said that the high incidence of injuries among pianists is the result of faulty practice habits, excessive tension, and muscle building exercises. Coordination of muscular effort, not muscle building, is necessary to attain good technique. Children begin by playing in a coordinated manner. However, as they advance they lose this coordination, often because of the

overuse of drills designed to make the fingers independent and to strengthen the weak wrist muscles. These exercises desensitize the muscles, which is dangerous because the pianist's muscles must be allowed to sound a warning when they are overworked. Muscular endurance does not need to be developed in playing a musical instrument. In sports, coordination, strength, and endurance are essential. In music, coordination alone is necessary.

Finger exercises are useful only if the position and participation of the forearm and upper arm are considered. Finger muscles cannot be strengthened, because it is the forearm muscles that move the fingers. If the whole apparatus works in a coordinated manner, there is no need to strengthen the muscles. The strong muscles supply assistance to the weak ones (Sandor, 1981).

Exercises where fingers are held down while repeating another finger are detrimental, because they make the hand stiff and desensitize the muscles. In contrast, finger exercises that incorporate correct arm participation can be useful (Sandor, 1981).

Warm-up exercises are not necessary, because if the entire body is activated and the motions are distributed among the playing units, piano playing becomes effortless. The pianist uses the same equipment for lifting a chair, opening a door, and writing as is used for playing the piano. Warm-up exercises are not needed for any of these activities. Rubbing the hands together or stretching the arms may be necessary if the pianist is feeling sluggish, but no further warm-up exercises are needed (Sandor, 1981).

Etudes

Because mechanical practicing is detrimental, Sandor (1981) recommended eliminating most studies that are not "music" (p. 189), such as Hanon and Pischna exercises and Czerny etudes. Exercises and etudes that employ certain technical patterns repetitiously tend to encourage mechanical practicing. It is much more productive to assimilate a technical formula in its purest form and then to use it as a specific piece demands.

IV. Movement at the Keyboard

Physical Movement

Children have better coordination at the piano than adults because of their small stature, which allows them to move more effectively and with greater agility and ease (Sandor, 1981).

Regarding physical movement, Sandor (1981) listed four principle adjusting motions:

1. Horizontal adjusting motions that line up the forearm muscles with each finger (Sandor, 1981).
2. Vertical motions that raise the wrist from the low thumb position to the higher 5th finger position (Sandor, 1981).
3. Depth motions that adjust the fingers to the white and black keys with the help of the upper arm (Sandor, 1981).
4. Body movements sideways, forwards, and backwards. When moving from one extreme to the other, one foot is moved in the opposite direction, or the opposite heel is turned in the direction the body is leaning. This supports the body. Some movements may be the result of a well-functioning, responsive, and expressive technique and do not interfere with tone production. However, the pianist should guard against disproportionate movements that are caused by excessive physical and emotional strain or a poorly functioning mechanism (Sandor, 1981).

The purpose of these adjusting movements is to accommodate the fingers. Most of these motions occur automatically and instinctively. However, if instincts fail, knowledge is necessary. Movements should not be made for their own sake but should be carefully selected in order to activate the proper set of muscles (Sandor, 1981).

Keyboard Topography

Many technical difficulties can be overcome by realizing that the black keys are about two inches farther away and half an inch higher than the white keys. When moving from the white keys to the black keys, it is necessary to lean slightly forward and to raise the upper arm to bring

the wrist and fingers into a similar position to that used in playing the white keys. When alternating between black and white key positions continuously, the body should assume a central position between the two positions (Sandor, 1981).

V. Fundamental Forms

Five-Finger Patterns

Five-Fingers. Basic Technical Pattern 2

The fingers and arm must work together and not act as substitutes for one another. Reliance on the fingers alone causes overworked hand and forearm muscles, while only using the arm results in inaccurate, inarticulate playing (Sandor, 1981).

When playing with a finger stroke, the fingers are raised slightly and are always active. A raised finger's weight is utilized when it plays, and the raised finger is helped by throwing motions of the hand or arm more effectively than if the finger is touching the key. Only in very fast playing does the finger action become so small that it is invisible (Sandor, 1981).

The weight of the arm is transferred to the fingers instantaneously, and the shoulder immediately resumes carrying the weight. If too much weight is carried in the fingers, excess strain results. Pressure is detrimental to piano playing because "it is totally inappropriate to an instrument that produces its sounds by an instantaneous hammer action" (Sandor, 1981, p. 180). Pressure after the note has sounded is useless and hinders free tone production for the next note because of prolonged tension in the muscles.

When moving from note to note, the finger is helped by the rest of the playing apparatus, which assumes a position suitable for that particular finger. At the same time, the fingers are always active. The wrist is lowest when the thumb plays and highest when the 5th finger is used. In addition, the lowest wrist position is assumed at the beginning of a phrase no matter which finger is used, and the wrist rises throughout the phrase. Therefore, whenever playing a five-finger exercise, both horizontal adjustments of the arm and vertical motions of the wrist occur (Sandor, 1981).

Five-finger exercises make the fingers independent not from the arms, but from each other. By insisting on a specific position for each finger that collaborates with the arm, the conditions are established for finger independence at the same time that the fingers are gaining interdependence with the arm. Five-finger exercises are practiced in the following ways with the goal of mastering the motion (Sandor, 1981):

- Contrary motion on white and black keys.
- Groups of two, four, and eight notes with a low wrist position for the beginning of the group that rises to a higher position at the end of the group regardless of which finger plays.
- With slurs, tied notes, and combinations of black and white keys (Sandor, 1981).

Rotation

Rotation. Basic Technical Pattern 3

Rotary motion of the forearm is important because it can add power and speed to the fingers. When properly executed there is no strain in the arm. Rotary motion is applied whenever the notes zigzag up and down alternately and for small intervals up to a sixth or a seventh. When the rotating interval increases beyond a sixth or a seventh, a lateral component of motion is added to the rotation of the forearm. The upper arm places the forearm in a position where it can actively execute the rotary motion and transmit its effect to the fingers. In the rotary action only the forearm and fingers are active, but in proper coordination and with proper timing (Sandor, 1981).

The upper arm and wrist are both passive. Twisting motions of the wrist must be avoided. The hand is held steady and in a straight line with the forearm. The fingers are slightly raised before playing and are active at all times but do not reach out to the next note. Correct elbow placement is important. The elbow must be equidistant between the extreme fingers that play. In summary, "The essence of rotary motion lies in a passive upper arm, an active forearm, an inactive hand and wrist, and slightly active fingers" (Sandor, 1981, p. 85). The position of the

body should be one that is comfortable for the position of the notes being used. In the center of the keyboard, discomfort can be avoided by moving the body slightly away from the upper arm. If both arms are playing, the body moves slightly backwards. The arms must not be stretched, and the hands must not be placed at an extreme angle.

Louder sound is produced by increasing the speed of the moving part and its distance from the keys. Hence, if the 5th finger is to be emphasized, the arm is turned toward the thumb, which gives the 5th finger side of the hand a greater distance to travel and allows it to gain great speed. When a passage is fast, the size of the rotational motions are reduced, and the arch becomes flatter (Sandor, 1981).

The following guidelines relate to combinations of black and white keys in rotation:

- When rotating on black keys, the general arm position is higher, and the upper arm moves slightly forward and sideways.
- When rotating with the right thumb on a black key and the 5th finger on a white key, the elbow moves closer to the body.
- When rotating with the right thumb on a white key and the 5th finger on a black key, the elbow moves out from the body (Sandor, 1981).

Scales

Sandor (1981) said that unevenness in scale playing is usually caused by a misuse of the thumb. It is easier to play a D, A, E, or B major scale than a C major scale, because the thumb can play a white key after a black key in the former scales, making thumb movement easier. When playing scales that move out from the center of the keyboard, the thumb must not be placed or squeezed under the palm, because the thumb is incapacitated when pulled under the thumb, which undermines the ability of the pianist to play an even, fluid scale. Sandor called placing the thumb under the palm "one of the most damaging technical errors" (p. 57) in piano technique.

Instead, the thumb must ride alongside the hand while the elbow turns outward. Then the wrist lowers to arrive at the proper thumb position. This motion is slightly bigger when the

thumb passes under the 4th finger. The child or untaught adult makes this motion naturally on the first approach to scales. The movements may be reduced until they are practically invisible. As long as total coordination exists, the individual motions may be very small (Sandor, 1981).

The upper arm, forearm, and wrist lower when the thumb plays and rise when the other fingers play. A slight motion of the body in the direction of the scale accommodates and reduces the elbow motion. The upper arm makes small, pendulum-like motions while the body moves forward (Sandor, 1981).

As speed increases, the size of the motions decreases. The down motion of the wrist aids in throwing the thumb, rather than placing it, toward its correct position. The 3rd and 4th finger strike toward the area of the keys near the fallboard when they play before the thumb so that the elbow does not have to move too far out and the thumb can be placed more easily (Sandor, 1981).

When playing a scale that moves toward the center of the keyboard, the upper arm and elbow are held out so that the 3rd and 4th fingers can reach over the thumb comfortably. The lifted arm allows all the fingers to be parallel to each other, including the thumb. As the upper arm stays out, the wrist moves down and up continuously, accommodating the thumb with a down movement and the 3rd and 4th fingers with an up movement. The thumb is raised both before and after it plays. The upper arm stays out at all times while the body leans backward (Sandor, 1981).

VI. Basic Musical Inflection

Articulation: Legato

It is not possible to play a real legato with the fingers alone, because the notes will overlap. A real legato can only be accomplished by a unifying motion of the forearm and upper arm where the wrist starts low and ends high in a phrase, although extreme wrist positions should be avoided. This rule about the wrist starting low and ending high in a phrase supersedes the rule that the wrist is lowest when the thumb plays. The fingers are slightly raised before and after playing as usual. It is easy to obtain a perfect legato when the fingers are raised slightly and the

adjusting motions of the arm and wrist in horizontal, vertical, and depth directions are activated (Sandor, 1981).

Articulation: Staccato

Staccato. Basic Technical Pattern 4

Staccato technique involves active and coordinated motions of the arm, wrist, hand, and finger, with all components participating simultaneously. The entire arm is actively engaged at all times. The greatest motion takes place in the hand and fingers, with minimal movement in the upper arm (Sandor, 1981).

The main staccato motion is a throwing gesture involving the entire arm, hand, and fingers, but initiated by the upper arm. When the arm is lifted, the fingers and wrist are at their highest, even higher than the forearm. When ascending and descending, all four playing units move simultaneously. The hand and fingers do not hang down passively, but are active so as not to obstruct the throwing motion. Every member of the playing mechanism should operate within its central range (Sandor, 1981).

The throw is minimal, but active. The force of gravity contributes to the throw, but the main source of energy is muscular. The moment the keys are struck, the entire equipment is immediately lifted to its original position to receive the next throw. The hand and fingers must bounce back immediately as if dribbling a ball or as if the keys were sizzling hot. At fast tempos, the rebound from the bottom of the keys becomes a preparation for the next throw. The correct motion can be verified by making sure the fingers are moving in a completely straight vertical line. This ensures that the upper arm is moving the correct amount (Sandor, 1981).

Hand staccato is a fallacy, because it overburdens the forearm muscles and makes a vertical descent of the fingertip more difficult to attain (Sandor, 1981). When the forearm is added to the wrist motion, the stronger muscles of the upper arm are utilized, making the motion easier.

After the main staccato motion has been mastered, the pianist may alter slightly the amount of finger, wrist, forearm, or upper arm action to create different sounds. For example, a light sound results from using more finger and wrist action and less upper arm action (Sandor, 1981).

The same advice applies in staccato as to other movements in terms of placing the equipment higher when playing black keys, letting the body move in the direction of the line, and lining up the forearm muscles to aid the fingers (Sandor, 1981).

Rhythm

Sandor (1981) did not advocate the technique of practicing passages with varied rhythmic patterns, because he said this makes practicing mechanical and that when dotted note patterns are used, the short notes usually do not receive sufficient time and attention. He believed that it is better to practice the notes as they were originally written.

Dynamics and Tonal Control

Greater tonal intensity is not gained by using a larger weight but by an increase in the speed that a longer lever can generate. Therefore, using the arm produces a louder sound than using the hand or finger not because the arm is heavier but because it is longer (Sandor, 1981).

In staccato playing, a louder sound is produced by making the joints more resilient, by increasing the distance of the throw, or by a combination of these actions (Sandor, 1981).

Tone Quality

Sandor (1981) said that it may be true that altering the tone quality of a single tone is not possible but that when notes are combined, different tone qualities do exist. "Touch and tone quality are most personal things, and they are clearly recognizable" (p. 14). Sandor believed that a pianist's sound is the direct result of the motions used. "Technique, sound, and motions are indivisible: they affect, influence and create one another" (p. 180). Although Sandor did not give definitive reasons for recognizably different tone qualities among pianists, he tentatively stated that the differences may be caused by:

- The rate of acceleration of the speed of the hammers.
- The way the dampers stop the sound when they descend on the strings.
- The spacing of the notes and agogic qualities of playing.
- The flexibility of metric units (Sandor, 1981).

Sandor (1981) stated the following opinions concerning various types of tone qualities:

- Stiff muscles and joints cause a hard sound, while excessively soft ones produce a pale, anemic sound (Sandor, 1981).
- Hitting the keys forcefully with a stiff, rigid playing mechanism spoils the sound and makes it hollow (Sandor, 1981).
- *Pianissimo* must, like *fortissimo*, be effortless in production. Many pianists cultivate extreme strain and tension when playing quietly (Sandor, 1981).
- A singing tone is produced by a soft mechanism and resilient joints. The cushioning of the joints slows down the descending arm speed, making it possible for only a portion of the speed and weight to be transferred to the keys. This partial weight of the arm produces an intense, warm, singing tone. The sound needs intensity so that it can carry (Sandor, 1981).
- The use of the entire arm and very flexible joints produces an extremely light and gentle sound (Sandor, 1981).

Tempo

When the speed of a passage increases, the size of the motion decreases, although the type of motion remains unchanged. In passagework at a slow tempo, the fingers are placed in their proper position. In a fast tempo, they are thrown to their desired position (Sandor, 1981).

In staccato passages at fast tempos there is a small time lapse between the initiation of the throw by the shoulder and its reception by the fingers. Therefore, in fast tempos a slight shift in the sequence and appearance of the staccato motion is visible. This lapse of time causes the

fingers, hand, and forearm to descend while the upper arm moves upward or forward. When the first three playing units ascend, the upper arm descends. This slight alteration happens only beyond a certain fast tempo and occurs automatically. The pianist should not be concerned with it and should not try to practice the staccato motion in this way at a slow tempo (Sandor, 1981).

Slow practice is beneficial for allowing the mind sufficient time to execute and control the motions. Slow practice is not done for its own sake but for the sake of executing the required motions with sufficient control and awareness. Playing a passage slowly over and over is a waste of time. Most practice should be as fast as it is possible to play while maintaining completely controlled motions (Sandor, 1981).

Table 25

Elementary Level Technical Concepts According to Sandor

Elementary Level Technical Concepts	**Gyorgy Sandor**
I. Philosophy	

Philosophy of Technique	- Technique is based on coordination, not on strength or endurance.
	- Human anatomy is basically the same for all people.
	- Technique is reduced to five fundamental motion patterns:
	  - Freefall.
	  - Five-fingers, scales, and arpeggios.
	  - Rotation.
	  - Staccato.
	  - Thrust.
	- Once the patterns are assimilated, there is no need to practice technique any longer.

Philosophy of Teaching	- Anyone can learn technique. - Knowledge of anatomy is necessary. - Besides knowledge, perseverance, imagination, and talent are needed.
II. Basic Components	
Posture	- Stability and mobility. - No standard technique. Body proportions vary. - Most of the body weight rests on the bench with feet

	supported. - Do not press the upper arm against the body. - A horizontal forearm is not right for all pianists.
Hand Position	- Finger movements are executed by muscles in the forearm. - Finger position is correct when it is in direct line with the forearm. - Hand, wrist, and fingers are in a central position. - An ideal position for each finger should be established rather than one standard hand position. - Wrist adjusts laterally to help the fingers. - Nail joints are vertical. - Extreme positions of all joints should be avoided.
Tone Production	- Most children begin with a natural coordination. - Freefall. Basic Technical Pattern 1. - Thrust. Basic Technical Pattern 5.
Playing Apparatus	
- Muscles	- Should not be built up. Coordination is what is needed. - When antagonistic muscles are contracted simultaneously, which happens often, the contraction should be short-lived.
- Body	- Assists the arms and hands into position. - Work is distributed over the body.
- Breathing	- Breathing should remain normal.
- Torso and Chest	- Accommodates arm function and keeps the body mobile and secure. - Execute all downward and inward motions of the arms. - Helpful in chord playing. - The frailest person is capable of great force, because larger muscles help smaller ones.
- Shoulder and Upper Arm	- Lifts, carries, and guides the arm and controls its weight. - Shoulder should not move much.
- Elbow and Forearm	- Forearm contains finger muscles.
- Wrist	- Moves vertically and laterally to accommodate the hand and fingers in lining the fingers up with the forearm muscles.
- Fingers	- They alone are in contact with the keys. - Finger independence is important. - Interdependence between forearm and upper arm muscles.

Contraction and Relaxation	- Partial relaxation alternates with muscular activity. - No complete relaxation. - Guard against extended or excessive contractions. - Antagonistic contractions are necessary.
Mind/Body Relationship	- Repetitious practice is necessary but must be purposeful. - Tactile nerve endings of the fingertips regulate interplay between the shoulder and fingertips. - Conscious, subconscious, and unconscious minds are involved.
III. Exercises	
Exercises	- Used only to learn the Basic Technical Patterns. - No muscle building exercises. - No exercises where fingers are held and others move. - Warm-up exercises are not necessary.
Etudes	- No Hanon, Pischna or Czerny, because they cause mechanical practicing.
IV. Movement at the Keyboard	
Physical Movements	- Children have better coordination than adults. - Horizontal adjusting motions. - Vertical motions. - Depth motions. - Body movements. - The purpose of movement is to accommodate the fingers. - Most movements occur instinctively. If instincts fail, knowledge is necessary.
Keyboard Topography	- Lean forward and raise the upper arm when moving from white to black keys.
V. Fundamental Forms	
Five-Finger Patterns	- Basic Technical Pattern 2. - Fingers and arm work together. - Fingers are raised slightly. - Weight of the arm is transferred to the fingers instantaneously, and the shoulder then immediately resumes carrying the weight of the arm. - Fingers are helped by the rest of the playing apparatus. - Five-finger exercises make the fingers independent from each other, not from the arm. - Practice in contrary motion; in groups of two, four, and eight notes; and with slurs, ties, and combinations of black and white keys.

	- Wrist is low at the beginning of a phrase and higher at the end, regardless of which finger plays.
Rotation	- Basic Technical Pattern 3. - Adds speed and power to the fingers. - Applied whenever the notes zigzag for small intervals up to a sixth or seventh. - Upper arm places forearm in position. - Upper arm and wrist are passive. - Fingers are slightly raised before playing and are active at all times. - Fingers do not reach for the notes. - Elbow is equidistant between extreme fingers. - Louder sound is produced by faster speed and greater distance from the keys.
Scales	- It is easier to play scales that contain black keys. - In scales out from center, the thumb rides alongside the hand while the elbow turns outward. - Wrist, upper arm, and forearm lower when the thumb plays and rise when the other fingers play. - No stretching of the thumb under the palm. - On scales moving in toward center, the upper arm and elbow are held out so the 3rd and 4th fingers can reach over the thumb.
VI. Basic Musical Inflection	
Articulation: Legato	- It is impossible to play real legato with fingers alone, because the tones will overlap. - Legato is accomplished by a unifying motion of the forearm and upper arm where the wrist starts low and ends high in a phrase. - Fingers are slightly raised before playing.
Articulation: Staccato	- Basic Technical Pattern 4. - Active and coordinated motions of the arm, wrist, hand, and finger. - The arm is actively engaged at all times. - A throwing motion of the entire arm, initiated by upper arm. - No hand staccato. - Alter the amount of finger, wrist, forearm, and upper arm action to produce different effects.
Rhythm	- Do not practice with varied rhythmic patterns.
Dynamics and Tonal Control	- Louder sound is produced by an increase in the speed of a longer lever, not a heavier lever.

Tone Quality	- Tone quality differences are personal and exist.
	- Caused by:
	  - Rate of acceleration of speed of the hammers.
	  - The manner in which the damper stops the sound.
	  - Agogic qualities.
	  - *Rubato*.
	  - Stiffness of muscles and joints.

Tempo	- Decrease in the size of the motion. - In slow tempo, the fingers are placed in position. - In fast tempo, the fingers are thrown into position. - Slow practice is beneficial for allowing the mind time to control the motions. - Most practicing should be fast and controlled.

Seymour Bernstein

Sources

With your Own Two Hands (1981).

20 Lessons in Keyboard Choreography (1991).

I. Philosophy

Philosophy of Technique

Bernstein's (1981) technical approach arose from his search for physical comfort in his own playing. He believed that the pianist must always be aware of physical sensations, since technical ease is a result of specific feelings, thoughts, and physical movements. Each sound produced has an accompanying physical sensation, and the pianist should learn to induce or even to turn off all such sensations and movements at will. The ultimate achievement in technique is to forge a connection between the pianist's physical and musical feelings.

In explaining these movements, Bernstein (1991) likened technique to the choreography of dance and invented his own symbols to designate finger, wrist, and arm movements. Various combinations of vertical and horizontal movements combine to produce an interpretation of a piece of music, resulting in a "veritable ballet of fingers, wrists, arms, and torso" (p. xiii). Being conscious of physical sensations and making a physical connection to them should be the pianist's chief concern during every moment of practicing. Only then will the sounds coming from the piano match the pianist's individual response to music (Bernstein, 1991).

Bernstein (1991) said that children may use the same procedure for studying piano technique that adults use, because certain choreographic movements are basic to musical projection and technical health whatever the pianist's age or level of advancement.

Philosophy of Teaching

Bernstein's 1991 book is a series of systematic lessons designed to lead the student step-by-step to what Bernstein believed is the ultimate pianistic achievement, playing two notes legato.

II. Basic Components

Posture

Bernstein provided the following guidelines for proper posture.

The jaw is relaxed and the lips are kept slightly apart, because clenching the jaw or lips reflects tension that spreads to the neck and shoulders and makes it impossible to control sound at the piano (Bernstein, 1981). The pianist should breathe properly both at the piano and away from it (Bernstein, 1991).

The shoulders are pulled down and the trunk is lifted. The pianist sits tall like a poplar tree (Bernstein, 1991). Alignment of the torso gives freedom to upper arm movements (Bernstein, 1981). Elbows are slightly in front of the torso (Bernstein, 1991).

The pianist sits between the mid-point and front edge of the bench with the body grounded on the soles of the feet. Footstools are "an absolute *must*" (p. 29) for children who cannot reach the floor. Bernstein noted that this solution was in effect as early as 1771, when Couperin, in *L'art de toucher le Clavecin,* said, "It will be necessary to place some additional support under the feet of young people, varying in height as they grow, so that their feet, without dangling in the air, keep the body properly balanced" (as quoted in Bernstein, 1991, p. 29).

Distance from the piano is influenced by the length of the arms. Sitting too close causes the elbows to collide with the torso (Bernstein, 1991).

The sitting height should be compatible with the individual's body proportions. The chief determining factor of the sitting height is the angle between the elbow and the keybeds, which is determined by the length of the upper arm and torso. To sense this, Bernstein (1981) recommended depressing a few keys with both hands while keeping the shoulders down and allowing the arms to hang from the keybeds. The bench is then adjusted so that the elbows are lined up with the keybeds. This height can be modified slightly in either direction. Pianists sometimes go through different phases where they sit at various heights. Eventually each pianist discovers the optimum height at which everything seems to flow naturally and comfortably. Most

great pianists prefer a low sitting position so that the elbows are below the level of the keybeds. This makes it easier to transfer arm weight and pressure from one key to the next and aids in keeping the shoulders down.

Hand Position

The hand is arched, because this enables the fingers to lower the keys and spring up again on command with clear, articulate fingers. A curve between the thumb and 2nd finger, making the shape of the letter U, will be in evidence in a good hand position (Bernstein, 1991). Bernstein provided exercises for finding this arched hand position using a pencil as an aid (see Appendix K).

The fingers can be either flat or curved depending on the sound and tempo of the passage. Whatever the degree of curvature, the fingers always play on their pads, the fleshy part underneath the fingernails. In addition, the fingers are always taut, not loose or flabby (Bernstein, 1991). The finger pad should feel like a magnetic cushion grasping the key and controlling its rate of speed, which results in a predictable and controlled tone. Students will exhibit different amounts of curvature depending on their finger structure. If the pianist has long, pointed fingers with small pads, the fingers will not be extremely curved, otherwise the nails will click on the keys (Bernstein, 1981).

To find the optimum wrist height, Bernstein (1981) recommended placing the right hand on a five-finger pattern of E F# G# A# B, which is the five-finger pattern position Chopin used with his students. Then the pianist is to touch the notes in a C major five-finger pattern. The fingers curve only to the degree that allows the finger pads to grasp the keys. After touching both groups alternately and studying the position of the wrist for each group, it will be noticed that the hand accommodates the black keys by rising slightly, while the white keys call for a lower wrist position. Also, the fingers will be slightly extended for the black keys and more curved for the white keys.

The ability of the fingers to work freely depends to a great extent on the posture of the thumb and 5th finger while they depress the keys. The nail joint of the thumb has two positions. On the white keys, the nail joint is aligned with the key. When playing a black key, the tip of the thumb points away from the hand and is therefore straight or extended slightly opposite from the normal curved position. The 5th finger knuckle joint should never collapse, and the 5th finger should never be allowed to play on its side. It should instead play on its finger pad in a gently curved arch, and the nail joint may be allowed to collapse outward (Bernstein, 1991).

Tone Production

Preparation for Stroke

Bernstein's (1991) first exercise at the piano is to help the student discover the escapement level. The student grasps a pencil in the hand without over contracting, which will make the forearm muscles stiff. The forearm muscles should feel soft when tested with the other hand. The student plays a note quietly with the pencil, feeling the escapement level and penetrating it. Since the sound cannot be altered after escapement level, finest control of sound is achieved when the energy is directed at escapement level rather than at the keybed.

Following are some strokes Bernstein described. The choice of playing unit for the stroke is dependent on the sound desired. For instance, the small size of the hand from the wrist to the fingertips is suited for light hand staccatos. The forearm, because it is longer, is capable of a much wider range of dynamics. The upper arms and torso can express a variety of sounds, from quiet to thunderous (Bernstein, 1991).

Weight Stroke

Bernstein (1981) described his experiments of practicing with small steel balls attached to his wrists, which allowed him to play with a rich, resonant tone by introducing a feeling of pressure and forcing him to rest on the keybeds and transfer pressure from finger to finger. Since the weights pulled his arm downward, he instinctively counterbalanced this pull by engaging the muscles in his arms and fingers, which enabled him to lower each key slowly for better control of

sound. This caused his fingers to grow stronger and his arms and wrists to become more flexible. He advocated this experiment but cautioned pianists to begin practicing with weights only for 5 minutes at a time and to play slowly and not too loudly at first. When the weights are removed, a suppleness and lightness is discovered that makes difficult passages seem to soar. To feel this sensation of feeling "grounded" (p. 156) with arm weight and pressure, exercises in which one finger is held down, which requires pressure, while other fingers play by rotation are another means to discover weight and pressure.

Arm Drops with Flat Fingers

With fingers stretched out straight and unbending, a movement of the entire arm is made to play each note of an exercise. The finger is an extension of the shoulder, and the large muscles of the shoulder cause the movement. The fingers rise slightly above the surface of the keys when moving from note to note. Bernstein (1991) provided musical examples to be played for each movement exercise, beginning with long notes of various dynamics with the 2nd finger only. Each finger is played in turn and supported by the non-playing hand. When the thumb plays, it depresses the key with the fleshy part of the nail joint directly on the side of the nail.

Upper Arm Roll and the Undulating Wrist

The rolling motions of the upper arm away and toward the pianist are among the most important movements in piano playing. Sounds are drawn out of the piano with wave-like motions of the wrist and arm, with the upper arm rolling forward and backwards and the wrist undulating in small motions. The fingers always remain taut (Bernstein, 1991). This motion can be summarized in four steps.

Step 1. Preparation. The finger pads lie on the surface of the keys with a high hand bridge, the upper arm and elbow close to the body, and the wrist comfortably low (Bernstein, 1991).

Step 2. Swing up. The upper arm moves forward away from the body. The wrist glides up gently, and the fingers remain on the surface of the keys (Bernstein, 1991).

Step 3. Play and swing down. The upper arm swings toward the body and the taut fingers lower the keys to produce a sound. The wrist descends, almost returning to preparation position (Bernstein, 1991).

Step 4. Follow through. After hearing the sound, the upper arm and elbow continue their rolling motion toward the body. The wrist returns to preparation position (Bernstein, 1991).

Forearm Stroke

The forearm contains the muscles that move the fingers and keep them taut. This fact can be discovered by feeling the forearm muscles while contracting the fingers and hand. If the fingers are overly taut, the forearm will be stiff. Conversely, if the fingers are like "overcooked noodles," (Bernstein, 1991, p. 77) the forearm muscles will be flabby and will lack control. Therefore, taut fingers should be paired with a gently firm but flexible forearm.

To play with a forearm stroke, the upper arm is stable, the elbow is released, and the arm hangs down slightly in front of the waist. The fingers glide above the keys after preparing the first note of the passage. The hands and forearms then trace circles in a continuous gliding motion from one position to the next. The taut fingers and a high bridge return to the keybeds after each stroke for a soft landing (Bernstein, 1991).

Springing Wrist

To play with a springing wrist, the hand is placed in a five-finger pattern with the pads of the curved fingers on the keys. The hand pulls back until the fingers are five or six inches above the keys and then springs onto the surface of the keys and lowers them to the keybeds. The hand then pulls. There will be a slight tapping sound as the fingertips come into contact with the keys. This stroke is never used for slow, detached playing, nor is it ever necessary to pull the hand back farther than six inches (Bernstein, 1991).

Releasing Tones

Silences are as important as sounds in music. Bernstein (1991) described four ways to release tones:

- *Finger Release.* With the 2nd and 3rd fingers resting on adjacent keybeds with a comfortably low wrist and taut fingers, the hand relaxes and allows the keys to rise, taking the fingers along with it. After the keys have risen, the finger pads remain on the surface of the keys, and the wrist stays low (Bernstein, 1991).
- *Wrist Release.* The hand pulls back from the wrist joint to release the keys. The fingers lift off the keys approximately one inch (Bernstein, 1991).
- *Forearm Release.* The forearm releases by lifting from the elbow joint. The wrist remains comfortably low. Gently pressing the elbow against the waist will keep the upper arm quiet. The fingers lift off the keys approximately two inches (Bernstein, 1991).
- *Upper Arm Release.* The entire arm is stretched from the shoulder to the fingertips. The fingers lift off the key surface approximately three inches (Bernstein, 1991).

Playing Apparatus

Body

According to Bernstein (1981), there are three spheres of the body that work together for economy of motion.

Sphere 1: Fingers. The fingers move faster than any other part of the body, and therefore their function can be likened to the second hand of a clock (Bernstein, 1981).

Sphere 2: Palms, Wrists, and Arms. The second sphere gathers together the individual movements of the first sphere and expresses them as slower movements. By moving forward, backwards, and laterally, the second sphere creates a platform from which the fingers can work unimpeded. Since the movements of the second sphere are slower than those of the first, they can be compared to the minute hand of a clock (Bernstein, 1981).

Sphere 3: Torso. The torso is the overseer of playing. Its movements reflect large musical ideas, and it can be compared to the hour hand of a clock (Bernstein, 1981).

Fingers

Although all impulses in piano playing originate from the torso and upper arms, the fingers assume the major share of responsibility for all playing. As extensions of the upper arms, the fingers are the primary source of control for selecting the exact amount of speed needed to activate the keys (Bernstein, 1981).

The fingers lead the playing apparatus. The rest of the mechanism simply obeys the needs of the fingers. In order to lead, the fingers must be taut at all times. The fingers must be strong in all three finger joints. The first area of focus should be to play with a high hand bridge so the fingers are curved. After that, the pianist should concentrate on making the mid- and nail joints as strong as the hand bridge (Bernstein, 1991). If the fingers do not assume their share of the responsibility, the forearm muscles will contract involuntarily to compensate for what the fingers should be doing (Bernstein, 1981).

In order for fingers to be independent, they must be energized without over-contracting the arm muscles. Contractions of the arm are necessary to move the fingers. Yet if these contractions develop into involuntary spasms, the fingers will be robbed of their independence. The fingers must always be stronger than the arm. The best way to achieve finger independence is to practice with high fingers that swing from above the keys. The pianist holds down one note and repeats the next note by lifting a taut finger two inches above the key. The finger articulates from the bridge, and none of the joints of the finger are allowed to collapse (Bernstein, 1981).

Thumb. The thumb contains a hidden joint at the wrist. This joint must be under the pianist's control if the tones are to be even. To practice this control, the thumb is lowered and lifted without help from the wrist or arm while the other fingers rest on the keybeds (Bernstein, 1991).

4th Finger. The 3rd, 4th, and 5th fingers are bound together by tendons. They are helpmates to each other (Bernstein, 1991).

5th Finger. Many great pianists play with collapsed 5th finger nail joints. This is not detrimental. However, if the nail joint of the 5th finger is naturally firm, the pianist should enjoy this and not force it to collapse. The larger the interval between the thumb and 5th finger, the more extended the hand becomes. The tips of the 5th fingers feel most comfortable when they are slightly curved for white keys and somewhat flatter for black keys (Bernstein, 1991).

Contraction and Relaxation

Every activity requires a certain degree of muscular contraction. However, tension and firmness must not be confused with stiffness, the latter being an exaggerated contraction of the muscles over which the pianist has no control. Since the piano key offers resistance, the finger must be strong enough to overcome this resistance. To overstep the demands of resistance, however, is to become stiff (Bernstein, 1981). Since total relaxation at the piano or away from it is impossible, gently stretched fingers with the slight forearm muscular contractions that accompany them assure the best means of control at the piano and of a balance between contraction and relaxation. Gentle firmness in the fingers and arms allows the moving parts of the playing apparatus to respond to the music (Bernstein, 1991). The louder the passage, the greater the tension necessary and vice versa. However, playing quietly also requires some degree of firmness and stability (Bernstein, 1981).

The pianist must be able to move one joint and stabilize another simultaneously, thereby creating different combinations of conditions of contraction and relaxation. If a pianist can induce a state of contraction, it is then easier to relax that joint at will. This is best learned away from the piano. Every joint of movability must have a corresponding joint of stability. The faster the movement, the more firmness is required in the joint of stability. A joint of stability is always one joint removed from a joint of movability. The combinations are as follows:

- If the fingers move quickly from the knuckle joints, the wrist remains firm.
- If the wrist moves quickly, the elbow remains firm.
- If the elbow moves quickly, the shoulder joint remains firm.

- If the shoulder moves quickly, the waistline remains firm (Bernstein, 1981).

III. Exercises

Gymnastic Exercises

Bernstein provided gymnastic exercises to help the pianist understand the different choreographic movements in piano playing by first practicing them away from the piano. See Appendix K for specific gymnastic exercises.

Exercises

Bernstein presented exercises at the piano to assist the pianist in understanding and perfecting important choreographic movements at the piano. Although strength is important, Bernstein (1981) did not recommend copious exercises to build strength and technical perfection. However, Bernstein did recognize that pianists do need to practice some technical drills repetitiously and cautioned that technical difficulties arise if these drills are practiced without attention to the musical meaning.

IV. Movement at the Keyboard

Physical Movement

Movement at the keyboard is in a combination of vertical, horizontal, and rotational directions (Bernstein, 1991). Choreographic movements are determined by the structure of the hand, the shape of the passage, and the geography of the keyboard, but never by the rhythmic accents (Bernstein, 1981).

Lateral Movement

Moving horizontally across the keyboard requires that the arms be suspended by the large muscles in the back, shoulders, and upper arms and combined with a slow, gradual gliding of the torso. Failure to move the torso along with the arms results in the elbows colliding with the waistline (Bernstein, 1991).

Bernstein (1991) said that the best way to experience horizontal movements initiated by the upper arms and reinforced by the torso is to play a *glissando*. Bernstein provided the following steps for learning this movement.

Step 1. Put the 2nd, 3rd, and 4th fingers together and point them straight out.

Step 2. Without playing, glide the nail of the 3rd finger across the surface of the keys. The upper arm leads the motion with the torso following as it glides to the right.

Step 3. Repeat, gradually allowing the nail to penetrate the surface of the keys. Play quietly at first. To play louder, stretch out with the fingers and pull up with the palm, which equalizes the down movement. Only depress the keys to escapement level (Bernstein, 1991).

V. Fundamental Forms

Five-Finger Patterns

Bernstein (1981) described the process of playing a five-finger pattern in contrary motion as a combination of movements of the torso, arms, and fingers. The pianist is to sit erect and generate momentum for the first notes by beginning with low wrists, rolling forward with the upper arms, and making down strokes into the thumbs. As the undulating wrists move toward the fingers and down toward the thumb, the arms move laterally, transferring pressure from finger to finger. The fingers are taut throughout, and the hand knuckles are pulled up. The upper arms make a circular motion which Bernstein called "curves of energy" (p. 180). In parallel motion, the curves of energy move in opposite directions between hands, while in contrary motion they move is similar directions. There should be a pleasurable sensation of energy flowing up from the *solar plexus* and down through the arms, culminating at the finger pads. The fingers descend into the keys at an angle depending on the direction of the movement. This allows the keys to be controlled.
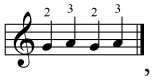
In summarizing the five-finger pattern, Bernstein (1981) said that what appears to be a simple pattern is really complex, because the fingers, arms, and torso must synthesize vertical and horizontal movements, and the wrists have described a circle by the time the pattern has
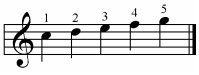
completed a full ascent and descent. The torso acts as a major control center from which all other impulses originate, "impulses which are contained in a body legato and radiate through [the] entire playing mechanism and into the keys, thus producing a rich, resonant sound by virtue of the exact speed of key descent" (p. 186). Experimentation is necessary to find the proper coordination between all the movements involved.

Rotation

Bernstein (1991) said, "To connect even two notes with controlled beauty demands the greatest skill" (p. 99). Rotation aids in creating a legato sound. All choreographic movements, including rotation, obey the commands of the fingers, which are the rulers of the playing mechanism. The fingers work with the support of the wrists, forearms, upper arms, and torso. The specific rotation described by Bernstein as "forearm rotation" (p. 99) is a side to side movement of the forearm that brings ease and control to the fingers. Rotation is best taught initially through gymnastic exercises.

The pianist always pronates when rotating toward the thumbs. The first note of a passage is prepared on the key and played with an upper arm roll. Thereafter, the swing above the keys either to the left or right, depending on which side of the hand the playing finger belongs to. When rotating toward the 5th finger, the hand always supinates (Bernstein, 1991).

Continuous rotation is used when a passage requires only a single rotation toward the next finger. For instance, in a pattern 

, the rotation will be toward the next finger to play. Double rotation is necessary when making a preparatory swing in the opposite direction in order to rotate onto the thumb and then toward the other fingers in sequence, as the finger pattern 

(Bernstein, 1991).

The choice between continuous or double rotation depends on what kind of sound the pianist wishes to produce, the tempo of the passage, and the general comfort of the fingers,

hands, wrists, and arms. For example, double rotation tends to reinforce and emphasize sounds (Bernstein, 1991).

Forearm rotation makes playing more comfortable and natural sounding. It especially helps the 4th finger. Supinating or pronating, doubly or continuously when going from finger 3 to 4 or from 5 to 4 supplies the 4th finger with the extra energy it requires (Bernstein, 1991).

Rotation differs depending on the tempo of the passage. Slow playing invites larger motions that are readily visible, while faster playing requires smaller motions that are invisible. When playing fast, the fingers alone trace tiny rotational curves by the way they lower the keys. Each finger gains its speed and direction into the key from left to right or from right to left (Bernstein, 1991).

Bernstein (1991) recommended playing five-finger patterns in parallel and contrary motion, chromatically ascending and in 8th notes and 16th notes. Taut fingers initiate all motions. Double rotations are used for 8th notes and continuous rotation for 16th notes. The tempo is gradually increased using the metronome. The pattern should be played with feeling even though it is just an exercise. The body adapts to the rhythmic pulses, reveling in the ability to control sound by means of complex motions.

After practicing rotational exercises, rotation can be combined with an upper arm roll to produce a comfortable legato articulation, tracing arcs and curves in various directions. This also allows the production of a wide variety of dynamics and articulations (Bernstein, 1991).

Scales

Scales are absolutely important to "fluent and convincing music making on the piano" (Bernstein, 1981, p. 159). "Scales and arpeggios are as essential for musical literacy as the alphabet is for a reading knowledge of one's language. Once having learned to play scales and arpeggios, each student must learn to adapt his practicing of them to his own needs" (p. 161). Bernstein conjectured that the reason there is such disagreement about the necessity of practicing scales is

that those who believe they are not necessary to practice may have been blessed with technical gifts such that they were able to play scales from the earliest age without practicing them.

Rotation is important in scale playing and follows the same directional rules as five-finger patterns. The pianist rotates toward the body when playing the thumb and away from the body when playing the 5th finger. The 2nd, 3rd, and 4th fingers may rotate in either direction. If the melody moves away from the body or toward the body, the rotation is in the direction in which the melody is going. The exception to this rule is that the 3rd and 4th fingers always supinate when turning over the thumbs. When the thumbs turn under the 3rd and 4th fingers, the rule remains firm; the pianist should pronate toward the body. When passing the thumb under, the thumb strikes vertically, and then the thumb moves horizontally without rotating by means of the hidden wrist joint of the thumb. Bernstein (1991) recommended an exercise of holding the 3rd finger while the thumb plays notes on either side of that finger for practicing this motion. Continuous rotation produces a smooth, flowing scale. When playing slower scales, double rotational movements are used, resulting in a slight emphasis on each note.

Bernstein (1991) provided the following rules for scale playing:

- The wrist always glides down when the thumb plays. When playing the 5th finger, the wrist may go up or down. The wrists do not go down on accented notes unless the accent falls on the thumb or 5th finger (Bernstein, 1991).
- For scales moving away from center, the wrist glides up on fingers 2 3 and 2 3 4 (Bernstein, 1991).
- For scales moving in toward center, the rules concerning fingers 3 2, 4 2, and 4 3 2 change according to the black and white key topography, with the wrists gliding up for the black keys (Bernstein, 1991).
- The faster the scale, the more invisible are the choreographic movements (Bernstein, 1991).

- In slow scales, the motions of the arm and wrist are larger than in fast scales. The arm swings for the preparation of each note and rolls down as the fingers lower each key. The body, arm, and wrist are more relaxed when playing slowly than when playing quickly. The fingers, however, should remain taut (Bernstein, 1981).

In fast scale playing, the thumb does not pass under. Instead, the hand shifts to the new position by horizontal and rotational movements of the forearm. One method for practicing fast scales is to skip over the surface of the keys and then gradually to pierce the key surface and the escapement level by releasing more arm weight until the sounds are even (Bernstein, 1991).

Rotation can remove the strain of the thumb turning under the 3rd finger in fast scales. The scale is divided into groups of fingers 1 2 3 and 1 2 3 4. Bernstein (1991) provided the following steps for another exercise for practicing scales.

Step 1. Suspend the arm by the shoulder muscles. Without playing, move the thumb vertically up and down at a fast tempo.

Step 2. Using the same motion, sound the first note of the scale and repeat it quickly four times.

Step 3. Repeat it again, but add a supinating and a pronating movement in and out of the first note.

Step 4. Combine this double rotation with an upper arm roll.

Step 5. Play with fingers 1 2 3 quickly, pausing on finger 3. The slight rotational twist for the three notes is practically invisible.

Step 6. Add the next note, playing fingers 1 2 3 1 and pausing on the thumb at the end. Continue to add notes. When playing fast, draw the pads of fingers 2, 3, and 4 toward the body as if stroking the keys. The forearm glides horizontally toward the right as in a *glissando* (Bernstein, 1991).

When practicing scales hands together, Bernstein (1991) said it is best to begin in contrary motion. The pianist must be aware of the different rotational motions necessary when playing hands together in parallel motion.

Chords

When playing *fortissimo* chords, the entire body must be mobilized. The impulse begins at the feet, travels through the body, and ends at the strings, with the fingers staying as close to the keys as possible. The body will instinctively assume the correct physical attitude for the dynamic level. However, if the muscles do not respond naturally, the pianist must learn to contract them consciously. The muscles should not contract beyond what is necessary, or flexibility will give way to stiffness (Bernstein, 1981).

Voicing a chord means treating each note of the chord in a different way. When playing a chord with fingers 1 and 5 of both hands, fingers 2, 3, and 4 remain taut and extended straight out. To bring out the right hand 5th finger, the pianist should keep this finger straight and point it down at a right angle to the palm. Since it is desirable to play on the pad of the 5th finger, the nail joint may collapse. The pianist should concentrate exclusively on the forearm and think of the 5th finger as an extension of the forearm. The 5th finger silently depresses its note down to the keybed, and then the other three voices are silently depressed down to escapement level. Bernstein (1981) said that the pianist should notice the sensation of the right arm releasing its weight into the 5th finger while the right thumb floats at the escapement level and the left arm holds itself up in an effort to keep the notes only partially depressed at escapement level. Then the 5th finger note is played with an arm swing. Gradually the other notes are added, first on the surface of the keys and then with a little more sound. The pianist should not be concerned if the notes do not sound together at first. They will gradually begin to sound simultaneously.

VI. Basic Musical Inflection

Articulation: Legato

Bernstein (1991) saw playing legato as the goal of technique. Finger legato is possible for playing two-note slurs, but generally legato by means of continuous rotation makes it easier to achieve a good legato sound than using finger legato alone. Forearm rotation is used to lift the first key at the same controlled rate of speed with which the next key is lowered.

Articulation: Staccato

For hand staccato, the fingers are held slightly off the keys. With a short distance to travel, the wrist can spring down and up with ease in short bursts of energy. Hand staccato works best when the hand is held in a sculpted position. The forearm serves as a stabilizing platform from which the wrist can spring. To move between white and black keys, the upper arm lifts the forearm forward toward the fallboard for the black keys and away from the fallboard for the white keys. The wrists, instead of undulating up and down, remain comfortably low and stable. Pulling up on the hand bridge while the arm is falling ensures a noiseless landing by the hand (Bernstein, 1991).

Finger staccato is produced by fingers that spring up and down from the bridge without allowing the forearm muscles to become overly contracted. The arms are held up by contracting the muscles of the back, shoulders, and upper arms. The forearms and wrists are stabilizing platforms from which the fingers spring down and up. The fingers begin the stroke above the keys. The non-playing hand can be used as a support when practicing finger staccato (Bernstein, 1991).

Rhythm

When first practicing a difficult passage, Bernstein (1991) said that the student may disregard the rhythm temporarily for the sake of physical comfort. After control is gained over the proper choreographic movements, the student will have the confidence to play in rhythm. Rhythmic continuity is enhanced by physical comfort.

Dynamics and Tonal Control

Variations in key speed produce different degrees of tonal intensity. Bernstein provided the following practical advice for controlling key speed.

Before playing with the fingers, the pianist should practice playing notes with the eraser end of a pencil to become aware of the differences in key speeds (Bernstein, 1991).

When producing sound on the piano, the pianist should concentrate on lifting the hammers toward the strings, because this image assists the pianist in lowering the keys at a slower rate of speed, thus assuring greater control. The only time control of the momentum of the key is available is between the key surface and escapement level. After the escapement level, the pianist cannot affect the sound, because the hammer has escaped the point of control (Bernstein, 1981).

Because key speed determines volume, the pianist should not press or squeeze the arms for *mezzo forte* or *forte* sounds, since this is wasted effort that does not influence tonal volume. The wrist helps control key speed. The faster the downward motion of the wrist, the louder the sound and vice versa (Bernstein, 1991).

Supporting the arms and stopping the keys at the escapement level with the keys partially depressed is useful for voicing chords and for playing accompaniment figures. However, in normal playing it is generally more economical to transfer arm pressure from keybed to keybed with the finger pads (Bernstein, 1981).

Loud, passionate playing tends to make the pianist tense. Therefore, muscular contraction should be minimized when playing loudly. Quiet, tender playing tends to make the pianist relaxed. Therefore, muscular contraction should be increased when playing quietly (Bernstein, 1981).

Tone Quality

The quality of the tone cannot be changed after the key has been struck. Once two or more notes are played, there is a limitless variety of effects possible. A mental image of the sound

desired is necessary so that the key is lowered at the correct rate of speed to fulfill that image. In addition, a beautiful piano sound is influenced by the following factors:

- Extraneous noises caused by finger taps or hammer blows.
- Judicious pedaling.
- The shape and duration of each movement made by the fingers, wrists, arms, and torso. These movements are usually expressed in curves and only rarely in angles (Bernstein, 1981).

Tempo

The faster the tempo, the smaller the motions need to be (Bernstein, 1991). The energy resulting from fast, loud playing originates in the shoulders even if the fingers are held close to the keys. When playing fast and loud, Bernstein (1981) said, "The proper muscular contraction will *free* you" (p. 100). Awareness of muscular sensations in the body is necessary for all activities requiring physical exertion. Slow and quiet practicing will not condition the pianist for the demands of fast, loud music, because fast and loud playing necessitates a physical involvement above and beyond what is required for slow and quiet playing (Bernstein, 1981).

Table 26

Elementary Level Technical Concepts According to Bernstein

Elementary Level Technical Concepts	Seymour Bernstein
I. Philosophy	
Philosophy of Technique	- Be aware of physical sensations for technical ease. - Forge a link between the physical and musical feelings. - Choreography of combinations of vertical and horizontal movements. - For children, the choreographic movements are the same as for adults.
Philosophy of Teaching	- Playing two notes legato is the ultimate pianistic achievement. - Systematic lessons.

II. Basic Components	
Posture	- Relax the jaw and lips. - Sit tall like a poplar tree with the shoulders down and the trunk lifted. - Elbows are slightly in front of the torso. - Sit between the mid-point and edge of bench with the body grounded on the floor or on a footstool. - The distance from the piano is determined by the length of the arms. - Sit at a height determined by the angle between the elbow and keybeds that is determined by the length of the upper arm and torso.

Hand Position	- Arched hand with a U between the thumb and 2nd finger.
	- Fingers flat or curved depending on the sound.
	- Always play on the finger pads.
	- White keys call for a lower wrist position than black keys.
	- Position of the thumb and 5th finger is important.
	  - Thumb in line with key on white keys. The tip of thumb points away from the hand on black keys.
	  - 5th finger plays on its finger pad with a gently curved arch and may collapse in the nail joint.

Tone Production	- Preparation using a pencil to find escapement level. - Weight Stroke. - Arm Drops with Flat Fingers. - Upper Arm Roll with Undulating Wrist. - Forearm Stroke. - Springing Wrist. - Releasing tones with fingers, wrist, forearm, or upper arm.
Playing Apparatus	

- Body	- Three spheres of the body work together.
	  - Sphere 1. Fingers.
	  - Sphere 2. Palms, wrists, and arms.
	  - Sphere 3. Torso.

- Fingers	- Major responsibility of playing. - Distributor of the amount of energy for a tone. - The body obeys the fingers. - Taut at all times. - Fingers must be stronger than the arm. - Holding exercises for finger independence.
Contraction and Relaxation	- Balance between contraction and relaxation, gentle firmness. - The louder the passage, the greater the tension. - Quietness also requires some degree of firmness.

	- Combinations of contraction and relaxation at different joints are important.
III. Exercises	
Gymnastic Exercises	- For understanding choreographic movements.
Exercises	- For understanding choreographic movements. - Do not practice technical drills repetitiously without feeling the music.
IV. Movement at the Keyboard	
Physical Movement	- Choreographic movements are determined by the structure of the hand, shape of the passage, and geography of the keyboard, but not by rhythmic accents.
Lateral Movement	- Torso moves when gliding along the keyboard. - *Glissando* gives the feeling of lateral movement.
V. Fundamental Forms	
Five-Finger Patterns	- Contrary motion first. - Combination of movements of the torso, arms, and fingers. - Undulating wrists and transfer of pressure from finger to finger. - Curves of energy.
Rotation	- Best taught through gymnastic exercises first. - Aids in creating legato sound. - Makes playing more comfortable. - Forearm rotation in continuous or double rotational movements from note to note. - Larger rotational movements are present in slow playing than in fast playing. - Rotation can be combined with the upper arm roll to produce legato and a wide variety of dynamics and articulation.
Scales	- Essential for musical literacy and fluent playing. - Passing the thumb is important. - Wrist glides down on thumbs and up or down on 5th fingers. - Rotate for each note along with undulating wrist. - Rotation can be used to remove the strain of passing the thumb in fast tempos. - Motions are smaller for fast scales.

	- Begin in contrary motion, and be aware of the different rotational movements.
Chords	- Entire body is mobilized for loud chords. - Voice chords by first practicing with the voiced finger and gradually adding other notes. A collapsed nail joint in the 5th finger is allowed.
VI. Basic Musical Inflection	
Articulation: Legato	- Playing legato is the pinnacle of technique. - Play legato by continuous rotation instead of by finger legato.
Articulation: Staccato	- Hand staccato. - Finger staccato.
Rhythm	- Disregard rhythm at first to gain control over the choreographic movements.
Dynamics and Tonal Control	- Variations in key speed produce different degrees of tonal intensity. - Concentrate on lifting the hammers toward the strings. - The wrist helps control key speed. - Minimize muscular contraction when playing loudly, and increase muscular contraction when playing quietly to balance any over compensation.
Tone Quality	- The tone cannot be changed once the key has been struck. - Once two or more notes are played, there is a limitless variety of effects possible. - A mental image of the sound must precede playing. - Influenced by extraneous noises, pedaling, and the movements of the playing units.
Tempo	- The faster the tempo, the smaller the motions. - In fast and loud playing, the proper muscular contraction brings freedom. - Slow and quiet practicing will not help the pianist play fast and loud.

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I. Philosophy

Philosophy of Technique

Fink's (1992) technical system is based on his observations of piano playing and he also mentioned his indebtedness to Ortmann and Schultz. Fink (2002 *Biomechanics*) believed that piano technique consists not just of physical ability to play a piece but is a vehicle of interpretation and musical expression. Movement and meaning are so closely related to each other that the specific character of the gesture is part of the message conveyed. According to Fink, "Piano technique...is any purposeful movement for musical ends—large or small, fast or slow, recurring or infrequent—*any* movement that enhances the end result" (2002 *Biomechanics,* p. 33). He believed that technical decisions should never be made in an artistic vacuum. When pianists have attained a well-developed, flexible technique through intelligent practice, they will have a responsive playing apparatus that will allow them to imagine the kinds of sounds they wish to produce and to automatically generate them (Fink, 1992).

Technical training for the beginner differs radically from that of the seasoned player and must be made an integral part of the learning experience at the piano. When first coming to grips with the relatively awkward conditions surrounding purposeful movement at the keyboard, students should be instructed in a healthy and efficient use of their bodies. Lack of technical

training limits pianistic growth, because the rate of progress is impeded. Although technique and interpretation are linked, both students and teachers can profit from a practical, graphic, and organized treatment of the biomechanics and pedagogy of piano technique. However, no two people need exactly the same thing technically, and the student must find the best individualized path toward the ideal (Fink, 1992).

Fink (1993) said that more than anything, technique is movement. "The inability to move with grace, elegance, and expressiveness presents a serious handicap" (p. 28). For beginners, Fink (2002 *Musicality*) suggested having children study eurhythmics and dance to establish movement in the body. Fink's system of technique is categorized in terms of common movements at the piano that are described by way of gymnastic exercises away from the keyboard as well as step-by-step instructions for exercises at the keyboard. The movements described are not necessarily meant to be applied to specific musical examples. Instead, they build a vocabulary of movement types the pianist can draw upon for specific passages.

Philosophy of Teaching

Fink (1993) said, "Of the various elements that go into teaching piano to beginners, whether privately or groups, technique is perhaps the least understood, the least systematized" (p. 28). In other aspects of playing, such as reading, eartraining, theory, and repertoire, there is a greater consensus on the method by which students should be taught, whereas technique is often presented in a somewhat unfocused, impressionistic manner. However, Fink did not believe technique should be separated from other concerns in the lesson. Instead, it should be taught through passing but lucid remarks in conjunction with the continuity, quality of sound, and style of a piece.

In the beginning of piano study, teachers should make their students aware of their instinctual movement patterns, both helpful and harmful, and should advise students about posture, efficiency of movement, habit formation (the systematic progression from consciously to subconsciously informed movement), learning strategies, various kinds of simple and combined

coordinations, keyboard shapes and tactics, and instrumental mechanics. Furthermore, teachers should demonstrate how these factors relate to serious music making. The teacher's aim is to forge the link between technique and musical conception while cultivating efficient practice habits (Fink, 1992).

II. Basic Components

Posture

"The body must first be taught to establish and maintain excellent posture, creating the efficient skeletal alignment that promotes economical, balanced muscle use" (Fink, 1992, p. 13). The pianist must position the body at the keyboard with the same care and attention that is used in refining the movements of the playing mechanism itself. Posture it is the foundation on which all playing movement rests. Therefore, the pianist needs to think about correct posture at every practice session.

The larger members of the playing apparatus must be the first to be mastered, with a smaller ones following progressively. Hence, the teaching progression should be from general posture to the shoulder girdle, arms, hands, and finally the fingers. The entire playing mechanism must produce graceful movements, with the fingers integrated into the larger movement patterns. Correctly arranging the various elements of the playing apparatus is the most direct road to increasing strength, speed, and control.

To find a proper postural alignment for the head, neck, back, and shoulders (Primary Movement 1), Fink (1992) provided the following steps.

Step 1. Relax the muscles of the jaw and the back of the neck and allow the head to move and balance forward and upward, creating a sense of space between it and the body (Fink, 1992).

Step 2. Feel the torso lengthen, and follow the head upward as the curves of the spine elongate. To avoid augmenting the natural lower back sway, release or widen the lower back muscles and gently contract the lower abdominal muscles. Fink (1992) used the metaphor of

"standing on the sit bones" (p. 54) to describe this posture of sitting up and balancing on the ischial bones.

Step 3. Release the shoulders down and out to the sides. The shoulders will find the correct position automatically once the torso-neck-head alignment is established and balanced. The spine will feel as though it is stretching upward through the shoulder girdle, which has been released in response to gravity (Fink, 1992).

Step 4. Tilt slightly forward at the hips to throw body weight onto the thighs. Allow the knees to drift apart (Fink, 1992).

Since no two people have identical physical proportions, Fink (1992) said that each pianist must arrive at an individual ideal positioning in relation to piano. In general, the following positions are to be maintained:

- The body is centered in front of middle D and occupies one-half to two-thirds of the width of the bench (Fink, 1992).
- The bench is at a height for the body to be poised comfortably. The body is tilted slightly forward with the upper arms close and parallel to the body. The forearms create a horizontal line between the bottoms of the keys and the elbows (Fink, 1992).
- The bench distance from the keyboard allows for the pianist's right fist to press the cluster CDE one octave above middle D while the left hand presses the cluster CDE one octave below middle D (Fink, 1992).

Additional gymnastic exercises for sensing the different parts of the playing apparatus in connection with posture and Fink's Primary Movements are listed in Appendix K.

Hand Position

Fink (1992) did not advocate one certain hand position to be used at the piano, since the whole playing mechanism must be integrated and choreographed. Instead, he described three hand positions that form the basis for certain gymnastic exercises that are designed to help the

student gain familiarity with finger movements. Fink designated these positions Primary Movement 7.

Extended Position

In the extended position, the fingers are straight and slightly separated from each other. The palms face each other a torso-width apart (Fink, 1992).

Palm Position

The palm position is derived from the extended position. All the fingers are bent toward each other at the knuckles. Nail and mid-joints are flexed minimally. The shortest fingers (1, 2, and 5) lead the flexing motion, with finger 4 and then finger 3 following. The tips of the fingers form a rounded pattern. Finger 1 touches fingers 2 and 4 on their palm side, with finger 3 on top and finger 5 tucked under finger 4. This position is important because it "defines the hypothetical completion of virtually all fingers strokes were they not cut short by the keyboard" (Fink, 1992, p. 37).

Claw Position

The claw position is also derived from the extended position. The nail and mid-joints flex inward while the knuckle joints remain still. This is done gently, tightening the fingers no more than necessary. The long finger flexors located under the forearms control these actions by tensing the wrists.

Tone Production

Fink (1992) described several kinds of tone production movements. These movements are to be practiced away from the piano, standing at first. As each movement feels comfortable, or "grooved" (Fink, 1994), the tempo of the movement can be increased. Although all explanations and exercises are to be practiced hands together in contrary motion, the movements will be described below with one hand for clarity.

Upper-Arm Gravity Drops

In this stroke, the Pulling Arm Circle (see Integrative Movement 3) is combined with freefall to generate full sonorities. There are two forms, the low wrist and high wrist forms. In the low wrist form, the hand is flexed back and the arm is lifted. All shoulder support is removed suddenly, allowing the arm to fall instantly. Flattened fingers slap the keys with a low wrist and friction on the keys. The hand and fingers are not allowed to reach out. The wrist recoils instantly as the shoulder retrieves the arm weight. The higher the preparation, the louder the sound (Fink, 1992).

In the high wrist form, the hand is poised on the surface of the keys in palm position. The upper arm pushes forward and the shoulder drops in a pulling stroke. The wrist lowers only slightly as the shoulder retrieves the arm weight. The exertions are supported by the strong muscles in the back and are extremely powerful and short-lived. This movement should be practiced *piano* to *mezzo forte* at first, although this stroke is capable of very loud chordal sonorities (Fink, 1992).

Forearm Bounce

Fink (1992) provided the following steps for executing Forearm Bounce.

Step 1. Make a loose fist with the hand, unfold the 2nd finger, and brace it with the thumb.

Step 2. Line it up with the key and the forearm by adjusting the wrist and pronating the arm. The elbow should move away from the body slightly.

Step 3. Play forearm strokes in the gray area of the keyboard (See Keyboard Topography and Movement) at mm=100. Drop from an inch off the key with no flopping of the wrists. Then bounce the other fingers similarly.

Step 4. After bouncing on all the supported fingers, repeat the exercise while gradually eliminating the lateral thumb support. Train the working fingers to hold with their own tightly flexed hand knuckles. Begin by bouncing lightly, adding sonority only gradually.

Step 5. Then do forearm bounces with fingers 1 and 5 on white key harmonic sixths with a high wrist and the middle fingers tucked under. Keep all fingers playing in the gray area. Experiment with dynamics and tempo (Fink, 1992).

Forearm Push Stroke. Primary Movement 5

This movement allows for a powerful and rapid stroke, because it uses the arm with no wrist movement and minimal elbow and shoulder action and produces a forward friction on the surface of the key. It is most useful for playing fast repeated notes and chords and in supporting ostinato-like finger patterns. When large, this motion is described as a trombone slide, because the forearm pushes out, which raises and pushes the upper arm also. When small, this stroke is like a washboard motion, a diagonal stroke, combined with pronation forward and a slight relaxation and supination back. This motion should be practiced away from the piano with the metronome with one to four strokes per beat, gradually increasing in tempo (Fink, 1992).

Hand Scoop. Primary Movement 8

This movement is useful for playing sharp single notes, prepared chords, and for creating the light, flexible, and sustained arm and hand pressure needed to support Pulling Finger Stroke (Principal Movement 9). To feel this movement, Fink (1992) provided the following steps:

Step 1. Stand with arms at the side of the body and fingers curved. Holding the elbows still, move the upper arms outward several inches, keeping the fingertips in contact with the leg by scooping the hands under at the wrists. Return to the original position. Repeat a dozen times. Note the connection between the wrist and shoulder movements (Fink, 1992).

Step 2. To build the muscles, allow the hands to scoop against an increasingly reluctant arm to build the muscles (Fink, 1992).

Step 3. Practice Hand Scoops with various combinations of two, three, and four fingers. Before scooping, loosely position the unused fingers just off the leg in their most comfortable position, either raised minimally in front of the touching fingers, curved behind them, or a

combination of the two. The stroke is generated completely by hand flexion at the wrist with no independent finger movement in the knuckles (Fink, 1992).

Pulling Fingers. Primary Movement 9

This finger stroke is used in brilliant moderate to fast passagework. The fingers create a backward friction with the keys as their tips move under toward the palms. They are supported by Hand Scoop pressure, which is backed by the Pulling Arms (See Integrative Movement 3 below) (Fink, 1992). To practice this movement, Fink provided the following steps:

Step 1. Stand with the arms hanging freely. Press the palms slightly against the legs in extended position. Holding the wrists and elbows still, move the arms outward from the body several inches, maintaining contact with the fingertips by flexing the fingers from the knuckles. The fingertips reach the palm position. Relax and return to extended position. Notice the connection between the knuckle and arm movement (Fink, 1992).

Step 2. Next, pull the fingers more assertively until they seem to lead the outward arm movement (Fink, 1992).

Step 3. Gradually increase the arm pressure (Fink, 1992).

Step 4. Pull the fingers under so suddenly that the arms are kicked outward about five inches. This is called the finger snap. On the return, allow the hands to return to the legs in palm position before opening to extended position (Fink, 1992).

Step 5. Do finger snaps with various finger combinations, making no attempt to achieve finger independence, but allowing the fingers to be passive (Fink, 1992).

Unfolding Fingers. Primary Movement 10

This finger movement is useful for executing fast, quiet, and intricate legato patterns and for voicing chords. Poised arms with hands that hang from high wrists provide the support. Fink (1992) provided the following steps for practicing this finger movement:

Step 1. Stand with arms hanging freely at the sides. Press the hands in a loose claw position into the legs. Keep the wrists and elbows still and move the arms outward from the

body, maintaining leg contact by unfolding the fingers to palm position. Collapse the hand bridge to return to claw position by moving the entire arm as a single unit. Note the interplay between the highly active finger joints and the shoulders (Fink, 1992).

Step 2. Unfold the fingers briskly so that the arms are thrown outwards. Return the hands to palm position on the legs before collapsing to claw position. Concentrate on pushing off especially vigorously on fingers 1 and 5 (Fink, 1992).

Step 3. Practice with combinations of fingers (Fink, 1992).

The three pulling finger strokes below, all of which start on the key, promote positioning, control, flexibility, speed, strength, and subtlety in finger movements (Fink, 1992).

Small Muscle Squeezing Finger Stroke

To execute this stroke, the pianist places a flat 2nd finger near the fallboard on a D and creates long sounds by drawing or sliding the 2nd finger toward the palm. The small muscles of the hand pull the finger to palm position between the black keys, which serve as fences. This stroke enables the pianist to flex the 1st phalanges, which are controlled by the small muscles of the hand, without flexing the 2nd and 3rd phalanges, which are controlled by the long muscles in the arm (Fink, 1992).

Finger Snap Stroke

This stroke is the same as the Small Muscle Squeezing Finger Stroke, except the finger is snapped quickly under the hand. The stroke is begun by scooping the fingertip and then continued by flexing the hand knuckle. This stroke should be practiced with light snaps at first, and then the movements can be made more vigorously (Fink, 1992).

Scratch Touch Stroke

For this stroke, the pianist places the 2nd finger in an exaggerated palm position lightly on a depressed D key and vibrates the fingertip forward and backward in a scratching motion that has little, if any, up and down feeling. Quick, repeated sounds are made without allowing the fingers to leave the keys or even to return to the surface completely (Fink, 1992).

Unprepared Pulling Finger Stroke

To execute this stroke, Fink (1992) provided the following steps:

Step 1. Hold the thumb down on D. Place the 2nd finger on the F a minor 3rd above the D. The bridge is elevated, and the mid-joint of the thumb is out and back.

Step 2. Swing the 2nd finger from one inch above the keys, stopping to hold lightly at the bottom of the key. The 3rd, 4th, and 5th fingers are free to swing with the active 2nd finger. The wrist and elbow function as a stationary fulcrum, but their stillness should have only minimum tension. Practice the exercise in three counts: swing on count 1, hold lightly on 2, and raise the finger loosely but sharply one inch on 3.

Step 3. Repeat with the other fingers. With the 4th and 5th fingers it will be necessary to adduct the hand, lower the wrist, and pronate the arms (Fink, 1992).

Sidesaddle Walking

Fink (1992) recommended practicing with the hands turned 90º in relation to the keyboard for two reasons:

1. The shorter fingers on the outsides of the hands are trained to play behind the longer ones, thereby equalizing finger length and strength.
2. The arms move continuously to position the unfolding fingers.

Fink (1992) provided the following steps for practicing this technique:

Step 1. Turn the body 45º to the right, as if on a sidesaddle, and place the 5th finger of the left hand in palm position on middle D with a low wrist, abducted hand, and pronated arm. The knuckle lines are perpendicular to the fallboard. Fingers 4 and 3 fall on their adjacent keys.

Step 2. Play steps up and down the keyboard lightly and loosely with unfolding fingers so that the keys feel heavy. The arm floats over the fingers whenever there are three notes in one direction.

Step 3. Play a left hand, ascending, white key, legato scale with fingers 2 and 3 only. The arm glides forward to help the fingers reach, play, and then collapse. When descending, the

withdrawing arm pulls the flexible fingers behind one another. The fingers bend, unfold to play, and unfold further to reach the next note. Avoid lateral arm wiggling.

Step 4. Repeat with fingers 3 and 4, then with fingers 4 and 5 (Fink, 1992).

After describing the Primary Movements, which Fink (1992) said encompass the basic elements, positions, and motions used in piano playing, Fink explained how to apply the Primary Movements relate to the keyboard through three Integrative Movements.

Adapting Shoulder and Arm Movements to the Keyboard. Integrative Movement 1

Primary Movements 8, 9, and 10 are repeated, gradually working the shoulder girdle forward little by little and moving the hands until they are pronated and come into playing position (Fink, 1992).

Adapting Hand and Finger Movements to the Keyboard. Integrative Movement 2

Hands are placed in playing position with fingers 1 and 2 resting on the keyboard cover. Pronating and supinating circles of the arms and hands then help the pianist to sense the synthesis of the arms and fingers in playing position (Fink, 1992).

Arm Cycles. Integrative Movement 3

Cyclical movements of the arms not only activate the keys but ease the transition from one note to the next. The momentum generated from one key depression is carried over to the preparation for the succeeding keys. Arm Cycles in either direction help the pianist pace the tempo and project a sense of forward motion, continuity, and musical line (Fink, 1992).

The Arm Cycle movement is practiced through pretending that a wheel is held between the legs. In the Pulling Arm Cycle, the arms cycle forward at the top of the wheel around and down and then toward the pianist at the bottom of the wheel. The opposite direction, where the motion is pulled toward the pianist at the top of the wheel and then down and pushed outward at the bottom of the wheel, is called the Pushing Arm Cycle. Through practice, the pianist increases the tempo and adds pronation to generate playing pulsations at an imaginary point of contact on

the lower side of the cycle. Cycles should be performed at various sizes and speeds with an awareness of the relationship between speed of repetition and smallness of gesture (Fink, 1992).

Next, these motions are practiced on the keyboard cover with the fingertips of the three flattened middle fingers sliding on the flat surface in a supple manner. This can then be practiced on the piano with fingers 2, 3, and 4 on three black keys. Pulling Cycles are practiced first, with the shape and timing adjusted to create repeated, sustained, *mezzo forte* tone clusters. Then the motions are practiced in the pushing direction. The shoulder girdle is released to the outside at all times to allow the upper arms to remain free (Fink, 1992).

Playing Apparatus

Body

At the beginning of instruction, weakness on one side of the body will persist indefinitely if the student does not intervene to build up that side. For this reason, beginning exercises should be in contrary motion, since extensive playing in parallel motion exacerbates the problem. Most parallel motion playing should be postponed until a later, intermediate stage (Fink, 1993).

Shoulder and Upper Arm

The upper arms, moving naturally in the shoulders and back, are the prime movers of all good piano technique. They must be trained to move easily in order to enable the pianist to deal with the many varieties of finger patterns. Upper arms support the smaller units, and in slower passages they initiate each playing movement (Fink, 1992).

Wrist

Wrists allow for both vertical and lateral movement. When these two movement directions are performed simultaneously, the wrists make circles. Both low and high wrist positions play a part in technique (Fink, 1992).

Fingers

Efficiency and strength in finger movement depends on the relationship between the fingers and the arms. These relationships vary for each finger and for the same finger in different registers (Fink, 1992).

Thumb. The primary disadvantage of the thumb lies in its shortness. This can be compensated for through arm pronation, a lowered bridge, abducting the hand, and playing with the longer fingers near the fallboard (Fink, 1992).

One common problem of the thumb is when its mid-joint collapses inward without control. This hampers the lateral freedom of the thumb and dissipates much of the thrust intended for the keybed. To correct this fault, the pianist must gain conscious control of the muscle that controls this mid-joint, the palm bone extensor, which is located in the forearm. Fink (1992) assigned specific gymnastic exercises for strengthening the palm bone extensors, which eliminates the problem by enabling the student to acquire conscious control over the mid-joints (Fink, 1992).

Thumbs continually adjust to changing bridge levels and hand slopes and to the pronation that accompanies arm stroke. Alternating between palm position and claw position with fingers 1 and 2 can help build thumb flexibility that aids in making the necessary changes that correspond to arm movements (Fink, 1992).

5th Finger. 5th finger knuckles that collapse and sag make it impossible for the finger to swing independently. There are three ways to correct this problem: hand position, pulling finger stroke, and karate position (Fink, 1992).

Hand Position. A hand position conducive to correcting a collapsing 5th finger is one with a low wrist, an adducted hand, a pronated arm, and an inflated bridge with the 5th fingertip touching the key well behind where the 4th finger plays. The shorter 5th finger should be favored not by substituting an arm stroke for a finger stroke, but by positioning the hand and arm, however fleetingly, to encourage the 5th finger's independent movement (Fink, 1992).

Pulling Finger Stroke. Another way to correct this fault is to hold the hand in extended position in the air and swing the 5th finger in the air, letting the other fingers follow. The 5th finger can then be supported just below the knuckle in the palm with the non-playing hand while a Pulling Finger Stroke is practiced at the piano. After a few days of practice, the artificial support below the 5th finger knuckle joint can be removed (Fink, 1992).

Karate Chop. A final way to ensure a proper 5th finger position is to start with the hand in a karate chop position on the 5th finger with the hand laying on the side of the 5th finger, thumb toward the ceiling. Then the arm is pronated while the 5th finger moves to its standing position. The process is reversed until the movement feels natural (Fink, 1992).

Contraction and Relaxation

The physical side of playing must be introduced in a calm, gentle fashion in order to keep tension at a minimum. Tension is the enemy in piano playing, since tense shoulders and tight fingers inhibit freedom. Only free arms and malleable hands and fingers can be sensitive to key distance, weight, height, speed, and key depth (Fink, 1993).

Anything more than minimal pressure at the bottom of the key is unnecessary. Keybedding is the easiest trap for beginners to fall into. Achieving technical progress is easier when students understand how to work with, not against, the piano's mechanism (Fink, 1993).

Mind/Body Relationship

Once technique is a part of the playing equipment, the pianist does not need to pay conscious attention to it (Fink, 1992). Technical matters function below the conscious level. Before any movement occurs, the mind conceives the sound in the ear and wills the necessary movements to produce the sound (Fink, 1993). This audiation of the musical intention is "the first rule of piano technique," because "It is this projection of musical understanding and intention that triggers the physical movement" (Fink, 2002 *Musicality*, p. 99).

To develop this integration between the muscular and the musical, the mind and body must be trained together. Students need to develop a keen sense of physical self-awareness. This

is best learned by mastering the core movements of piano playing, minimizing tension, analyzing the music, and temporarily isolating each movement. When practicing gymnastic exercises, the harder the pianist tries to concentrate on the task at hand, the greater the accumulation of mental and physical tension, which interferes with coordinated movement. To counter this, the pianist should imagine being a detached observer of the movement (Fink, 1992).

Another way the mind can assist the body is by grouping motivic units into one single forearm drop. This approach simplifies fast passages and allows the groups to be rhythmically energized at will. To accomplish this, the pianist covers all notes in one group as though playing a chord and then plays the first note as a forearm drop. The last note of the group is played as a finger snap that releases all the held notes and rebounds the fingers and forearm out of the keys. Wrist and shoulder movement must be minimized in order to maintain synchronicity between forearm and fingertip motion (Fink, 1992).

III. Exercises

Gymnastic Exercises

Fink (1992) believed that the fundamental movements of piano technique are best taught away from the piano, because this focuses the pianist's attention on the body and separates it from musical and notational concerns. This greatly increases self-awareness, objectivity, and receptivity to new ideas and simplifies the goal of isolating the parts of the playing mechanism in relation to their various movements and interactions. Beginners benefit from gymnastic exercises, because it is important that they experience large arm movements before getting bogged down with the small movements of the hand and fingers (Fink, 1993). Fink's 1992 book consists in large part of a series of gymnastic exercises for the various movements that are then applied to the piano.

In practicing the exercises, both arms should be used in contrary motion, as this centers the body and promotes equal development on both sides. If one hand masters the movement before the other, it can become a model for the slower hand. Extra effort can be focused on the

weaker side when there is an imbalance between hands. Each new exercise should be practiced with exaggerated movements using visual and kinesthetic feedback to monitor the actions as a detached observer, and then repeated until it begins to feel like a habit. It is best to practice in short 10- to 15-minute intervals several times a day (Fink, 1992).

Exercises

Fink (1992) presented new movements as exercises away from and at the piano. Many of the exercises and movement types presented are not directly applicable to pieces but are used instead to build the pianist's vocabulary of motions.

IV. Movement at the Keyboard

Lateral Movement

Lateral Motion. Primary Motion 6

Fink (1992) described his manner of moving the hands to the extreme ranges of the keyboard by providing the following steps:

Step 1. With arms in playing position, slowly raise the upper arms and shoulders. At the highest point, the elbows will be pointing away from the body and the palms will be facing the floor. Return to playing position. Repeat this flapping motion several times (Fink, 1992).

Step 2. In this raised elbow position, make elbow circles generated by the shoulder girdle 10 times in each direction, noticing the interaction between the upper arms and shoulder girdle (Fink, 1992).

Step 3. Repeat Step 1, but make the movement outward quickly. Pause at the top, and then snap the arms back down. Forearm pronation aids the outward movement, while supination assists the inward movement (Fink, 1992).

Step 4. On the keyboard cover, glide the hands from the center outward in a pronated position and return to center with the thumbs hooked over the edge of the lid to guide the arms. The upper arms and shoulder girdle lead and control the movement in both directions while the forearms and hands follow. Repeat Step 1 occasionally to underscore the importance of the

involved upper arm and shoulder girdle movements. Increase pronation in the movement outward, supination on the return (Fink, 1992).

Step 5. Moving sideways at the wrist, adjust the hand angles to keep the knuckles parallel with the fallboard. The wrists move outward (hand adduction) as the arms move outward. The wrists move inward (hand abduction) as the arms return to center (Fink, 1992).

In lateral movements, the most important point to remember is that the upper arms initiate the changes of direction, with the hands following. These movements become a graceful, dance-like, curvilinear, figure eight (Fink, 1992).

Keyboard Topography and Movement

Fink (1992) said that topographical knowledge of the keyboard is "a basic building block in constructing a musically intelligent technique" (p. 57). For most performers, direct, systematic training is the best way to gain topographical proficiency. First, Fink suggested becoming skilled in octave transposition of single notes, chords, and melodic motives. After this, scales are the best pattern available for establishing mental and physical orientation to the instrument. Practicing exercises develops a hand vocabulary as intervallic distances become tied to certain hand-finger configurations. For instance, Fink suggested an exercise of playing the notes D F# in contrary motion starting in the middle of the keyboard and moving outward, playing on the pads of the fingers near the fallboard. The notes are played using a Forearm Push Stroke. The looser the hands and fingers, the more the hands will react to the irregularities of the keys and different key heights.

Fink (1992) discussed three depth zones of the keyboard that are important for developing a sense of keyboard topography at the piano. Students should be comfortable playing in all three of these zones.

1. The white area is the third of the key up to the edge of the black keys.
2. The black area is the back two-thirds of the key adjacent to the fallboard.

3. The gray area is an imaginary lateral band of approximately one inch that overlaps the border between white and black areas. Playing in the gray area minimizes the in and out adjustments required in patterns involving both black and white keys (Fink, 1992).

V. Fundamental Forms

Rotation

Fink (1993) said that rotation should begin to be applied early in piano study. By practicing gymnastic exercises for Primary Movement 4 (see Appendix K). Mastery of rotary movements allows support of the fingers in various *tremolo* and alternating patterns. Also, quickly applied single rotary action often backs individual tones in melodic playing at a moderate tempo (Fink, 1992).

Scales

The thumb plays an important role in scale playing. It is important to carefully integrate its movements with those of the arm and fingers. Executing a slow, preparatory trill with the thumb and 2nd finger with both hands in contrary motion is a good exercise for practicing thumb motion. The thumbs should strike sharply with support from a push of the arms and rising wrists. The 2nd fingers are sounded gently by a lowering of the wrists (Fink, 1992).

Fink (1992) advised playing a contrary motion, white key scale for an octave using fingers 1 and 2 only. The thumbs are passed under and prepared. The arms pronate and the hands abduct when striking the thumbs. The arms supinate and the hands adduct when playing the 2nd fingers. This exercise is then repeated with fingers 1 and 3 and fingers 1 and 4. This combination of actions is the model for scales of slow to moderate tempos.

In fast scales, instead of reaching under the 2nd finger with the thumb, the pianist shifts or lifts the entire arm quickly to the outside to play the thumbs on the keys in the new position beside, not under, the 2nd fingers (Fink, 1992).

For finger nimbleness and dexterity, Fink (1992) recommended practicing scales with one finger, with the adjacent finger substituting after the working finger sounds the note. Longer

fingers touch the keys in front of shorter fingers when substituting. The hand angle is adjusted to facilitate this.

VI. Basic Musical Inflection

Articulation: Legato

Pulling Arm Legato

This form of legato can be done in two directions. First, in a pronating direction the upper arm and elbow move downward, outward, and around in a counter-clockwise direction (for the right hand). The wrist descends with the key, reaches a low point at the bottom of the key, and then connects to other keys smoothly. This motion is first practiced with the thumb, then with the other fingers (Fink, 1992).

In the reverse, supinating direction, the upper arm, elbow, and hand move in a clockwise direction (for the right hand). The 5th finger should be practiced first in the supinating direction, followed by the other fingers. Although both directions are available anywhere along the keyboard, the circling in a pronating direction occurs most often because of the natural affinity between pronation and extension of the arm (Fink, 1992).

Overlapping Legato

This specialized form of legato allows the pianist to enrich the sound in subtle ways. The thumbs are placed on the keybeds of Ds in claw position, with the other fingers touching the surfaces of the adjacent white keys. The 2nd finger swings from above on the count of 1. The thumb lifts sharply but minimally on the count of 2 while the 2nd finger hold. This is continued with the other fingers. Strokes are vigorous, and the releases are sharp but not high. The hand and arm are quiet except to shift to the position for the next finger stroke. The arm leads the movement, pulling the fingers to the next position and supporting the fingers in their new position. With some note patterns, the movements of the arm become a kind of circular motion. "Legato thus implies continuous small movements of the wrists and arms, whose shape is

determined by the shape of the musical line itself and its position on the keyboard" (Fink, 1992, p. 126).

Joggling

"Joggling" (Fink, 1992, p. 142) is a word Fink used to describe a relaxed, subtle arm movement that underpins every connecting finger. This allows the pulling upper arm to unite separately striking fingers to produce a strong, flexible, legato sound. Joggling is useful for slow to moderately paced notes that call for an extended dynamic range. The joggle action lends subtlety, ease, and strength to the movement by allowing the arm to back each finger in a legato succession of notes.

Gesturing

"Gesturing" (Fink, 1992, p. 152) is another way the arm integrates with the fingers in legato playing. In an upper arm gesture, the fingers remain reasonably passive and very close together as the traveling arm transfers weight from one fingertip to the next in a continuous line. It is the same feeling as playing a rolled chord. The upper arm gestures in three directions to support finger velocity: it pulls with a scooping hand, pronates when moving to the outside, and pushes when moving forward. Pianists use Gesturing movements continuously to support finger action.

Articulation: Staccato

Pushing Arm Stroke

This type of staccato produces energetic, unconnected single notes and chords and is akin to the arm pushing circles. With straightened fingers, the upper arm and shoulder girdle thrust forward, sliding along the keys and pronating. This is a large, spoon-shaped gesture which is half of an Arm Pushing Cycle. The elbow moves forward and outward. The playing mechanism is then relaxed and gravity causes a rapid return for the next key preparation, representing the second half of the Arm Cycle. This stroke should be practiced at various dynamic levels and tempos (Fink, 1992).

Forearm Bounce

See Tone Production.

Hand Release Staccato

Hand bouncing from the wrist is also a viable means of producing a staccato articulation. The hand either releases up with the fingers forwards and arching upward or releases in a scooping direction that sends the wrist upward. This type of staccato is useful for short, sharp, individual notes or chords of all dynamic levels (Fink, 1992).

Hand Finger Staccato

The hand and fingers can be combined so that the hand, swinging in the wrist, supports individual snapping fingers. This yields an efficient, clearly articulated finger staccato. The pianist should start by bouncing on one note with four bounces per finger at mm=72. This is followed by one bounce on each finger. Hand Finger Staccato can be produced either with pulling fingers, where wrists are low or high and the fingers are less curved, or by unfolding fingers, where the wrist is high, the fingers become claw shaped, and there is less pronation (Fink, 1992).

Finger Release Staccato

This form of staccato is accomplished by close, snapping fingers backed by quite, gently scooping hands with high wrists. This yields a quieter, sensitive sonority than is possible with Hand Finger Staccato (Fink, 1992).

Dynamics and Tonal Control

Tonal intensity is controlled by finger and key depression speed, not by the amount of tension or pressure on the bottom of the key (Fink, 1992).

Tone Quality

Fink (1992) related tone qualities to specific movements at the piano, for instance, advising the pianist to compare the different tone qualities created by two different finger staccato types.

Tempo

The most important physical factor affecting increased velocity is the diminishing range of the movement (Fink, 1992).

Table 27

Elementary Level Technical Concepts According to Fink

Elementary Level Technical Concepts	Seymour Fink
I. Philosophy	
Philosophy of Technique	- Technique and interpretation are inseparable. - Technical training for the beginner differs from that of the advanced player. - Eurhythmics and dance should be used for children. - Technique is movement. - Lack of technical training limits progress. - Fink's system is based on categories of movements at the piano applied to playing apparatus.

Philosophy of Teaching	- Teach in conjunction with continuity, quality of sound, and style. Technique should not be separated from other concerns
	- Teachers can advise their students about:
	  - Movement patterns.
	  - Posture.
	  - Efficiency of movement.
	  - Habit formation.
	  - Learning strategies.
	  - Coordinations.
	  - Keyboard shapes.
	  - Instrumental mechanics.
	- Forge the link between technique and musical conception while cultivating efficacious practice habits.

II. Basic Components	
Posture	- An efficient skeletal alignment is the foundation for correct playing. - Start with the larger members and work down to the smaller ones. - Relax the muscles of the neck and jaw, feel the spine lengthen, release the shoulders down, and tilt the hips forward. - No two people have the same physical proportions. - Body centered in front of middle D.

	- Bench at a height to be comfortably poised. - Forearms parallel the bottoms of the key.
Hand Position	- No strict position of the hand. - Primary Movement 7. Three hand positions used to coordinate with arm movements: - Extended position. - Palm position. - Claw position.
Tone Production	- Upper Arm Gravity Drop. - Forearm Bounce. - Forearm Push Stroke. - Hand Scoop. - Pulling Fingers. - Unfolding Fingers. - Small Muscle Squeezing Finger Stroke. - Finger Snap Stroke. - Scratch Touch Stroke. - Unprepared Pulling Finger Stroke. - Sidesaddle Walking.
Playing Apparatus	
- Body	- Exercises in contrary motion to help balance the weak and strong halves of the body.
- Shoulder and Upper Arm	- Upper arms moving naturally in the shoulder and back are the prime movers of technique. - Support smaller playing units. - Initiate each note in slower passages.
- Wrist	- Allow for vertical and lateral movements and make circular motions. - High and low wrist positions are necessary.
- Fingers	- Fingers and arms are in relationship.
Contraction and Relaxation	- Tension is the enemy of good technique. - Introduce technique in a calm, gentle fashion to keep tension at a minimum. - Only free arms and malleable hands can be sensitive to the key. - Keybedding is dangerous for beginners. Work with, not against, the piano mechanism.
Mind/Body Relationship	- Technique should become subconscious. Inner musical thought triggers the requisite movement. - Imagining musical sounds is as important as physical deftness.

	- Train the mind and body together through self-awareness by learning the core movements. - Be a detached observer. - Group notes mentally into motivic units with a single forearm drop.
III. Exercises	
Gymnastic Exercises	- Fundamental movements are best taught by gymnastic movements, especially large arm movements for beginners. - Focuses on the body without notational or musical concerns. - Isolates parts of the playing mechanism. - Practice exercises in contrary motion.
Exercises	- Exercises to learn movement types at the piano. - Some exercises are not necessarily linked to music.
IV. Movement at the Keyboard	
Lateral Movement	- Upper arms and shoulder girdle lead the direction. Forearms and hands follow. - Wrists move outward as arms move outward, inward as arms return to center.
Keyboard Topography and Movement	- Topographical knowledge of the keyboard is a basic building block to technique. - Systematic training is necessary. - Octave transposition and scales. - Three zones of the keyboard: black, white, and gray.
V. Fundamental Forms	
Rotation	- Supports fingers in *tremolo* and in alternating passages. - Single rotary action supports individual tones in melodic playing at moderate tempos.
Scales	- In slow scales, the thumb passes under with pronated arms and abducted hands when striking the thumbs. - In fast scales, the arm shifts in place of the thumb passing under. - Practice finger substitution scales for nimbleness.
VI. Basic Musical Inflection	
Articulation: Legato	- Pulling Arm Legato. - Joggling and Gesturing: the arm supports fingers as weight is transferred from finger to finger. - Overlapping Legato.

Articulation: Staccato	- Pushing Arm Stroke. - Forearm Bounces. - Hand Release Staccato. - Hand Finger Staccato. - Finger Release Staccato.
Dynamics and Tonal Control	- Tonal intensity depends on the speed of key depression.
Tone Quality	- Related to specific movements at the piano.
Tempo	- As the speed increases, the range of movement decreases.

Alan Fraser

Source

The Craft of Piano Playing (2003).

I. Philosophy

Philosophy of Technique

Fraser's (2003) system of technique relates elements of Feldenkrais Method and Eastern martial arts to piano playing by examining every detail of the basic movements required in playing. According to Fraser, Feldenkrais said that movement is life. Thus, one measure of pianistic wellness is the quality of movement. Fraser quoted Feldenkrais as saying, "If you know what you're doing you can do what you want" (p. 23). The more a pianist can sense and feel, the more control the pianist will have over the actions of playing. Fraser said that by executing basic movements with a new level of command, greater physical skill is brought to a pianist's playing. Although minimizing the risk of injury should not be the goal of technique, the most effective way to make sounds is usually the healthiest. Therefore, injury prevention is a byproduct of good technique.

Fraser (2003) stated that although modern pedagogy often scoffs at the mindless, mechanical drill that was standard 100 years ago in Russian conservatories, the kind of physical mastery the Russian students had is seldom seen in American pianists of today. They lack the sheer facility and resulting power of past pianists. Fraser said, "The problem is not too much focus on technique, but too little" (p. 3). Just like Olympic athletes, pianists need refined physical skills and basic strength.

Fraser (2003) stressed the importance of increasing the functionality of the fingers in order to clarify, stabilize, and activate the hand's structure. This in turn frees the wrist and the more central parts of the playing mechanism to accommodate and follow the movement of the hand in a supportive way.

Five topics Fraser (2003) discussed in his technical system are:

1. Consolidating the hand structure to improve its strength and function.
2. Maximizing the capability for finger articulation.
3. Active and passive roles of the arm.
4. Rotational role of the arm.
5. Natural finger shape (Fraser, 2003).

Although many of Fraser's (2003) exercises and statements seem contradictory in his book, he provided various and sometimes opposing experiments in order to build the pianist's vocabulary of motions. The exercises are not connected to specific passages in pieces but become a source to draw on in solving technical problems.

Philosophy of Teaching

To be a great teacher, the pianist must first be a great player, because it is dangerous to attempt to show a student an exercise without the exercise first having been incorporated thoroughly into the teacher's own system of playing. For example, if a teacher sees a master pianist playing with a very still wrist and then forces a student to play with an unmoving wrist without thinking about what is going on in the muscles of the student's hand and wrist, the student may become tense or stiff, because the appearance is cultivated without an understanding of the sophisticated internal organization involved below the skin's surface. A tactile approach is best, where the teacher touches the student's hand to monitor for tension and other internal workings (Fraser, 2003).

II. Basic Components

Posture

The more correct the alignment of the skeletal structure, the less effort is needed to carry out an action effectively, because the bones are aligned to support their own structure rather than relying on surrounding muscles to maintain their position. When the muscles do not need to work excessively to maintain structural stability, they have more power available for their primary job, movement (Fraser, 2003).

Arms hanging at the side of the body are not truly free unless the palms are pointing to the rear. A position where the thumbs are pointing forward with the palms turned inward may feel at rest, but it is not fully released. Instead, unnecessary and habitual muscular contractions in the shoulder are holding the arms in this position (Fraser, 2003).

Hand Position

The arm can remain free on each note only when the bridge is secure. Fraser (2003) described this feeling as the bridge being an isolated point of stability surrounded by pools of liquid, fluid, moving muscles and the sensation that the triceps is moving the fingers. The triceps stabilizes the arm's position, but everything below it feels so liquefied that there is nothing solid in the arm that would block the feeling that the triceps is acting directly on the finger.

The hand structure must have functional integrity, and muscular energy must be activated to create a condition for a good hand structure. The 2nd finger's knuckle joint is the keystone of the hand arch. To feel this supported arch, the pianist can use the non-working hand to create a space and maintain support between the thumb and 2nd finger. Then pressure is exerted on the thumb to strengthen it and to keep the space between the thumb and 2nd finger open (Fraser, 2003).

A strong hand can stand supported on any finger with complete security. The best indication that the finger is bearing the full weight of the hand or arm is that the knuckle joint protrudes. A thumb that pops up or waves around when playing is a sign of a disorganized hand. To correct this, the pianist should leave the thumb on the key as the fingers play. By forcing the thumb to touch its note, the hand is forced into a new organization of power and control (Fraser, 2003).

Hand strength and security are centered on the thumb, which should line up with the inner edge of the forearm and form a continuous line. This results in the hand being turned out. To find the skeletal structure of the hand, force is directed toward a specific, precise goal to line

up the bones of the hand. As soon as the alignment of bones falls into place, the force can be relaxed, and the structure will remain (Fraser, 2003).

It is difficult to maintain a state of physical neutrality while maintaining a low wrist position. A slightly higher wrist position where the line of the forearm goes straight through the hand and fingers allows the arm to float and to contribute to the melodic flow of the phrase (Fraser, 2003).

Letting the hand hang limp at the side puts the fingers in their natural shape. When the hand is placed in this same position on a table, there is an arch in the hand as if holding a ball. The fingers do not need to be held curved, because they will stay that way on their own. Trying to hold them in that shape is not natural, since the term natural implies soft muscles. The muscles should return to softness after any contraction. To keep the hand and fingers in a natural curve, the arm should make a slight down-out breath when approaching the keyboard (Fraser, 2003).

A flat hand position can be used to produce fat, precise, warm, sharp, and powerful sounds. Sitting at a lower position facilitates this, because the flat finger communicates the power of the forearm's motion to the key more effectively than does the fingertip. With a flat finger, the actual area in contact with the key is up to 15 times greater than the fingertip. Flat fingers should not be used all the time but are one more weapon in pianist's arsenal (Fraser, 2003).

Tone Production

Activity, not weight, produces piano tone. According to Fraser (2003), the biggest stumbling block to students is a lack of activity in the fingers and hand. The thumb and 2nd finger are often the most lax in fulfilling their duties even though it may feel like the 4th and 5th fingers are the weakest.

Both firm and delicate touches are important. A firm touch with some pressing on the keys is necessary for the student who plays superficially, fast but not cleanly, and without rhythmic stability. However, most students tend to press down on the keys too much, and therefore pressing should be taught only in certain instances. Finger activity must be

proportionally greater than the effort of pressing on the key. Too much arm pressure impinges on the natural shape and activity of the hand and finger and strangles the piano's natural resonance (Fraser, 2003).

Finger tapping is recommended as an exercise for gaining absolute evenness and ease in passagework of the fingers, for eliminating excess hand motion, and for ensuring a tactile connection with the pattern of notes. In finger tapping, the right hand is placed over a D five-finger pattern. The left hand taps near the tips of the right hand on the fingernails or nail joints quickly to the bottoms of the keys as if the right hand fingers are boneless. The fingers rebound from the keybed reflexively and return to their original surface position (Fraser, 2003).

Next, the notes are played with a staccato motion from the surface of the key quickly to the keybed, then rebounding to the surface. This motion is practiced slowly with 2 seconds of silence between each note. The passive finger is limp, and the shock into the key is felt more vividly than if the muscles of the fingers were active. The passive hand undergoes a clear kinesthetic experience of playing a note with accuracy and sound but with none of its normal effort. The hand and arm are totally limp, and therefore they find the angle, position, and structural alignment most ideally suited to produce the sound. Old habits of collapsing, previously masked by surrounding muscular activity, are quickly sensed, while superfluous contractions are found to be no longer needed (Fraser, 2003).

Following are some of the strokes Fraser (2003) described.

Simple Finger Stroke

The simplest finger stroke is one where the finger is moderately curved in its natural shape. The finger rises and then strikes the key while keeping the curved shape. This is the most natural finger movement used at the piano (Fraser, 2003).

Finger Stroke

For this stroke, the palm rests on the wood below the edge of the keyboard. The pianist relaxes the shoulder, points the fingers to the ceiling, and plays a note, making the finger travel

through the key in a circular motion. The finger enters the key from above and pulls toward the palm, then returns to pointing upward. Inner muscular activity throughout the arm is a crucial component of this radical finger action (Fraser, 2003).

Structure Supported Slap

This movement allows the fingers to play a series of notes in one motion. First, two adjacent white keys are played very quickly with fingers 2 and 3. They should be played in a stinging manner without pressing on the keys. If the action is too light, the sound will lack incisiveness. If it is too heavy, the structure starts to collapse. On the release, the hand flies off to the side. Notes are added gradually to build up a passage (Fraser, 2003).

Next, the hand stands on the 2nd finger, the 3rd finger is raised to the ceiling, and the hand swings onto the next note, returning instantaneously to the ceiling position. The arm remains loose, and the movement is like a cobra attacking. The more notes that are added, the more the movement is transformed from a vertical in-out to a vertical in-horizontal-out movement. The fingers are alive and active like the "coiling of an octopus' tentacles" (Fraser, 2003, p. 140).

Wrist Stroke

This is a specialized stroke used to cure the habit of supple wrists that make graceful movements that are designed to avoid tension but may throw the hand out of balance, destabilize it, and evoke compensatory tension elsewhere in the arm. The pianist sets fingers 2, 3, and 4 on a group of three black keys. The 2nd finger rests lightly on the key while the wrist moves slightly laterally as if inflecting a small section of a phrase. By chance, the note sounds. When the wrist moves to the right, it then causes the next note to grow out of the previous one. This movement prevents all indulgences in movement and provides the student with the experience of how little wrist movement is needed to sculpt a phrase accurately (Fraser, 2003).

Arm Stroke

To play with an Arm Stroke, the hand maintains its structure while the finger pad swings into the keybed. The pianist swings the whole arm from side to side and around in a circle after

the key is depressed to feel the freedom. Enough strength in the hand must be maintained so that the hand does not fall off the key. The arm is free while grasping the key. The fingertip thus becomes like the tip of a whip, and the whole hand-wrist-arm becomes the body of the whip. The movement is reduced as the pianist plays a melody with *cantabile* tone, riding from note to note in such a way that the change from one finger to the next does not disturb the strength of the whole finger and upper arm structure. When the integrity of the structure of the hand is maintained through active strength rather than through stiffness, the arm can be moved around without reducing effective contact with the key (Fraser, 2003).

Playing Apparatus

Muscles

The goal in muscular effort is to activate the muscles that need to be activated while relieving stress on the muscles that do not need to contract. A muscle is contracted only for the time necessary to achieve the tonal result. Otherwise fatigue will result. If muscles are strong, they perform the function for which they were created within the whole playing mechanism and do not pass the function onto other playing units, which creates a breakdown in functionality (Fraser, 2003).

Ear

The ear guides everything in physically oriented exercise. Increasing awareness of how to produce a sound physically leads to that sound being perceived with greater accuracy (Fraser, 2003).

Torso

The torso should be well aligned and should float in gravity instead of needing muscular contractions to hold it in place. "'Fluidity' in the torso begets more fluid, capable movement elsewhere" (Fraser, 2003, p. 180).

Back

The back is involved in playing through non-effort. It has the sensation of being alive and active, but there should be no movement (Fraser, 2003).

Shoulder and Upper Arm

The function of the arm is not to generate sound but to shape groups of sounds and to give them character. One arm movement is used for each phrase or sub-phrase. The fingers and arm are always involved with each other. It may look like the fingers are doing all the work, but the arm plays an integral role by shaping the phrases (Fraser, 2003).

However, it is "pianistic suicide" (Fraser, 2003, p. 156) to let the arm take over the finger's work. The wrist and arm facilitate the success of the working fingers and hand. The hand needs structural strength more than muscular strength to support the force of the arm moving down through the hand. Internal activity of the larger muscles higher up in the arm plays an important role in activating the fingers.

When the hand does not do its job, the arm stiffens to compensate. If the hand strength and function are improved, the arm movements will be free to complete their role of orienting the hand in position and shaping the phrases (Fraser, 2003).

Hand

A pianist's hands must have great strength derived from functionality, not brute force. Most banging sounds at the piano stem from an under use of strength, not an overuse. Activation of the hand's natural strength firms up the structure and eliminates the weakness of function that leads to injury. The stronger the hand is, the less arm tension is present. Conversely, the weaker and less active the hand is, the more arm tension is used to compensate (Fraser, 2003).

In order to maintain hand strength successfully, the corollary stabilizing role of the arm must be cultivated. The hand is not able to hold its structure securely without support from the contraction of the triceps. Ironically, it is through loosening of the upper arm and letting the elbow relax and drop forward and move slightly closer to the body that the contractions in the

triceps can work most effectively. This provides freedom from counterproductive contractions and unnecessary arm movements out to the side, which are frequently used in an effort to relax the arm. These external arm movements are detrimental because they impede the participation of all parts by fulfilling a role other than that assigned to them (Fraser, 2003).

The grasping function of the hand is natural and can be incorporated into a pianist's technique. When the bridge is activated, the grasping function is activated as the thumb and 5th finger move toward each other with strength, forming an arched bridge (Fraser, 2003).

Although the thumb is important to hand structure, the hand works best when the role of the thumb is reduced to a minimum, clinging to the palm of the hand or to the 2nd finger and opening only when necessary. When the thumb is clamped to the side of the hand, its function is activated just as much as when the thumb is bearing weight (Fraser, 2003)

Wrist

The wrist has a dual function. Physically its role is to transmit the force acting from the arm through the wrist precisely, cleanly, and completely. The wrist also shapes phrases and aids in legato playing. However, too much flexibility in the wrist prevents the power of the arm from being transmitted through the wrist to the key, because it destabilizes the 4th and 5th fingers. When the fingers do their job, they relieve the overburdened wrist. It is possible to play with a low wrist as long as it remains free from excess tension (Fraser, 2003).

Fingers

Fraser (2003) described the proper sensation in the fingers as, "Fingers of steel wrapped in velvet. Bones like steel, flesh like velvet. If your flesh is tight, your bones cannot feel through it. But if your flesh stays loose like velvet because of the freedom and exuberance of the movement, it ceases to be a barrier" (p. 113). If there is no strength in the fingers, the unstable condition of the hand leads everything behind the hand to freeze up, because contracting everything into rigidity preserves a modicum of control.

The hand structure supports the fingers in doing their job, which is to move. The finger is not a stick to hit the piano with. To play with the finger, movement is needed within the finger itself. The fingers need an "alive relaxedness" (Fraser, 2003, p. 134) in order to gain maximal finger articulation. If the fingers stiffen, their own muscles become rigid, and other muscles must be used to move the finger. Maximum finger activity (some external, but more internal) contributes greatly to the maintenance of the hand/finger structure. In return, maintenance of the hand structure provides a secure base from which the fingers can easily move with agility and power. Only when the fingers do their job will there be a new feeling of strength in the hand and looseness in the arm (Fraser, 2003).

Conversely, Fraser (2003) also said that if the fingers are banded together, the whole arm can function as one giant finger, and the wrist, arm, and shoulder will remain free and functional anywhere on the keyboard. The arm moves on every note in this way. He explained many of the seeming contradictions found in his book, such as this one between individual finger action and having the fingers banded together as one giant finger, by saying that different types of techniques are needed for various passages and that the pianist should be a master of all types of movements.

Finger independence is developed through exercises such as Pischna's (1931) where some fingers are held down while others move, because this allows the pianist to experience the interdependence of the fingers that leads to finger independence (Fraser, 2003).

Thumb. The thumb muscle is the biggest muscle in the hand, and the thumb is the support pylon on which the whole hand rests. "Finding the skeletal arrangement that will bear even excessive amounts of weight without collapsing is the beginning of true strength and function for your thumb and indeed for your whole hand" (Fraser, 2003, p. 78). Even when the thumb is not playing, its active muscle tone helps to maintain the overall hand structure and functionality. When the thumb muscle is strong and supports the hand, the other fingers are free to move with facility or to be truly at rest. The thumb provides half the support for the hand, the

remainder being the job of the other four fingers combined. However, the thumb must not be too active, or it will invade on the functions of the rest of the hand (Fraser, 2003).

4th Finger. The 4th finger is as strong as the other fingers. Weight is maintained almost without muscular effort when the natural structure and proper alignment of the bones bear the majority of the weight (Fraser, 2003).

Contraction and Relaxation

Without tension there is no life or motion. Pianists must do away with the fear that tension will interfere with or limit motion. Although too much tension is detrimental, too little tension is equally destructive to good technique, because an arm that relaxes too much reduces the activity in the hand and weakens its structure, destroying perfect contact with the key. Although the arm may be producing a beautiful tone, the hand can no longer effectively manage the relationship of one tone to the next, because the fingers are no longer in command. This causes a lack of control in legato. Also, this loss of structure and function requires compensation by muscular contractions elsewhere. These contractions stabilize rather than activate, inhibiting rather than facilitating movement (Fraser, 2003).

Mind/Body Relationship

All the parts of the body are not equally well represented in the motor cortex of the brain, and those that are more poorly represented do not participate in movement as well as they could. The Feldenkrais Method uses directed awareness of specific sensations to bring these parts back to full neuro-muscular representation. In this way, the building blocks of basic human movement are refined (Fraser, 2003).

It is important to conceive of a sound before playing. If there is no mental template against which to match the playing, inconsistency will result. The process is one of first devoting total consciousness to bodily movements, then devoting only 5% attention, and finally none, with all the attention focused on the music as the physical functioning becomes automatic (Fraser, 2003).

Fraser (2003) described the relationship among physical, mental, and emotional aspects as follows:

> It is possible to have good head, hands and heart. But if your head does not guide your hands in an informed way, how successful can you be? It is the connection or relationship between head, hands and heart that makes the whole musician. Intelligent generation of the phrase through your wrist can make you a musician instead of a note-reproduction machine. Done properly it effectively joins your head to your hands, and it is this that facilitates the blossoming of your heart's expression in sound. (p. 343)

III. Exercises

Gymnastic Exercises

The gymnastic exercises Fraser (2003) provided are preparatory and developmental. Most of them are meant to demonstrate some aspect of the strength, function, and stability of a playing unit. They are to be studied, and their kinesthetic message should be incorporated into the playing apparatus. Then they are to be forgotten while playing.

Exercises

Exercises at the piano are provided by Fraser (2003) for demonstrating and practicing the movements and conditions presented.

IV. Movement at the Keyboard

Physical Movement

Effective movement is perceived as effortless and easy because the balance of opposing muscular pulls is optimal, and no effort is wasted. Effective movement associates physical movement to musical movement in a choreographed manner. Extraneous movements not related to the direct movement make it difficult to maintain structure and function and waste energy. Therefore, for greatest effectiveness and economy, participation of the body should be internal (Fraser, 2003).

One movement Fraser (2003) mentioned often, which he disliked, is the classic arm out to the side movement used to round out phrases. He said this motion tends to weaken the top knuckle of the 2nd finger, pulling it down and destroying its vitality. When moving the elbow out

to the side, the hand is pulled away from the keys, depleting its energy instead of activating it. This movement is faulty in terms of arm function as well, because it engages just the part of the arm that needs to relax the most. For these reasons, Fraser discouraged the use of this motion.

Lateral Movement

For lateral leaping chords, the left arm begins traveling down toward the bass chord as the fingers continue to hold the initial chord. A small amount of supination helps the arm travel further before supination forces the fingers to release the chord one at a time. Finally, only the 5th finger still holds the initial chord while the hand travels down to the bass. The arm does not lead the wrist to the outside. The wrist stays in. When the 5th finger is finally released, the hand flies past the bass chord. Then, when the fingers fall vigorously onto the bass chord, they will already be traveling back up for the next treble chord. In this way, the arm makes a circle of either direction, moving out of sync with the hand and ahead of it (Fraser, 2003).

Hand Expansion

Because the thumb is in opposition to the other fingers, it is between the thumb and the other fingers that hand expansion takes place. A slight adjustment or release in the upper arm facilitates a wide expansion of the hand without tension. When playing a wide interval, the hand should extend without distorting the natural finger shift. The arm initiates the shift of the finger. Almost the whole hand shifts, while the finger playing the key remains behind as an anchor (Fraser, 2003).

V. Fundamental Forms

Rotation

Fraser (2003) believed that rotation is a key element in technique, but not in the sense of the compensatory action Matthay envisioned. Fraser said that Matthay mistakenly saw rotation in even the simplest of playing movements. Fraser described two ways the arm can rotate: forearm rotation below the elbow and whole arm rotation from the upper arm.

The elbow is moves more efficiently in whole arm rotation than in a lateral arm movement. Forearm rotation facilitates large stretches and leaps, and to a lesser extent provides more efficient passage of the thumb in scales and arpeggios. Forearm rotation must not be over-applied, and the motion should be natural and unnoticeable (Fraser, 2003).

The rotary motion in *tremolo* is a swinging rotation movement from side to side that is virtually invisible at fast speeds. The triceps remains loose and flaps at fast tempos. To practice rotation, the student should start slowly and exaggerate the motion. Also, using the thumb as a pivot, the pianist should practice swinging the 5th finger repeatedly without letting it play. Then the motion is reversed so that the 5th finger becomes the pivot for the thumb (Fraser, 2003).

Scales

Fraser (2003) explained scale playing using a right hand Eb major scale. In playing this scale, the fingers stay naturally curved. The arm guides the hand by moving outward and gliding, almost sinking outwards, until the thumb touches F. The thumb keeps its structure without deforming and does not reach for its note. The forearm instead rotates slightly to help the thumb play while the other fingers maintain a free, natural, loose feeling and the hand maintains its natural structure. When moving from F to G, the hand rotates instead of swiveling. The thumb extends and opens so that the hand moves to the right but maintains its orientation in space toward the keyboard. The arm relaxes in, and the hand naturally rotates as a result. The thumb opens without the other fingers stretching. Opening the thumb facilitates a shift of the whole hand to the right without swiveling. After playing Eb, F, G, Ab, and Bb, a lateral arm glide combines with a small amount of pronation to reach the C with the thumb under the hand. The thumb should maintain its active independence even when the arm is helping it. Because the thumb is lazy, it must be trained to reach and must always stay ahead of the other fingers, moving to its notes more quickly than the other fingers move.

In a descending Eb major scale with the right hand, the 3rd and 4th fingers cross over the thumb without reaching, stretching, or deforming the hand. Optimal support in the thumb and

finger is maintained throughout, creating a combination of thumb functionality and arm guidance (Fraser, 2003).

When playing scales at a fast tempo, the arm does not shake, as this is an indication of confusion of function. The arm is not the finger. It is forced to shake if the fingers are not moving enough to complete their job. This arm compensation results in a further reduction of finger capability. To understand the true function of the arm, the student can slide the hand back and forth along the keyboard and feel a smooth arm movement (Fraser, 2003).

Chords

In chord playing, the hand is in a state of "alive readiness, a neutrality that is *capable*" (Fraser, 2003, p. 210). The chord should not be prepared by putting more tension in the hand than is needed. The shape can maintain itself. Preparation impedes control by distorting the hand's natural shape and structure. To avoid preparing before a chord, the pianist can trick the mind by pretending that keyboard is a table instead of a piano. This reduces the anxiety associated with hitting the wrong notes at the piano.

The fingers are naturally curved when playing chords in order to maintain a blossoming, orchestral sound. Finger independence is important in chords, because when the fingers are independent, they stay depressed in a chord in their natural finger curve and function without having to be stiffened to maintain the hand structure. When they maintain their own support and function, they can still move (Fraser, 2003).

Fraser (2003) provided a specialized technique for playing *fortississimo* chords, called "cement block chords" (p. 278). At the moment of playing the chord, the whole mechanism stiffens. As the fingers continue to hold their keys, all the muscles higher up in the arm relax. To find the next chord, the fingers are neutral, as if no effort was involved. Only in the moment of playing do they stiffen.

VI. Basic Musical Inflection

Articulation: Legato

Though writing over 60 years apart, Fraser (2003) quoted Schultz regarding the importance of legato in producing a good piano tone and noted that this technical skill was neglected in Schultz's time and is still neglected in modern piano teaching. Fraser related the importance of legato to the control of phrasing and dynamics, saying, "Without an absolute command of legato, full control of melodic evenness is impossible. But once this physical command of evenness has been instilled in one's system, the ability to control melodic evenness transfers easily to non-legato articulations" (p. 19). Legato is one of the main foundations of technique. By clarifying the legato touch, a central foundation is laid from which the other aspects of technique can be developed.

Legato requires much greater hand strength than many pianists suppose. Fraser (2003) said that most pianists believe they already have attained legato, so they do not investigate it further. Fraser stated, "Universal absence of real mastery of legato is a serious unacknowledged fact in the piano world" (p. 54).

Fraser (2003) said that the more a legato touch is cultivated, the less the fingers tend to move. If the fingers articulate too much, they undermine the stability of the legato touch. The contradictory functions of legato and finger action must both be working at peak capacity for the hand to be truly operational. The most common fault in legato playing among students it the failure to maintain support while moving to the thumb from one of the other fingers, most often the 2nd, or back again. Fraser recommended drawing a lobster claw in the student's score to remind the student to maintain this support, which must not be too rigid but should be derived from active function.

Fraser (2003) described the following types of legato.

Overholding

To practice overholding, Fraser (2003) gave the following instructions:

Step 1. Stand on one finger.

Step 2. Play the next finger, but do not release the first finger. The two fingers exchange pivoting and playing functions.

Step 3. Maintain perfect contact with the keybeds, and shift the weight from one key bottom to the next or from one hand knuckle to the next through a slight adjustment of the wrist.

In overholding, the pianist should not actively move the wrist, but simply let it follow the hand through its slight shift in position from note to note. An individual wrist movement on each note will create a bump that will disrupt the line. Instead, small wrist adjustments are chained together to resemble a smooth, subtle, sliding arm movement through a group of notes. Developing true ability below the wrist through perfecting the legato touch liberates everything above the wrist (Fraser, 2003).

Practicing overholding helps transform note to note playing into longer phrases. The fingers play the notes while the arm shapes the phrases. This can be practiced by holding fingers 2, 3, 4, and 5 down, because with all the fingers held securely on their keys, the arm can be free behind the hand and feel new strength. The four notes are played ascending and descending, and all notes are overheld. The arm moves through the whole group with one small, smooth lateral movement instead of an individual relaxing movement on each note. Only the finger about to play is raised. All the other fingers hold their keys in the keybeds. If the fingers pop up, the pianist is out of touch with the hands. The arm should not press to create the legato, because this means the fingers are not doing their job. When the fingers achieve a stable transfer of weight from one note to the next, the arm is completely free (Fraser, 2003).

Feather Light Legato

When overholding it is helpful to press into the key to feel the connections through all the joints. However, if the student has a problem with over pressing, this kind of legato will not be helpful. Instead, this type of student needs to lessen the excess pressure and find a more subtle way to arrive at effective joint alignment. Instead of overholding, the finger descends down to the

key bottom as if by chance, walking on the finger without pressing. The hand floats over that finger toward the next finger, which descends down to its key bottom. The arm floats in space instead of resting on the finger. This kind of legato is the first type students should acquire once initial security in legato has been established. It is the midpoint between full physical legato and inflected, arm-shaped legato (Fraser, 2003).

Balance between Finger Action and Overholding

To gain a balance between finger action and overholding, Fraser (2003) recommended playing slowly with high fingers while striking the keys vigorously and overholding each finger. The pianist should take time between each note to be sure that the structural integrity of the hand is being maintained. As the speed increases, this integrity may start to disintegrate. However, when the finger action is reduced, the tonal intensity is lessened. To correct this problem, the pianist should return to a slow tempo. Then, instead of increasing the speed, the range of finger stroke is increased to maximum. Instead of overholding, a perfect legato, nothing more, is maintained. The greatest possible finger arc is used, and the speed is gradually increased. The mind controls the articulation. In the end, the hand does not actually stand on the key, but it preserves all the qualities of a supported structure. The fingers almost lash out like the tip of a whip, but because the hand has learned the proper, functional way to maintain structure, it does not collapse. The arm is loose, yet the fingers are so active that the arm's looseness does not reduce the accuracy of the fingers. Instead, it contributes to accuracy by removing any muscular constrictions that might inadvertently hinder the exactness of the movement.

Articulation: Staccato

The hand and fingers produce a staccato articulation. The arm does not produce staccato itself but assists the hand and fingers by moving down and in just as the fingers move up and forward. The arm also places the fingers where they need to be. Fraser (2003) described the following types of staccato.

Cat Scratch Staccato

For sharp, quiet, staccato chords, the pianist curls the mid- and nail joints as if the fingertips are pulling back and up during the stroke. Fraser (2003) called this the "cat scratch" (p. 277) movement. This movement tends to make the forearm stiff. To correct this, the finger joint plucks while a slight buoyancy is felt in the forearm. As the fingers pluck, they come off the keys, and the arm moves slightly to assist them. The teacher can aid the student by lightly touching under the forearm and encouraging it to rise. The arm should not move too much, but it should be responsive and supple.
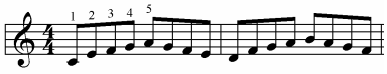
Rhythm

Small, precise arm movements that reflect the duration of the note allow the rhythm to be maintained and create musical integrity. In order to achieve control, the precise moment of attack must be controlled without destroying the muscular and musical flow by stopping between notes. The rhythm must be controlled mentally without a physical break and without creating unwanted accents (Fraser, 2003).

Dynamics and Tonal Control

Small hands can produce large sounds if the contractions that give power are from the upper arm. The contractions can be very sudden and strong without impinging on the accuracy of finger placement. The hand and fingers remain neutral and the joints loose (Fraser, 2003).

Voicing comes from maintaining the hand's alignment, which consolidates its strength. To practice, the pianist should practice the first Hanon (1873/1900) exercise, which begins



, with the thumb *forte* and overheld, the next three notes *pianissimo* and held down, the top note *forte*, the three middle notes *pianissimo*, etc. The middle fingers drop like feathers with no effort, because the structure of the outer fingers is stable (Fraser, 2003).

Tone Quality

The relationship of one note to the next determines tone quality. There is also a relationship between playing notes exactly together and tone quality. If the pianist improves in playing the notes exactly together, the sound quality will improve. If the hands are not together, it is probably because the pianist is indulging in unnecessary movements. The powers of observation, attention, hearing, sight, and kinesthetic sensation should be cultivated in order to correct this fault (Fraser, 2003).

Harsh tone results not from an overly quick key descent, but from a lack of flexible solidity in the hand structure and a lack of exact accuracy in the contraction of the muscles and limbs producing the sound. Conversely, deficiency in tone color results from not moving the fingers enough (Fraser, 2003).

Table 28

Elementary Level Technical Concepts According to Fraser

Elementary Level Technical Concepts	**Alan Fraser**
I. Philosophy	
Philosophy of Technique	- Feldenkrais and Eastern martial arts related to piano technique. - Examine the details and quality of movement. - Injury prevention is the byproduct, though not the goal, of good technique. - Start by increasing the functionality of the fingers, and work from the fingers in toward the center. - Consolidate the hand structure to improve its strength and function. - Maximize the capability for finger articulation. - Active and/or passive role of the arm. - Rotational role of the arm. - Natural finger shape.
Philosophy of Teaching	- A great teacher must first be a great player. - Do not judge based on the look of a movement. - Understanding of internal organization involved is necessary. - Touch the student's hand to monitor the muscles.

II. Basic Components	
Posture	- When the skeleton is properly aligned, the muscles can be more efficient in their movements instead of having to support the skeleton. - Arms are free when they hang at the sides with the palms turned toward the rear.
Hand Position	- Bridge must be secure. - Feel like the bridge is a point of stability surrounded by liquid muscles, with the fingers controlled by the triceps. - Muscular energy must be activated for a solid hand structure. - 2nd finger knuckle is the keystone of the bridge. Space between 2nd finger and thumb. - Thumb should line up with the inner edge of the forearm. - Wrist not too low. Forearm line should go straight through the hand and fingers. - Bones lined up for structure. - Fingers naturally curved like at the side. They will stay curved naturally. - Flat hand position is useful for warm and powerful sounds.
Tone Production	- Activity produces piano tone, not weight. - Do not press too much. - Simple Finger Stroke. - Finger Stroke. - Structure Supported Slap. - Wrist Stroke. - Arm Stroke.
Playing Apparatus	
- Muscles	- Activate the working muscles and relax the non-working muscles. - Strength from functionality, not brute force. - Internally acting hand.
- Ear	- Guides everything.
- Torso	- Fluid torso.
- Back	- Involved through non-effort. Alive and active, but no movement.
- Shoulder and Upper Arm	- Arm shapes groups. One arm movement per phrase. - Facilitates the workings of the fingers and hand. - Arm function is related to hand function.
- Hand	- Strength from functionality.

	- The stronger the hand, the less the arm tension. - Grasping can be incorporated into technique when the bridge is activated. - Role of the thumb is reduced to a minimum
- Wrist	- Transmits force from the arm. - Shapes phrases and aids in legato.
- Fingers	- The fingers' job is to move. - Alive relaxedness. - Maximum finger activity contributes to the maintenance of the hand structure. - Fingers can be banded together to work with the arm. - Finger independence through holding exercises. Interdependence leads to independence.
Contraction and Relaxation	- Without tension there is no life or motion. - Too much tension and too little tension are equally detrimental.
Mind/Body Relationship	- The parts of the body not as well represented in the motor cortex do not move as well as they could. - Refine basic human movement. - Conceive the sound before playing.
III. Exercises	
Gymnastic Exercises	- Preparatory and developmental to demonstrate a technique.
Exercises	- To explain and practice the movements and conditions.
IV. Movement at the Keyboard	
Physical Movement	- Choreographed movement. - Excessive movement wastes energy. - Classic arm out circular movement at the end of phrases is detrimental.
Lateral Movement	- In leaps, the arm leads, and the fingers are the last to leave before the leap.
Hand Expansion	- Expansion takes place between the thumb and other fingers. - The arm initiates the finger shift.
V. Fundamental Forms	
Rotation	- Forearm rotation or whole arm rotation. - Must not be over applied.

	- Forearm rotation. - Facilitates leaps and stretches. - Provides for more efficient passage of the thumb in scales. - *Tremolo*.
Scales	- In scales moving out from center, the forearm and hand rotate to allow the thumb to play without reaching under the hand. - Thumb maintains active independence. - In scales moving in toward center, 3rd and 4th fingers cross over the thumb without reaching or deforming the hand. - In fast scales, the arm does not shake. The fingers must do their job.
Chords	- The hand is in a state of alive readiness. - Fingers are naturally curved and independent. - Not too much hand tension. - Cement block chords for *fortississimo* chords.
VI. Basic Musical Inflection	
Articulation: Legato	- Very important. - Overholding. - Feather light legato. - Practice a perfect legato that is not overheld.
Articulation: Staccato	- No arm staccato. - Hand and fingers produce staccato. - Arm places fingers. - Cat scratch staccato.
Rhythm	- Small arm movements that reflect the duration of the note are helpful. - No physical stopping or unwanted accents.
Dynamics and Tonal Control	- Contractions in the upper arm give the power for loud sounds. - Voicing comes from maintaining the hand's alignment.
Tone Quality	- The following affect tone quality: - Relationship between one note and the next. - Playing notes exactly together. - Hand structure.

Discussion: Technique Authors

This section is a Discussion of the commonalities and differences among the 15 Technique Authors (see Table 7) as they relate to the Skills for Elementary Level Technique (see Table 4) used for the discussion of each author's work in Chapter IV. In each of the following sections, common themes that emerged among the authors' works are listed. It should be noted that a certain group of authors listed as advocating a point does not necessarily mean that those authors not listed disagreed with a point. Rather, authors not listed may have not expressed an opinion with regard to that particular topic. Dissenting viewpoints are discussed. Year citations are not provided, as this Discussion is a summary of the cited material stated in the individual authors sections of Chapter IV.

I. Philosophy

Philosophy of Technique

Importance of Technique

The Technique Authors, with the exception of Bonpensiere, either tacitly believed or openly stated that technical training is important for pianists, because expressing music without a solid technical foundation is difficult. This belief is what inspired the authors to write books about piano technique. Matthay, Fielden, Ching, Last, Kochevitsky, and Fink specifically noted the importance of technical training for children.

Technique and Music

Nearly all the authors expressed their belief that technique is merely the means to the end of expressing a musical idea. Those authors who did not explicitly state this belief (Ortmann, Newman, Fraser) seemed to take this perspective for granted as being true. In addition, Matthay and Schultz clarified their definitions of technique by rejecting the opinion that technique is limited to the ability to play fast passages, broadening the definition of technical skill to include the ability to produce beautiful tone and to play expressively.

Laws of Mechanics

According to the authors, natural laws of mechanics, which are scientifically observable, are applicable to all humans and should form the basis of technique. Ortmann's experiments brought scientific research in piano technique to the forefront as a viable method for studying piano technique, and the other authors expressed their views that movements used in daily living can be related to technical movements at the piano. Regardless of body proportions and sizes, the same natural laws apply to all pianists. Although Kochevitsky, Fink, and Fraser believed that physical and mechanical laws relate to pianists in general, they cautioned that piano technique also needs to be individualized to compensate for differing body proportions, strengths, and learning styles.

Bonpensiere's ideas were opposed to the other authors' views in that he did not believe that mechanical laws are important for pianists to learn. Instead, he believed the playing mechanism should be allowed to function on its own without conscious thought about the physiology involved.

Plan of Study

A well thought out plan of study is important. Matthay, Fielden, Ortmann, Ching, Schultz, Gát, and Sandor used categories of movements, types of passages, and/or conditions of the playing apparatus in a systematic treatment of the subject of technique. Bernstein, Fink, and Fraser provided sets of exercises in categories for creating a broad experience with different kinds of movements that could later be applied to the repertoire. Whiteside, Bonpensiere, and Kochevitsky focused on a specific topic in technique: Whiteside on rhythm, Bonpensiere and Kochevitsky on the role of the brain in technique. Newman and Last provided more general directions for learning to play with good technique. Yet all the authors, regardless of their approach or focus, had a carefully formulated plan for learning to play the piano.

All can Learn

Matthay, Fielden, Gát, and Sandor stated specifically, and the other authors tacitly agreed, that anyone can learn to play the piano through hard work, discipline, and concentration. With the exception of Newman, who believed that a "good piano hand" is necessary for optimal achievement, the other authors did not question whether or not a person could achieve a good technique but assumed that all students could achieve, regardless of their natural physical endowment. In fact, Kochevitsky specifically said that a good piano hand is *not* necessary for playing well. Instead, when deficiencies in hand structure were manifested, that pianist was not discounted as being incapable of acquiring a proficient technique but was given exercises or advice for overcoming technical weaknesses.

Brain Involvement

All authors believed in the necessity of brain involvement for both musical and technical achievement. The authors repeatedly stressed that thinking is to precede playing, because an intelligent approach to practicing is indispensable for overcoming technical and musical difficulties. Bonpensiere and Kochevitsky's systems stressed this almost to the exclusion of all other facets of technique.

Listening

In conjunction with the mind, listening was also emphasized as being crucial for developing skillful playing. Pre-thinking was often connected with pre-hearing of the sound. Matthay, Whiteside, Bonpensiere, Last, Kochevitsky, and Fink especially stressed that musical intention is the driving force behind producing sound at the piano.

Knowledge of the Instrument, Skeleton, and Muscular Function

Most authors felt that some knowledge of the workings of the piano and the body is necessary for the development of technique, although the amount of knowledge varied from the earlier writers such as Matthay, Fielden, and Ortmann, who believed in an intimate knowledge of

the piano and playing mechanism at least for the teacher; to Bonpensiere, who believed that no knowledge of the playing mechanism is necessary.

In the middle of the century, attention was focused less on detailed knowledge of body mechanics in favor of other factors, such as Whiteside's theories on rhythm and Kochevitsky's research on the workings of the mind.

More recent writers such as Bernstein, Fink, and Fraser resumed the early 20th century desire for knowledge about physical apparatus and the workings of the piano mechanism, perhaps as a response to the recent interest in injury prevention and performing arts medicine.

Rigid Principles vs. Trial and Error Learning

The authors varied in their views about experimentation at the piano and trial and error learning. Although Ortmann established his technical beliefs through experimentation and measurement at the piano, he did so to set down solid principles of playing so that other pianists would not have to experiment but would instead have readily applicable and scientifically proven facts. Whiteside, Bonpensiere, Gát, and Sandor also advocated a dogmatic approach that included little room for experimentation.

Matthay, Ching, and Schultz, on the other hand, not only set down solid principles but encouraged trial and error experimentation at the piano so that students could discover the principles for themselves. This is an early 20th century version of the same perspective on experimentation that was held by Bernstein, Fink, and Fraser later in the century. These later authors' advocated that students focus wholly on experimentation in order to learn sensations related to specific movements at the piano. They even promoted experimenting with the wrong movements in order to compare the sensations with those of the correct movements.

Whole to Part vs. Part to Whole Learning

There was disparity among the Technique Authors about whether the best approach is one of learning the individual movements and then combining them or of concentrating on the coordination of the whole body first in the belief that the smaller movements will take care of

themselves. Matthay, Fielden, Ortmann, Ching, Schultz, Newman, Last, Gát, Sandor, Bernstein, Fink, and Fraser are examples of those who believed technique should be learned from part to whole, with Ching and Schultz being the most extreme in favor of working with small parts first. However, although the "part to whole" authors believed in the importance of learning about individual parts, they also strongly believed in the necessity of coordinating and integrating those parts so that the whole playing mechanism works together.

In contrast, Whiteside, Newman, Bonpensiere, Last, and Kochevitsky held a holistic view of learning, where students learn about the subject as a whole and then polish the smaller parts. Newman's exploration of sightreading for beginners and Whiteside's "splashing chord" technique are examples of this process.

Most of the authors believed in moving from part to whole. However, it must be remembered that in general, they were writing for adult students. The psychological implications involved in motivation and attention span for children, which are beyond the scope of this study, may in fact show that it may be more effective to move from whole to part when working with children, in spite of the weight of opinion towards part to whole learning exhibited by the authors. Newman's views are an example of this. Although he was a part to whole advocate when it came to teaching individual lever movement, psychologically he believed that children learn best from whole to part, because they are usually impatient when it comes to refining details.

Goals in Technique

Gát, Sandor, and Fraser emphasized that physical comfort is not the ultimate goal of technique. Although playing should be both natural and in conformity to the physical and mechanical laws of nature, the authors believed that musical effect rather than physical comfort is the main goal of technique. However, Fielden stated that if a movement feels comfortable, it is correct. This belief was echoed by the more recent authors, Bernstein, Fink, and Fraser, who focused on the importance of the kinesthetic sensations of different movements rather than the sound exclusively. However, when a decision is required between physical comfort and musical

expression, the authors agreed that musical expression should take precedence over physical comfort.

Philosophy of Teaching

The following aspects relate to teachers.

Gifted Pianists and Gifted Teachers

Matthay, Fielden, and Whiteside emphasized that at times, gifted pianists lack the knowledge of how best to teach technique, because their own technique developed effortlessly. The best teachers are those who play well but who also are able to analyze and explain processes of technique, either because they are analytical thinkers or because they had to work hard themselves to attain good results.

Characteristics of Good Teachers

The most often mentioned characteristics of a good teacher are knowledge of technical principles and physical mechanics and the ability to diagnose and remedy problems in the student's technique. Other characteristics mentioned by the authors include:

- Being a good pianist.
- Setting high standards for teachers.
- Personality.
- Intelligence.
- Discernment as to whether a problem is physiological, psychological, or notational.
- Not interfering with the student's natural coordination, but knowing how to solve a problem if this coordination breaks down.

Necessity of a Method

The detailed, organized, and thoughtfully crafted systems of technique presented by the Technique Authors would lead the reader to believe that teachers should exhibit the same careful planning and organization regarding the teaching of technique. Ching, Schultz, Kochevitsky, and

Fink specifically mentioned their belief in the indispensability of a method for technical study. Fielden was the only author who said that a method is not crucial, emphasizing that great teachers teach well because of their genius for instruction rather than because of any particular method they follow.

Aural Approach to Learning at the Beginning of Study

Matthay, Whiteside, Gát, and Kochevitsky all believed in a specific order for the learning process of children that begins with aural and rhythmic learning through rote teaching, imaginative play, eurhythmic exercises, and playing tunes by ear. Reading music is delayed in this process. Whiteside and Gát recommended classes for teaching children these skills. Ching mentioned that there is no need to rush in the beginning stages of technique, and Matthay and Whiteside believed in using "good" music only rather than the standard fare of method book pieces.

In contrast, Newman believed in sightreading from the beginning so that the student can gain a broad understanding of the connection between notation, physical processes, and musicality. Although this strategy begins with reading, Newman's mindset was the same as the authors that advocated beginning with rote teaching, because his sightreading approach was not a traditional building up of reading step-by-step. Rather, he took a holistic view of teaching sightreading.

Although only five of the Technique Authors specifically mentioned rote and aural learning for beginning students (Matthay, Whiteside, Last Gát, Kochevitsky), none of the authors advocated the approach commonly used today, where a step-by-step approach to reading is the first priority in learning to play the piano. The other authors were silent on the subject if they did not advocate an aural approach. Because the five authors who advocated such an approach exhibited so many different perspectives in other areas of thought regarding teaching piano technique, it is well worth the teacher's time to reevaluate the standard way pianists are trained at

the beginning of study to see if perhaps the aural approach, rather than the step-by-step reading approach, should become the norm.

Teaching Technique and Interpretation

Ching believed that technique and interpretation should be kept separate, while Matthay, Bonpensiere, and Fink believed these concepts should be taught simultaneously since technique leads to interpretation. Most of the other authors would probably have agreed with the latter opinion. The whole to part versus part to whole controversy relates to this subject as well. Matthay and Ching believed in teaching one concept at a time, while Whiteside believed in teaching the hardest concepts first and allowing the simpler concepts to take care of themselves.

How to Teach

The authors believed that technique should be taught through demonstration, explanation, imitation, and associating technique with movements in everyday life.

Diagnosis by Ear

One important point discussed by Matthay, Ortmann, Whiteside, and Fraser is that the ear, rather than the eye, must be the teacher's main organ of diagnosis, since the eye can only see the surface processes that are involved. The ear listens for tonal problems and makes a diagnosis based on the sound. Whiteside and Fraser also advocated tactile diagnosis where the teacher touches the student's arms and hands both to analyze and diagnose a problem and to illustrate how to remedy the problem.

The following aspects relate to students.

Discipline and Hard Work

Although most of the authors would agree that learning to play the piano takes effort, Fielden and Sandor specifically mentioned rigid discipline, concentration, and hard work as necessary for technical success. Bonpensiere and Kochevitsky said that discipline of the mind is absolutely essential to gaining good results at the piano.

Daily Practice of Technique

Fielden and Ching believed in the necessity of daily practice, and most of the authors would probably have agreed. However, Bonpensiere and Sandor stated their opposition to this idea. Sandor believed that once technique is mastered, there is no need to continue to practice technique. Bonpensiere believed that it is never necessary to practice technique, because ideo-kinetic processes take care of all technical training.

Technical Analysis of Repertoire

Ching, Newman, Sandor, and Bernstein advocated analyzing pieces with regard to specific technical movements and writing those movements in the score. Sandor and Bernstein both created a system of symbols to aid in this process.

II. Basic Components

Posture

Importance of Posture

Nearly all the Technique Authors believed that posture is important. They either stated so explicitly, in the case of Last, Sandor, Bernstein, or they discussed posture in detail, implying their belief that posture is an important topic. Bonpensiere was the only dissenter, stating that attention to posture is not crucial.

General and Specific Posture

Fink stated that students should focus on the posture at the center of the body and work toward the fingers at the periphery. Although other authors did not state this, many tacitly agreed with this approach by presenting their technical rules in order from the center to the periphery.

Posture at Home

Ching and Gát mentioned the importance of the student sitting with proper posture at home as well as at the lesson.

Body Proportions Regulate Position

Although the authors provided specific rules for posture, Matthay, Ortmann, Newman, Gát, Sandor, Bernstein, and Fink pointed out that posture does change from person to person based on body proportions.

Poised Body

The body should be poised and alert, yet flexible and movable. This poised body was represented by terms such as "sitting with the back erect" (Matthay), "sitting tall" (Bernstein), or "lengthening the spine" (Fink). Ching, Last, and Fink also noted that the body should lean forward slightly, and Schultz echoed this when he said that the body should not lean back.

Breathe and Relax the Jaw

Sandor, Bernstein, and Fink noted that relaxing the jaw and breathing properly are important.

Head Posture

Proper posture includes a position where the head is in line with the body.

Shoulder Posture

The shoulders stay low and relaxed.

Bench Position

The bench is positioned in front of the center of the keyboard. Matthay said the bench faces middle E, while Fink opted for middle D. Gát further remarked that a hard bench is preferred to help the pianist stay balanced on a firm base, although none of the other authors expressed a preference regarding cushioned versus hard benches.

Body Weight

The weight of the body rests mostly on the bench with some weight on the feet.

Sitting Position

The pianist sits on the front half of the bench.

Distance from the Piano

All the authors who commented on distance from the piano agreed that sitting too close is detrimental. They had different ways of describing the proper distance from the piano, including:

- Elbows are able to move in front of the body (Matthay).
- Extremes of the keyboard can be reached (Matthay, Whiteside, Gát).
- The pianist reaches in opposite directions on the keyboard without leaning back (Last, Fink).
- Upper arms are vertical (Ching).
- Knees are not more than an inch or two under the keyboard (Newman).
- Not too close (Bernstein).

Height of Sitting Position

Most authors advocated a forearm that is level with the key, although this was expressed in different ways, including:

- Elbow and forearm are level with the key (Matthay, Fielden, Ortmann, Ching, Bernstein).
- Elbow tip is level with the fingertips (Newman).
- Elbow is in line with the knuckles (Last).
- Forearms are in line with the bottoms of the keys and the elbows (Fink).

Sandor and Bernstein noted that this forearm position is not always correct, because some pianists may need to sit lower or higher depending on their arm proportions. Gát advocated a low position of the arm. Newman, Gát, and Bernstein agreed that sitting too low is better than sitting too high. None of the Technique Authors advocated sitting at a high position regularly.

Arm Position

The arm does not lean on the keys, but is self-supported.

Elbow Position

The elbow is not pressed against the body nor held out too far. Newman described the elbow as being several inches out from the body.

Position of the Feet

The feet are on the floor. Matthay was the only one to recommend that the left foot rest behind the right foot. The other authors only mentioned that the feet should be on the floor. More prevalent was the insistence on using a footstool for children too short to reach the floor on their own, which was stated by Ching, Last, Gát, and Bernstein as being absolutely essential. No one advocated letting the feet swing freely or crossing the ankles as a substitute for a footstool.

Hand Position

No Fixed Position

No Technique Author recommended a fixed and static hand position. Instead, most said that hand position is determined by the passage, because music is movement, not a static position. Newman said that a fixed hand position for children is especially detrimental, because forcing refinements in hand position when gross motor coordination is still being learned can be harmful.

Most of the authors, though they advocated a fluid hand position, did give specific guidelines for hand position to use as a starting point, thereby stating their belief in the importance of some basic standard of hand position. Bonpensiere was the only one who said that hand position is not at all important.

Naturally Curved Hand

Letting the hand fall naturally at the side was the most often recommended method used for finding a natural hand position. Last also mentioned grasping the knee to find this position. The hand is gently rounded but not too much so, and the hand and fingers are curved with the hand knuckles forming a bridge. No author advised an extremely rounded position. Moderation in all parts of the hand position was the norm, because this allows all the levers to operate in their

mid-ranges. Bernstein and Fraser further mentioned the necessity for a strong 2nd finger knuckle with space between the 2nd finger and the thumb.

Level Hand

The most often mentioned and unanimously agreed upon matter of hand position was that the hand should not be allowed to slope down toward the 5th finger, which puts the 5th finger in the position of playing flat on its side. The authors were adamant about keeping the 5th finger side of the hand level with the rest of the hand, because this allows the fingers to strike vertically rather than obliquely and keeps the 4th and 5th fingers from feeling weak.

Wrist Height

Generally, the wrist, hand and forearm should be in a line. However, the authors expressed much variation regarding the height of the wrist. Most authors felt that the wrist should not be too high or too low but that it changed depending on the passage. In general, the authors seemed to prefer a slightly low wrist to a high one. Ching was the exception, saying that a high wrist is used most often.

Finger Placement

Matthay and Last said that the fingers are placed in an arc on the keys with the 3rd finger closest to the black keys. Matthay also said that the 3rd finger is to be in a straight line with its key and that the fingers reach their keys in the center of each key. No other Technique Authors mentioned this, however.

Thumb Position

According to Matthay and Bernstein, the thumb is curved with the 3rd phalanx in a straight line with its key. Last and Bernstein said that the thumb plays on the fleshy part of the nail joint directly on the side of the thumb nail, which means that the thumb plays on its corner rather than flat on its side. When playing on the black keys, Bernstein differed from the other authors by advocating that the thumb tip be pointed away from the hand. No other Technique Authors advised this turned out thumb position at any time.

Collapsing Knuckles

Matthay said that collapsing nail joints are not a problem Schultz advocated collapsing joints in certain touch forms. And Bernstein often suggested a collapsed 5th finger nail joint for certain touches. However, most Technique Authors, including Ortmann, Newman, Last, Gát, Kochevitsky, Bernstein, and Fink, recommended firm fingers and stressed the detrimental nature of collapsing knuckle joints, both of the hand knuckle and of the nail joint.

Curved or Flat Fingers

There was little agreement among the Technique Authors regarding the optimal degree of finger curvature. Generally, the authors believed that finger curvature is dependent on the dynamic level, tone quality, black or white key variation, and lateral spread of the passage. No author believed in playing with extremely curved fingers. In fact, Matthay, Schultz, Newman, and Gát advocated using flat fingers more often than curved fingers, and Ortmann believed that children should be taught to play with flat fingers first. In contrast, Fielden believed that a naturally curved position should be used most of the time. He also believed that straightening the fingers on black keys should be avoided, while Bernstein said that straightening the fingers on black keys was necessary. Whatever the preferred degree of finger curvature, the authors agreed that neither the flat nor the curved positions should be extreme.

Tone Production

Many different ideas and focuses were expressed by the Technique Authors in their explanations of tone production. At times, a touch would be described by one name by one author and by a different name or in a different way by another author. The following is a distillation of the main facts as expressed by the authors.

Key Mechanism

Understanding the mechanics of key action is important for producing the desired tonal intensities and qualities. The key can be depressed to a certain point at which a bump will be felt. This is the escapement level where the hammer escapes from the string. After this point, the

pianist does not have control of the hammer or of the sound. Most, but not all, of the Technique Authors advised accelerating the speed needed for the desired intensity toward the escapement level rather than aiming the force at the keybed. Key ascent cannot be sped up or manipulated by the pianist. Therefore, focus should be on key depression rather than on key ascent.

Pressure on the Keybeds

After the key has been depressed, the sound cannot be changed. Therefore, pressing heavily on the keybed is deprecated by all the authors and is termed "keybedding."

Whiteside, Sandor, and Fink said that there should be never be pressure on the keybeds at any time. On the other hand, Matthay, Ching, Schultz, and Kochevitsky recommended a certain type of pressure on the keybed that differs from keybedding. The type of pressure they advocated is a deep feeling into the key that is not as extreme in terms of length and force as keybedding. This pressure is used to provide security or to feel the sensation of the key.

Leverage Laws

The laws of leverage play an important role in piano playing. One basic law is that when key contact is made with the finger in a downward direction, there is an equal and opposite upward reaction in the finger and hand to counteract the resistance of the key. To keep the finger and hand from moving out of place because of this reaction, the joints must be sufficiently firm. Greater speed or tonal intensity requires more force and stability in the levers of the playing apparatus.

Whiteside described another dimension of leverage laws where the big lever of the arm plays the metrically accented notes while the smaller hand and finger levers insert the faster notes between the accented notes. This is an efficient use of the playing mechanism because the smaller levers can repeat their action much faster than can the bigger levers.

Play the Strings by Means of the Key

Matthay and Gát emphasized the fact that the pianist is not directly in control of the string, which is the essential difference between the piano and the violin or voice. They said that

the pianist should use the key to play the strings instead of focusing attention on key hitting alone. Similarly, Bernstein mentioned concentrating on lifting the hammers toward the string to produce sound. Other authors did not mention this, but no author suggested hitting the keys down as a normal way of playing. In general, the keys should be gauged to set the string into motion with the required force in order to achieve the desired sound.

Relaxing between Movements

The Technique Authors differed in their opinions about relaxation between key depressions. Whiteside and Gát were adamantly opposed to relaxing between each key depression on the grounds that it destroys the long phrase line. Similarly, Schultz noted that the recommended touch forms he advocated have the advantage of a continuous transference of weight or pressure rather than of a separate application of force for each tone.

However, the majority of authors, including Matthay, Fielden, Ortmann, Kochevitsky, and Fraser, believed that the muscle contraction for each tone production should be of a short duration to keep from overburdening the muscles. Ortmann went as far as to say that the speed with which relaxation sets in between contractions is an indicator of kinesthetic talent.

Weight, Pressure, and Muscular Effort

With the exception of Bonpensiere, who focused all attention on the mind and did not describe specific mechanics of tone production, the Technique Authors described a variety of ways to depress the key. The most common were:

- *Freefall of Weight*. This was only recommended by Sandor and Bernstein.
- *Apportioned Weight*. Some degree of arm weight is allowed to descend on the keys. The authors agreed that the hand, and especially the fingers, have insufficient weight to be used alone. Therefore, they almost always discussed weight in relation to arm touches of the whole arm and the forearm.
- *Weight Transfer*. The weight of the arm is transferred from note to note by way of the fingers.

- *Muscular Exertion.* Weight alone is insufficient for agility. Therefore, muscular exertion is indispensable in playing. This is why only a few Technique Authors recommended a standard usage for freefall of the weight of the arm. Most authors recommended a combination of weight and muscular exertion for playing. Fraser was the most extreme on the side of muscular exertion, saying that weight is not useful, because activity of the muscles is always necessary.

Arm Touch

In arm touch, either the whole arm or forearm releases weight or muscular effort into the key to cause key depression. The Technique Authors believed that arm touch is the foundational touch in piano playing. Many authors showed their belief in the importance of arm touch by describing the touch forms in an order that begins with arm touch. Whiteside was the most extreme, believing that arm touch is necessary in all playing, and that the hand and fingers are meant only to support the work of the arm.

Matthay, Fielden, Ortmann, Ching, Whiteside, Gát, and Sandor all stated their belief that children should start by playing with arm touches rather than with hand or finger touches. In fact, Matthay and Whiteside took this opinion even further by stating that children should start playing with a whole arm touch and with the hand in a fist in order to discover the correct use of the arm without being concerned with the fingers.

Gát disagreed, saying that although the whole arm is the easiest stroke, teachers should choose material for beginners where upper arm strokes are rarely needed so that the fingers are utilized from the beginning. He believed that playing with the whole arm exclusively at the beginning is detrimental to later technique. Fraser agreed with Gát and described the finger touches first, focusing on finger and hand functions.

Hand Touch

Matthay, Ortmann, Newman, Bernstein, Fink, and Fraser mentioned hand touch, which is sometimes called wrist touch. However, not all technical systems contained this touch form,

which showed that the Technique Authors generally did not believe it is as important as arm or finger touches. For instance, Ching described forearm and hand touches in his 1929 book but omitted them from his later books, where he favored arm and finger touches for all passages. Whiteside did not discuss hand touch at all, expressing her preference of arm touches for all passages.

Finger Touch

Except for Whiteside and Bonpensiere, the Technique Authors all discussed finger touch. Aside from Schultz's detailed analysis of the workings of the three finger phalanges, the authors agreed that most playing with the fingers should begin at the hand knuckle joint, that the fingers should be firm or taut enough to withstand the key resistance, and that the fingers should complete their work without obvious help exhibited by movements of the arm. However, at the same time, the authors said that the arm must always aid the fingers in their work so that the playing mechanism works as a coordinated apparatus. Extraneous movements of the arm were what most authors warned about. Fink's finger touches were the most varied and imaginative and represented the full gamut of finger touch possibilities.

Many authors said that a slight lift of the finger before striking the key is helpful as long as tension is not caused by a finger lift that is too high and as long as unnecessary noise is not produced due to a percussive hitting of the keys. Gát noted that although playing with the fingers starting on the keys at all times would be ideal because of the control a non-percussive touch allows, this is usually not practical. Some percussiveness is necessary. However, when fingers begin off the keys, they should descend to the keys in a manner that is as close to a non-percussive touch as possible. Kochevitsky and Bernstein recommended the greatest finger lift of the authors: Kochevitsky for finger independence, Bernstein for strength.

Matthay, Ortmann, and Fink specifically mentioned the difference between releasing with a folding-in finger (a scratching movement) and releasing with an unfolding, outward movement. Both are used at times, depending on the passage. The folding-in touch seems to be more

prevalent in the Technique Authors' writings. However, nearly all the authors said that the finger should also strike the key in a simple, vertical movement. The folding and unfolding motions were usually described as special kinds of finger stroke. In general, the most recommended finger stroke is one where the finger swings from the knuckle joint and takes the most direct path for a vertical key descent.

Constant Coordination of Levers

Although the touches are often described separately, the arm, hand, and fingers always work together in coordination, whether the arm, hand, or fingers is the main lever used. However, the authors differed in their emphasis on the playing units. For instance, Whiteside emphasized whole arm touch to the exclusion of all touches, while Fraser's whole system of technique was centered on building the strength and functionality of the hand and fingers. Newman also believed that the hand and fingers are responsible for most playing, and Schultz focused exclusively on the fingers. Although the authors had different focuses, they generally agreed on the necessity for a coordination among all parts of the playing mechanism.

Touch Choice

The choice of which touch to use or which playing unit should be predominant is determined by the speed and intensity of the passage. Generally, the authors agreed that for louder and slower passages, bigger levers (arm and forearm) are used; while for faster and quieter intensities, smaller levers (hand and fingers) are used. This is because the bigger levers have more length and weight, thereby producing louder sonorities. However, these big levers cannot play very quickly because the speed of repetition of the large playing unit is slower than that of a smaller playing unit. In contrast, the smaller levers are lighter in weight, and therefore it is more difficult for them to play loudly without excess muscular effort. However, because of their smaller mass, the speed of repetition of the smaller playing units is faster.

Playing Apparatus

Muscles

Muscle Movement and Nomenclature. Because the pianist cannot directly provoke a muscle into action by thinking about that muscle, most of the Technique Authors felt that it is unnecessary to learn detailed nomenclature for the muscles. In fact, Ortmann, Whiteside, and Bonpensiere even said it is dangerous to concentrate on the individual muscles.

Strength and Health of Muscles. Several authors emphasized the need for general bodily health, which promotes the good blood supply that is necessary for optimal muscle function. However, there was a difference of opinion as to whether strength in the muscles should be built up through exercises or not. Ortmann, Ching, and Fraser stated that training the muscles, whether for timing, strengthening the muscles, or coordination, is important. In contrast, Fielden, Bonpensiere, and Sandor believed that muscle training is not necessary, because coordination of the levers should take the place of strength training.

Muscle Function. The function of the muscles is to maintain the limbs in position, to steady the limbs to prevent unwanted movement, to assist parts of the limb in moving, and to aid the larger muscles.

Antagonistic Muscle Contraction. Matthay and Kochevitsky believed that antagonistic muscle contraction, where a muscle and its opposite are contracted simultaneously, is dangerous because it causes stiffness. However, Ortmann, Ching, Schultz, and Sandor said that as long as the contraction is brief and not extreme, antagonistic contraction is a necessary part of playing.

Muscle Facts. Different muscles are used for the same limb movement, and large and small muscles have different functions. The pianist needs to use correct muscle coordinations for efficiency, since, according to Ortmann and Ching, muscles work best at 50% or less of their capacity. It is also important to remember that absence of movement does not mean absence of muscle action.

Teaching Limb Movement. There are two opposing views on training limbs for proper action. Fielden and Whiteside recommended moving a student's limbs in the required motions to teach the student muscular movements. Ortmann, on the other hand, cautioned that this kind of training does not help the student learn muscle function, because the teacher is doing the work while the student's muscles are passive. Ortmann instead suggested introducing a resistance in the opposite direction from the desired direction of movement so that the student uses the muscles actively.

Body

Knowledge. Most of the Technique Authors believed that the student should have an elementary knowledge of limb mechanics and body structure. Bonpensiere is the only one who believed this is not necessary.

Coordination. The authors agreed that every part of the body is used in a coordinated effort in playing the piano.

Breathing

Free Breathing. Gát and Sandor noted that the diaphragm and free breathing are an important part of the playing apparatus.

Ear

Importance of the Ear. Although most of the Technique Authors mentioned the importance of the ear in playing the piano, Matthay, Ching, Whiteside, and Fraser emphasized listening as an important component in their technical systems more than the other authors. They believed that listening is important to create an aural image of a tone before it is sounded, and that the ear continues to listen at the beginning, during, and after tone production.

Trunk

Trunk and Torso Function. The authors said that the trunk, or torso, provides a stable but mobile base for the levers of the body to work against. Most authors cautioned against extreme

movement in the torso. Whiteside was the exception. She believed that the torso should sway to the rhythm of the music.

Shoulder and Upper Arm

Shoulder and Upper Arm Function. Many of the Technique Authors focused on the important roles of the shoulder and upper arm as the initiator and controller of the smaller levers. For instance, the arm coordinates with the smaller levers in carrying the arm laterally to where it should go or in lining up the forearm behind the finger to assist the finger in playing with more strength. Coordination among playing units was emphasized repeatedly. No author stated that the arm's function should be separated from that of the fingers and hand.

Forearm

Forearm Function. The forearm is responsible for rotation, for connecting the upper arm to the hand, for providing faster strokes than the whole arm can achieve, and for providing more powerful tones than the hand or fingers can supply.

Wrist

Wrist Function. The wrist has a variety of functions. The two most often mentioned functions are:

- Vertical and lateral motion to accommodate the hand and fingers.
- An undulating motion to prevent stiffness and to shift the arm laterally.

Hand

Hand Function. Ortmann and Fraser both noted that the hand is divided into two sections: the thumb and the other fingers. The hand is used as a bridge between the arm and fingers.

Fingers

Source of Finger Movement. Finger movement comes both from small muscles in the hand, discussed by Matthay, Schultz, and Newman, and from the strong muscles in the forearm, mentioned by most authors.

Finger Training. There was a difference of opinion among the Technique Authors as to whether finger training for strength or independence is important. Fielden, Ortmann, Ching, Gát, Bernstein, and Fraser all emphatically supported the need for finger training. Bernstein even said that the fingers should be stronger than the arm, and Fraser agreed about the necessity for strong hands and fingers.

On the other hand, Whiteside, Bonpensiere, Kochevitsky, and Sandor said that the fingers should not be trained. Whiteside believed instead that the whole playing mechanism should be coordinated while the upper arm does the majority of the work. Sandor said that natural playing does not require extra training of the muscles. Rather, the fingers are helped by the larger muscles that were designed for heavier work. Kochevitsky and Bonpensiere emphasized the role of training the mind and the nervous system rather than exercising fingers to build strength.

Finger Independence. In terms of training for finger independence, most Technique Authors believed it is important, yet they advocated acquiring finger independence in different ways. For instance, Fielden focused on isolating nerve activity by concentrating on the working fingers while Ortmann suggested developing finger independence without key resistance. In general, the authors agreed that sympathetic movements that accompany working fingers should not be inhibited, because restricting these motions causes stiffness and tension.

Coordination of Fingers with Arm. Although finger independence and finger training were considered very important by the majority of the Technique Authors, they all agreed that the fingers should also work in coordination with the arm. Fielden, Gát, Kochevitsky, and Sandor specifically mentioned that one of the arm's main functions is to move the fingers into a position to strike the keys, because this equalizes the length differences among the fingers and makes the fingers stronger through coordination with the arm.

Active and Taut Fingers. Gát, Bernstein, and Fraser advocated keeping the fingers active and taut, because passive and flabby fingers cannot transmit weight or power efficiently.

Substituting Skeletal Position for Muscular Work. Ortmann warned against substituting a skeletal position, where the bones are lined up, for muscular action. However, Whiteside and Fraser disagreed, discussing instances where the bones should be lined up for support. These two authors even discussed situations where the arm should be treated as one giant finger so that the whole arm is used in a skeletal position.

The Thumb. Although the Technique Authors focused on various aspects of thumb technique and exhibited slight differences of opinion, they all agreed that the thumb should articulate from its wrist joint rather than from one of the other knuckle joints. This wrist joint can be difficult to find because it is not as visible as the other joints.

Contraction and Relaxation

Complete Relaxation

Nearly all the Technique Authors stated that complete relaxation is not feasible, because muscle tone always carries some residual tension in the body, and because contraction is necessary for movement. Complete relaxation should never be a goal in technique. Even Matthay, who is often placed in the Relaxation School, did not advocate complete relaxation. His writings show that he understood the need for judicious contraction. Only Bonpensiere, who called for total release at all times, and Fink, who said that tension is the enemy in piano playing, advocated an approach mainly focused on relaxation.

Balance between Contraction and Relaxation

Instead of relaxation, the authors recommended an appropriately timed balance between contraction and relaxation. The contraction should never be more than is necessary, but should be sufficient for the movement. Contraction and relaxation work together. Fielden, Ching, and Bernstein took this idea to the extreme by suggesting that students practice producing different degrees of tension and relaxation in various joints and limbs.

The Term "Relaxation"

Several authors took issue with the term "relaxation," preferring other terms to describe this muscular condition. Whiteside said the term should not be "relaxation" but "balanced coordination." Fielden preferred the term "resilience," while Last preferred "freedom." Gát replaced "relaxation" with "elasticity" or "springiness." These terms all describe the type of relaxation used in piano playing better than the generally recognized definition, which implies complete rest.

Work in Relation to Contraction

Contraction and relaxation are related to the amount of work being done. For instance, Ortmann noted that it is not possible to be relaxed and to play loudly at the same time. According to Ching, Kochevitsky, and Bernstein, greater work demands increased firmness. Bernstein noted that playing softly requires firmness as well.

Mind/Body Relationship

Musical Purpose

Musical purpose is extremely important. Nearly all the Technique Authors mentioned the importance of having a musical purpose and visualizing the sound before playing. It is the mind that directs the limbs, and a musical purpose initiates this process. Fielden and Bonpensiere said that once a musical purpose has been envisioned, the physical apparatus should carry out the purpose without hesitation.

Repetition

Repetition is indispensable. The authors recommended repetition for various reasons, including training and refining the nerves, transferring movements from the conscious to the subconscious mind, and developing reflexes. The pianist must concentrate and involve the mind in practice at all times.

Detached Observer

Bonpensiere and Sandor both said that the pianist should be a detached observer of the process of playing in order to keep from concentrating too deeply on every part of the playing, which would make it impossible to play fluently.

Symbols and Grouping

Symbols and grouping were mentioned by Bonpensiere, Kochevitsky, and Fink as an important way to help the mind transfer the musical notation into physical action.

III. Exercises

Gymnastic Exercises

Importance of Gymnastic Exercises

Gymnastic exercises were recommended by Matthay, Fielden, Ortmann, Ching, and Gát for strengthening and exercising the muscles in order to keep them healthy. Many of these exercises have fallen by the wayside in modern piano teaching, and the fact that these giants of piano technique recommended them suggests that gymnastic strength training away from the piano should be reexamined by today's teachers. See Appendix K for a list of Gymnastic Exercises.

Preparation

Gymnastic exercises were frequently used by the Technique Authors to explain concepts and to allow practice of a concept before a movement is applied to the piano. The frequency with which the authors made use of preliminary movements away from the piano sends a strong message about the importance of preparation for a correct movement as a step separate from the complexities of notation and key depression.

Hand Deficiencies

Fielden and Gát said that gymnastic training can be used to fix hand deficiencies.

Exercises

Necessity

Most of the Technique Authors believed that exercises are necessary in the early years of study to learn fundamental forms like five-finger patterns and scales. However, an overabundance of finger exercises was unanimously condemned as a waste of time.

There was a difference of opinion as to the value of exercises after the beginning stages. Perhaps the common idea put forth by some pianists that technique can be learned through music alone without exercises is the result of a lack of understanding of the phases of piano study. What is necessary at one stage of study may not be necessary at another stage. However, what may not be necessary at one stage of study does not mean that that type of practice is dispensable at all stages. Most of the authors believed that exercises are mandatory in the early years of study.

Exercises from the Music

Newman, Gát, and Kochevitsky recommended exercises composed by the student and derived from technically difficult sections in a work rather than exercises unrelated to the repertoire.

Moving Exercises

Fielden, Newman, Bonpensiere, and Kochevitsky said that the most beneficial exercises are those exercises that move around the keyboard rather than ones that remain in a stationary position.

Repetition

What exercises are practiced is not as important as how they are played. The Technique Authors agreed that when exercises are used, repetition is important but should not be mechanical. The mind must be involved at all times.

Finger Independence Exercises

The main finger independence exercise traditionally used for developing finger independence is that of holding down one finger while playing others. Fielden, Last, Gát,

Kochevitsky, and Sandor vehemently opposed this exercise. On the other hand, Bernstein recommended using this exercise to build strength, and Fraser believed it could help develop finger independence. The authors that advocated this exercise agreed that when used, it should be done gently to avoid excessive tension.

Etudes

Necessity

Not many of the Technique Authors discussed the use of etudes. Of the few that did, opinions were divided. Whiteside and Sandor did not recommend practicing etudes, because they believed etudes are boring and unmusical. Newman and Gát said that playing etudes is permissible if the etudes have musical substance and are played musically. Gát believed that technique is developed by playing repertoire pieces but can be furthered by good exercises and etudes. Newman was cautious in his recommendation of etudes due to his belief that technique does not generalize. In other words, practicing a Czerny etude does not transfer to playing a Beethoven sonata well unless the same technical pattern is in compositions of both composers. In general, opinion on etudes ranged from antagonistic to cautiously recommended.

IV. Movement at the Keyboard

Physical Movement

Extraneous Movements

Physical movement must be aligned with the musical purpose. According to the Technique Authors, extraneous movements, extreme movements, or movements that are not related to the music should not be used, as they constitute a type of showmanship that is unnecessary and distracting visually. Whiteside disagreed and was the most vocal proponent of physical movement at the keyboard.

"Out Around" Movement

Newman and Fraser specifically noted their opposition to the common circular movement of the arm that is used to round off phrases after key depression has taken place.

Other Technique Authors, although they did not mention this specific movement, were amenable to movement in general and therefore perhaps would not think this movement is detrimental.

Lateral Movement

Moving Around the Keyboard

Ching, Whiteside, Newman, Bonpensiere, and Last all said that having beginners play all over the keyboard is beneficial. No author said that beginners should begin only by playing in one position on the keyboard.

Large vs. Small Movements

The Technique Authors agreed that the forearm is used for lateral shifts of one or two octaves, while for larger leaps, the upper arm initiates the action. Whiteside and Bernstein focused on the movements of the torso from side to side as well as on movements of the upper arm.

Curves

Fielden, Ortmann, Last, and Fraser noted that leaping movements are most efficient if they are executed as a series of curves and circles rather than straight lines.

Look Before Leaping

Ching, Bonpensiere, and Kochevitsky noted the importance of looking at or thinking about the movement goal before moving to a new position on the keyboard.

Hand Expansion

Hand Expansion

Fraser said that hand expansion occurs between the thumb and 2nd finger, while Whiteside said the expansion is initiated in the palm and hand knuckle joints. Reaching with the fingers themselves was never advocated by the Technique Authors.

Keyboard Topography

Keyboard Topography

Whiteside, Newman, Sandor, and Fink recognized the importance of an awareness of keyboard topography, as manifested in the relationship between white and black keys. The hand

must be in a higher position when playing on the black keys. Whiteside said that the differences in keyboard topography are absorbed by the upper arm.

V. Fundamental Forms

Five-Finger Patterns

Importance of Five-Finger Patterns

Five-finger patterns are important to practice, because they aid in shaping the hand and in acquiring a feeling of key. Many of the Technique Authors mentioned the importance of practicing five-finger patterns. Even those who did not normally advocate practicing exercises believed that students should learn five-finger patterns, because it is a fundamental pattern in piano playing.

Process

There were differences of opinion in the way to play five-finger patterns. Fielden and Sandor said the fingers should be raised when playing, which was not denied by the other authors. Matthay and Bernstein required rotations for each note. Ching said the arm or fingers can be used to play five-finger patterns, while Sandor and Bernstein recommended that the fingers and arm work together. Whiteside placed most of the emphasis on the arm and called for a de-emphasis on the work of the fingers. Generally, most authors would probably agree that five-finger patterns should be played with a combination of arm and finger action.

Wrist

Fielden, Whiteside, Sandor, and Bernstein said that the wrist is low when the thumb plays and rises as the pattern passes toward the 5th finger. The opposite movement is made when moving back toward the thumb.

Contrary Motion

Whiteside, Sandor, and Bernstein advocated some practice of five-finger patterns in contrary motion.

Rotation

Continuum

Rotation was one of the most controversial topics among the Technique Authors. Opinions ranged from using rotation for every note (Matthay, Bernstein) to avoiding it whenever possible (Ching), with most of the authors falling between these extremes.

Mechanics of Rotation

The authors agreed that rotation is a movement of the forearm, not of the wrist or the upper arm. The exception is Fraser, who said that the upper arm can be used in combination with the forearm when the lateral distance becomes large. Last, Gát, Sandor, and Bernstein emphasized that the fingers must be active and taut in order to withstand the rotation of the forearm without collapsing. The authors also agreed that the faster the tempo, the smaller the rotational motion. Matthay and Last both talked about how rotational movements could be either visible movements or invisible impulses, and both authors recommended teaching rotation from the beginning of study.

Axis of Rotation

Ortmann and Schultz said that the forearm rotates around an axis that passes approximately through the 4th finger. However, this axis can be shifted to other fingers by lateral movement of the wrist. Gát, on the other hand, said the axis passes between the 2nd and 3rd fingers.

Uses of Rotation

Two uses of rotation were agreed on by most authors: placing the hand in playing position and playing *tremolo* passages. Aside from these two, the authors discussed other uses for rotation, including the following:

- Rotation can aid in playing intervals in zigzagging pattern (Last, Sandor, Fink). Fielden and Ching noted that rotation could be used for shakes between intervals of a third. On

the other hand, Newman and Gát only recommended rotation for intervals of a sixth or larger.

- Rotation can help to compensate for the different finger lengths and can make every finger feel equally strong (Matthay, Newman, Gát, Sandor, Bernstein). Ching opposed this, saying that the uneven sound caused by the different distances through which a finger has to rotate outweighs any advantages. He advocates pure finger action rather than rotation.
- Playing all passages using single or double rotations for every note in general playing was only recommended by Matthay and Bernstein. Ortmann said rotation can be used for general playing but did not express an opinion about whether it should be used or not. Similar to Matthay and Bernstein's views but not as explicitly stated are Gát and Fink's perspectives. Fink said single rotary action can back individual tones in medium tempo passages. Gát said that rotation helps place the hand behind each finger to assist the finger in playing.
- On the other side of the spectrum from a general usage of rotation, Schultz said rotation is to be avoided except in cases where the fingers alone can not produce enough sound or to balance weight over the supporting finger in arm touches. Ching and Newman opposed the use of rotation in passages and in melodic playing.
- Matthay, Bernstein, and Fraser said rotation can assist thumb movements in scales.
- Whiteside and Fraser emphasized the role of rotation in assisting the lateral movement of the hand in leaps.
- Ortmann said rotation can be used to voice melody notes and to release phrases.
- Bernstein said rotation aids in creating legato.

Scales

Importance of Scales

Most of the Technique Authors believed that learning scales is an important part of piano training. However, Whiteside and Gát said that starting scales too soon is not wise because it is boring (Whiteside) and because the finger and arm technique needs to be in place first (Gát). Bonpensiere was the only author who said that scale practice is unnecessary.

Passing the Thumb

There was quite a bit of variation in the techniques the authors recommended for playing scales moving out from center. There was a continuum from those who believed wholeheartedly in passing the thumb under the hand (Schultz, Gát, Bernstein, Fink) to those who believed that thumb passing is dangerous (Whiteside, Sandor). Most authors fell between these extremes, believing that the thumb does pass under the hand but is aided by a laterally moving wrist and forearm. Matthay, Bernstein, and Fraser emphasized the role of rotation in assisting the thumb passing, and Fielden and Ortmann recommended a supination of the hand to assist the thumb in passing under the hand.

Speed of Thumb Movement

Although most of the authors agreed that the thumb should move toward its next note soon after striking, most felt that this should be a gradual rather than a jerky movement. Only Schultz, Last, and Gát advised passing the thumb swiftly toward its next note, with Schultz being the most extreme in his recommendation of a speedy thumb movement.

Hand and Wrist Movement

Matthay and Newman suggested that the hand be turned in (wrist out) to keep the scale smooth. Ortmann said a quiet hand should not be expected, while Ching and Schultz said that lateral movement of the wrist should be minimized. Sandor and Bernstein discussed a specific kind of hand movement where the wrist goes down on each thumb note and rises on the other notes.

Role of the Arm

The authors agreed that the arm leads in the scale, and Whiteside, Gát, and Bernstein noted the *glissando*-like character of the smooth arm movement in a scale. Newman and Last said that the elbow pulls on scales moving out from center and pushes on scales moving in toward center.

Slow and Fast Scales

One striking point is the agreement among the authors that slow and fast scales are played differently. Gát provided the most detailed discussion of the differences among scale tempos. In general, slow scales involve a larger movement of the thumb when passing under the hand, while in fast scales there is not time for this thumb passing. The scale instead becomes a series of shifts in hand position.

Chords

Condition of the Body

The most important point derived from the information the Technique Authors provided about chord playing was that the playing mechanism must be alive, prepared, firm, and taut in order for the force to be transferred to the keys economically. This is especially true of the forearm, hand, and fingers. Bernstein went as far as to say that the whole body should be prepared and alive in chord playing. Ching, on the other hand, called for firm hands and fingers and looseness in the shoulder and elbow. These various opinions most likely stem from different types of chordal playing, such as differences in the playing unit (forearm or whole arm) or differences stemming from whether weight touch or muscular effort are used.

Muscular Force

Most authors recommended using muscular force rather than pure weight of the arm for producing chords. In addition, Fielden and Ching favored an obliquely thrusting touch for chords rather than a straight vertical touch.

Finger Curvature

Ortmann and Schultz said that the fingers cannot be as curved for large chords as they are in ordinary playing because of the necessity for spreading the hand to play larger chords. Whiteside further emphasized that this spread originates from the palm rather than from reaching with the fingertips. Fraser, on the other hand, said that chords should be played with naturally curved fingers. However, he did not specify whether these were large or small chords, nor did he take into account the size of the hand.

Prepared Hand Shape

Fielden, Gát, and Fraser all believed that the hand should be prepared in advance for the chord shape, while Bonpensiere and Last suggested thinking about the shape before playing the chord.

VI. Basic Musical Inflection

Articulation: Legato

Importance of Legato

The Technique Authors believed that legato is an extremely important part of piano playing. Ching said it is the most important part of playing, and Schultz and Fraser decried the lack of true legato in pianists' playing in the time periods in which they were writing. Matthay, Fielden, Last, and Gát all stated that legato should be introduced near the beginning of piano study, with Matthay and Last saying it should be introduced at the first lesson.

Rotation

Interestingly, both of the authors who stated that legato should be introduced at the first lesson believed in introducing legato through rotation of the interval of a third (Matthay) or intervals up to a fifth (Last). Rotation, along with circular motion, also plays an important role in Bernstein, Fraser, and Fink's theories of legato.

Duration

Matthay, Last, and Gát said that in legato, tone initiation rather than tone release is the important part of legato, and that duration rather than a special type of touch is the difference between legato and staccato.

Types of Legato

Four types of legato were described by the Technique Authors:

Weight Transfer Legato. The most widely advocated method of legato was Weight Transfer Legato, where the fingers are active, the arm is coordinated with the fingers, and weight is transferred from one finger to the next. Several authors described this motion as the same process the legs use in walking.

Arm Legato. Another method mentioned by the authors with slightly less frequency than Weight Transfer Legato is Arm Legato. This is a specialized type of legato where the arm takes the greatest role, moving on every note and aiding the fingers in connecting the notes.

Finger Legato. Finger Legato was mentioned by Matthay, Schultz, Bernstein, and Fraser for certain instances such as passages with quiet dynamics or for two-note slurs. In this type of legato, the fingers, in conjunction with the small muscles of the hand, produce legato without help from the arm.

Aural Legato. A fourth type of legato is Aural Legato, which is the belief that key connection is not as important as listening and grading dynamics between notes. Whiteside, Last, and Gát advocated this perspective on legato.

Finger Action

Among these different types of legato, the authors agreed that the fingers need to be firm in order to withstand arm weight and to keep control over the legato and that definite finger action is important.

Articulation: Staccato

Requirements of Staccato

The main requirement for a staccato note is that it is short and disconnected from other notes. Because the key cannot be helped to ascend faster, the Technique Authors believed that the pianist should concentrate on the shortness of the tone production rather than on key ascent.

Playing Unit

There was much difference of opinion concerning which part of the playing apparatus should be used to produce staccato. Sandor believed that the arm, forearm, hand, and fingers are all involved, but one unit might be more prominent in its movement than others in order to vary the sound. Other authors believed in using a specific playing unit for different types of staccato. Among the types described are the following:

Hand Staccato. This was the most often recommended type of staccato, advocated by Matthay, Fielden, Ortmann, Newman, Last, Bernstein, Fink, and Fraser. In this type of staccato, the hand bounces from the wrist joint. Last said that this kind of staccato is the type that should be introduced to beginners through a knocking motion. On the other hand, Schultz said that this type of staccato should not be used often, and Sandor said there is no hand staccato but only a combination of the playing units with a slightly more prominent hand motion.

Finger Staccato. The next most often mentioned type of staccato is finger staccato. This type of staccato has a more specialized purpose. Last recommended it for fast playing, and Kochevitsky advised its use for engraving proprioceptive sensations. On the other hand, Schultz said finger staccato should not be used often.

Arm Staccato. This type of staccato was also mentioned by many authors. Ching recommended that children begin with whole arm oblique staccato touch, because it produces better results than beginning with legato. In contrast, Fraser was opposed to arm staccato and said that the arm only helps the hand and fingers and does not initiate staccato. Forearm staccato was only mentioned by Gát and Fink, who said it should not be used in the beginning of study.

Rhythm

Musical Progression

The most important type of rhythm discussed by the Technique Authors is the rhythmic progression of the music. Matthay, Ching, Whiteside, Kochevitsky, and Fraser all discussed this use of rhythm. Some authors, Whiteside in particular, expressed the importance of physical movement in expressing the rhythmic progression.

Timing

Matthay, Ching, Gát, Kochevitsky, and Fraser discussed the importance of timing key depression and successive notes for an efficient technique and to foster a flow of the music.

Dynamics and Tonal Control

Factors Relating to Tonal Intensity

Ortmann's experiments concluded that tonal intensity is dependent only on the speed of key descent to the escapement level, and Whiteside, Kochevitsky, and Fraser added that control of tonal intensity is best gained through control at the upper arm and shoulder. Ching, Whiteside, Newman, and Last stated that tonal intensity is dependent on force and power applied to the key. However, it is possible that they really meant an increased key speed, since an increase in force or power generally results in an increase in key speed. Most of the other Technique Authors, from Matthay to Fraser, agreed with Ortmann that tonal intensity is dependent on the speed of key descent.

Ching was the dissenting voice, saying that tonal intensity depends on force, correct postures and movements. He said that the words "slower" and "faster" should never be used when discussing dynamics.

Factors Related to Tonal Control

Opinions differed concerning the causes of tonal control. Fielden, Bonpensiere, and Last emphasized the importance of mental conception and discipline in controlling tone, while Ching

said the main factor in tonal control is uniform key depth. Ortmann noted that uniform key control is difficult because the keys of the piano vary in weight on any given instrument.

Loud Playing

Fielden, Ortmann, Ching, Newman, and Gát said that a larger playing unit produces a louder sound because it is heavier. Sandor agreed that a large unit, like the arm, produces more sound than a smaller unit, but said this is true not because the arm is heavier but because the lever is longer, which allows for greater speed in key descent.

In addition to using a larger playing unit, rigidity was mentioned by several authors as a necessity for loud playing. However, Bonpensiere and Bernstein recommended release rather than rigidity for producing loud tones.

Other factors that were mentioned as necessary in producing loud sounds were percussive touch (Ortmann, Ching), force (Ching, Schultz, Last), energy and weight (Last), and high finger lift with a low wrist and curved fingers (Ching). Ortmann, Ching, Schultz, and Newman noted that it is not possible to play loud and fast simultaneously.

Quiet Playing

For quiet playing, Matthay, Kochevitsky, and Bernstein recommended stiffening the joints, while Ching advocated a decrease in firmness. However, because Ching tends to advocate more firmness than other authors, it is possible that his decrease in firmness would yield the same degree of rigidity as the increase in firmness recommended by the other authors.

Gradual Dynamic Changes

Only four authors explained how to make gradual dynamic differences, and they expressed differing opinions. Ching and Gát said that increases and decreases in pressure transference between fingers is the best way to create gradations of *crescendo* and *diminuendo*. Matthay disagreed, saying that this pressure transference is difficult. Ching also said that a change in wrist height, moving higher for *diminuendo* and lower for *crescendo*, can augment dynamic inflections.

Balance between Hands

For balance between hands, Ching recommended making vigorous movements with one hand and gentle movements with the other, practicing on a table first. Last expressed the same idea in a different way, saying arm weight is used for the singing hand and finger touch for the quieter hand.

Voicing Within a Hand

To bring out a voice in one hand, Matthay and Ching suggested rotating or tilting the hand toward the louder finger. Fraser expressed this same idea by saying the hand should be aligned with the louder finger. Last disagreed, saying that this is not practical for small hands or for bringing out a middle voice. She, along with Ching, instead advised adding more tension to the louder finger.

Tonal Intensity at the Beginning of Study

One of the most interesting findings regarding dynamics is that Ortmann, Ching, and Gát all advised that minimal to moderate tonal intensities be used at the beginning of study. Very loud intensities should be avoided, although timid playing should not be encouraged either. Ortmann and Gát explained that a use of moderate dynamic levels is important, because children achieve tonal intensities differently than adults and therefore may set up wrong technical habits or become stiff if asked to play too loudly at first.

Tone Quality

Causes of Tone Quality Variations

Ortmann's 1925 book set the standard for scientific experimentation in tone quality. However, though his research did help to dispel some myths about the origins of tone quality, some of the Technique Authors' beliefs differed from Ortmann's ideals.

Ortmann believed that tone quality differences are caused solely by speed variations in key descent. He was joined in this belief by Fielden, Ching, Whiteside, Schultz, Newman, Gát,

Sandor, and Bernstein. Ching and Schultz specifically mentioned Ortmann's experiments with tone quality.

Although Ortmann believed that tonal intensity is the main factor in producing different tone qualities, he also believed that other aspects affect tone quality as well. The other authors believed this also, but they differed amongst themselves regarding what the other factors are, with some of the factors being in direct opposition to the results of Ortmann's experiments. Listed below are factors besides tonal intensity that the Technique Authors believed affect tone quality in order from most mentioned to least mentioned:

- Percussiveness, or the sound the finger makes when striking the key from above (Matthay, Ortmann, Ching, Whiteside, Schultz, Gát, Bernstein).
- Noises of the piano's mechanism, including hammer noises (Ortmann, Ching, Whiteside, Schultz, Newman, Gát, Bernstein).
- Combinations of more than one tone in terms of vertical arrangements of tones, horizontal overlapping, and balance between tones (Ortmann, Ching, Newman, Gát, Sandor, Bernstein).
- Dynamics between consecutive tones and phrasing inflections. Ortmann would categorize this with combinations of more than one tone (Ching, Whiteside, Schultz, Newman, Sandor, Fraser).
- Rhythmic groupings, timing of the point of contact, and agogic considerations (Fielden, Ortmann, Ching, Newman, Sandor).
- Mental intention and aural perception (Fielden, Last, Kochevitsky, Bernstein, Fraser).
- Touch types and motions of the playing apparatus do affect tone quality (Matthay, Sandor, Bernstein, Fink). Because of this widespread belief, Ortmann, Schultz, and Gát made a point of specifically stating that they believed the opposite, that touch types do not affect tone quality.

- Duration of legato and staccato (Ching, Schultz, Newman).

  Tone decay (Ortmann, Ching, Whiteside).
- Gradual acceleration of the key in depression (Matthay, Sandor). Ortmann disagreed with this belief.
- Instrument construction, including the coating of the hammers and the type of felt used (Whiteside, Gát).
- Playing notes exactly together (Ching, Fraser).
- Pitch (Ortmann).
- Transfer of sound through the air after leaving the instrument (Ortmann).
- Anatomic structure, i.e., thick vs. thin fingers (Gát). Ortmann disagreed with this belief.

If Ortmann's 1925 and 1929 books are believed to set the standard for experimental research on tone quality, none of which has been refuted scientifically at a later date, it is noteworthy that Ortmann is alone in some of his statements regarding factors that affect tone quality, such as pitch and changes in sound after the tone leaves the instrument. Also, it is interesting that some of the most recent authors on technique agreed with Matthay, the oldest author, in direct opposition to Ortmann's experiments, specifically with regard to the belief that touch types affect tone quality.

Harsh Tone

According to the authors, harsh sounds result from the following factors:

- Key speed is too fast (Matthay, Ortmann, Ching, Schultz). Fraser disagreed, saying fast key speed does not produce a harsh sound.
- Extreme pitch ranges (Ortmann, Schultz).
- Sandor said stiff muscles cause harsh tone, while Fraser said wrong muscles, whether too stiff or too flabby, produce harsh tone. A flexible solidity is necessary. Ortmann

disagreed with this factor, saying that stiff or flabby muscles do not in themselves affect tone quality.

- Muscular exertion (Matthay). Ortmann disagreed with this factor, believing that only key speed, not muscular exertion, directly affects tone quality.
- Bent fingers (Matthay). Ortmann disagreed with this factor, believing that finger attitude does not directly relate to tone quality.

Pleasant Tone

A pleasant or singing tone quality results from:

- Moderate key speed (Ortmann, Ching, Schultz).
- Arm weight (Matthay). Ortmann disagreed with this factor.
- Flat fingers (Matthay). Ortmann disagreed with this factor.
- Soft muscles and resilient joints (Sandor). Ortmann disagreed with this and the previous two factors because he believed that speed of key descent alone, rather than muscle or skeletal attitude, directly influences tone quality.

Dry Tone

A dry or shallow tone quality results from:

- Slow key speed (Ortmann).
- Not moving the fingers enough (Fraser).

Tempo

Fast Playing

Ortmann, Gát, and Kochevitsky said that experiments have shown that people can move their fingers quickly enough to play fast passages, whether they are trained to play the piano or not. The difference in training lies in how this fast movement of the levers is applied to the piano.

Mental Conception

It is interesting to note that only Schultz and Last said coordination of the finger muscles and physical training are necessary to attain high speeds. Many of the other Technique Authors believed that the most important aspect is the mental conception of a passage, specifically in the mental and physical grouping of notes.

Motion Size

The motions must be smaller in fast playing than they are in slow playing.

Contraction

More muscle contraction or fixation is necessary when playing fast than when playing slowly.

Children

Ortmann and Ching both stated that the child should not play at fast speeds before ready technically to do so.

Slow Practice

Most of the authors believed that slow practicing is important for psychological reasons (Ortmann, Sandor), physical reasons (Last), attention to detail (Matthay), or modifying brain function (Kochevitsky).

Differences between Slow and Fast Playing

The authors, with the exception of Last, felt that there are fundamental differences between slow and fast playing. Ching, Sandor, and Bernstein cautioned that slow practicing should only be used for short periods of time, because slow practicing does not automatically convert to fast playing. It is important for the conditions of the fast tempo to be maintained as much as possible when practicing slowly. The authors differed in how this should be accomplished. Gát emphasized free action of the finger and a weightless arm as being essential, whereas Ortmann recommended an immediate finger lift before playing rather than a lift that is extended throughout the time between notes.

Conclusion to Chapter IV

Chapter IV described the technical systems of the 15 Technique Authors selected for this study as related to the Elementary Level Technical Concepts. Their technical systems provide a wide range of opinions and approaches and cover nearly a century. Yet, despite their differences, similarities also exist that can aid teachers in forming an understanding of the best way to introduce the Elementary Level Technical Concepts to students. This source group of Technique Authors forms the first layer of a foundation of research that was used to form the grounded theory presented as 107 Technical Principles in Chapter VII. The other layers to be analyzed include Pedagogical Authors (Method Authors and Current Authors) and Exemplary Teachers, described in Chapters V and VI respectively.

CHAPTER V

PEDAGOGICAL AUTHORS: METHOD AUTHORS AND CURRENT AUTHORS

In Chapter V, the writings of authors in two source groups, the Method Authors and Current Authors, are presented with regard to their technical statements relating to the Elementary Level Technical Concepts. These two source groups are collectively referred to as Pedagogical Authors.

Because the literature is so vast, the articles and books in the Pedagogical Authors category were chosen based on the following criteria:

- The source was published (or revised) after 1980, and
- The source directly addressed the topic of teaching piano technique at the elementary levels, and
- The author was prolific or is well-known in piano pedagogy circles, or
- The source appeared in a scholarly journal.

Because of the many sources included, each author was not treated separately, as the Technique Authors were in Chapter IV. Instead, each source group was described in the framework of the Elementary Level Technical Concepts, and then the two groups were compared in the Discussion at the end of this chapter. In addition, a historical summary of the trends in the piano methods throughout the 20th century is found in Chapter VII, Table 74. . For clarity, the material in this chapter is restricted to the writings of the Pedagogical Authors and is not compared with the descriptions of the technical systems of the Technique Authors of Chapter IV. A Discussion of the similarities and differences between the Technique Authors, Pedagogical Authors, and the Exemplary Teachers is found in Chapter VII.

Because each method series contained incomplete information on various topics, a section called "Most Complete Information" was added to the end of each part of the Methods

section to provide readers with the best method sources to consult regarding information on each topic

Methods

Sources

Middle C Method Authors

Thompson & Kaplan (1937/1994). *Teaching Little Fingers to Play.*

Fletcher (1947). *The Leila Fletcher Piano Course.*

Schaum (1962/2003). *Making Music Method*

Schultz & Schultz (1986). *Schultz Piano Course.*

Agay (1987). *Learning to Play Piano.*

Glover & Stewart (1988). *David Carr Glover Method for Piano.*

Noona & Noona (1997). *Music Magic* and *Comprehensive Piano Library.*

Vogt & Bates (2001). *Piano Discoveries.*

Intervallic Method Authors

Clark et al. (1955/2000). *Music Tree.*

Chronister & Kraehenbuehl (1980). *Keyboard Arts.*

Olson et al. (1983). *Music Pathways.*

Albergo et al. (2002). *Celebrate Piano.*

Multi-key Method Authors

Pace (1961/1983). *The Way to Play.*

Duckworth (1963). *Keyboard Explorer.*

Bastien (1985). *Bastien Piano Basics.*

Eclectic Method Authors

Palmer & Lethco (1971). *Creating Music at the Piano.*

Faber & Faber (1995). *Piano Adventures.*

Kreader et al. (1996). *Hal Leonard Student Piano Library.*

Finn & Morris (1998). *Beanstalk's Basics for Piano.*

Snell & Hidy (2004). *Piano Town.*

Alexander et al. (2005). *Alfred's Premier Piano Course.*

Innovative Method Authors

Burr & Gillock (1976). *Technic—All the Way!*

Suzuki (1978). *Suzuki Piano School.*

George & George (1980/2003). *Artistry at the Piano.*

Tan (1991). *The Well-Prepared Pianist.*

Lowe (2004). *Music Moves for Piano.*

Sources Ancillary to the Method Series

Bigler & Lloyd-Watts (1979). *Studying Suzuki Piano: More than Music.*

Darling (2005). *A Piano Teacher's Legacy: Selected Writings by Richard Chronister.*

Mills (1973). *The Suzuki Concept: An Introduction to a Successful Method for Early Music Education.*

Pace (2000). *The Essentials of Keyboard Pedagogy: Third Topic: Keyboard Technique and Effective Psycho-motor Skills.*

Note on the Sources: Within each method series, multiple individual books were surveyed. For a complete listing of individual books surveyed within each method series, see Appendix L. Direct quotations are referenced to the specific book from which they were obtained. All other citations from the method series in general cite the publication date of the first book of the method series.

I. Philosophy

Philosophy of Technique

Most methods do not provide an in-depth discussion of the authors' philosophy on technique. Rhoodie (2003) surveyed six beginning methods and found,

> All theoretical information in the beginner books studied is properly explained and presented in a very structured manner. The researcher is, however, concerned about the fact that there is not enough structure in the sequence of

> teaching and developing the basic technical movements in the beginner piano courses using the adjacent, legato five finger method. (p. 1)

In the present study, the 26 method series were analyzed to discover what the Method Authors believed about elementary level technique. Although many of the methods did not provide complete explanations regarding their philosophies about technique or the execution of certain techniques, the information drawn from this body of literature as a whole can form a picture of the similarities and differences among the Method Authors and can provide an understanding for what the majority of Method Authors believed about elementary level technique.

Importance of Technique

In general, most Method Authors implied their belief that technique is an important part of piano study for elementary level students through their inclusion of technique books and technical drills. Olson et al. (1983) said, "The foundations of good technique must be established from the first lesson. Few situations are more frustrating than having the desire to express music (and even knowing a lot about it) but not the technique to make it possible" (*Descriptive Guide*, p. 25). Burr and Gillock (1976) said,

> Technic is indispensable at all levels of learning. There is no time in the study of the piano when technic is more essential than at the elementary level….As soon as a child touches the piano keyboard he begins to form habits desirable or not so desirable. If he is allowed to play with no guidance in the use of his hands and arms, he will soon develop habits which may present problems later. With the care on the part of a conscientious teacher little arms and hands may be wisely and gently directed so that they may be used in an intelligent manner. (*Level 1B*, Preface)

Judging from the prolific output of technique books in many of the method series, it can be assumed that most Method Authors agreed with Burr and Gillock and Olson et al.

Definitions and Goals of Technique

Various definitions or goals for technique were stated by the Method Authors. Snell and Hidy (2004) said, "The way you use your fingers, hands and arms when you play the piano is called your technic" (*Technic Primer*, p. 2). Pace (2000) stated that technique is "the combined

physical-mental-emotional capabilities one possesses to perform music at the piano keyboard" (p. 2).

The Method Authors stated two main goals for technique: finger training and coordination among the playing units.

Finger Training. Schaum (1962/2003) and Schultz and Schultz (1986) emphasized finger training to develop finger strength, independence, and equal development of both hands. In fact, most of the technique books associated with the methods consist of nothing more than short drills for developing a certain aspect of technique or short pieces for practicing finger patterns. Schaum (1970) represented the furthest extreme toward finger training of all the methods. He stated,

> It is said that a famous concert pianist could place his hands on a flat piece of plate glass and crack the glass with the stroke of a single finger. This may or may not be true. However, the story emphasizes that professional pianists have prodigious fingerpower. Strong fingers are an important requirement for the amateur as well as the career pianist. (*Fingerpower Primer*, Foreword)

Coordination. In contrast, Bastien (1985) said the goal of technique is to develop hand and finger coordination and facility and to develop ease and control at the keyboard. Pace (1979) agreed with this goal, adding that technique requires more than just exercising the fingers to make them facile but also involves gaining control so the fingers can respond for the proper musical effect. Noona and Noona (1997) agreed, emphasizing that a technique book or repetitious exercises alone will not help the student develop good technique. "Good technique is the result of careful listening to correct use of the arms, hands and fingers to produce the desired sounds" (*Complete Performer Level 1*, Cover). George and George (1980/2003) added that enthusiasm, willingness to work intelligently and purposefully, and discipline are also necessary.

Other Philosophical Points

Along with the main goals of technique, the authors also stated the following points:

Physical Sensation. Noona and Noona (1997), George and George (1980/2003) and Pace (1980) emphasized the physical sensation of technique. Noona and Noona asked questions such

as, "How did your fifth finger feel on the dotted half note" (*Music Magic Pre-primer*, p. 30)? Pace said, "In conclusion, a good technic is something for which one must develop the correct *feel*" (*Finger Builders Bk. 2*, Foreword). George (1979) believed that it is necessary to cultivate "a precise *sense* of each limb, each finger, each joint, each muscle…" and a clear "*sensation* of each movement, each sound…" (*Repertoire 2,* p. 6).

Rote Learning. Several authors believed that students should learn by rote before being taught to read notation so that the ears and physical apparatus can be developed without being encumbered by reading challenges. Method authors who recommended rote learning the most include Tan (1991), Lowe (2004), Suzuki (1978), George and George (1980/2003), and Pace (1961/1983). This rote period was found in different guises in the methods, such as teaching by rote for one lesson (Fletcher, 1947; Burr & Gillock, 1976), rote teaching in conjunction with reading (Thompson & Kaplan, 1937/1994), eartraining exercises before teaching notation (Tan), or a lengthy period of rote instruction (Suzuki; Lowe). Others (Kreader et al., 1996; Chronister & Kraehenbuehl, 1980) emphasized teacher demonstration as an important teaching tool while not going as far as to recommend teaching by rote.

Vocabulary. Tan (1991) emphasized the importance of developing a basic mental, visual, aural and tactile vocabulary of keyboard patterns and shapes.

The "How" in Technique

Although the Method Authors stated their definitions of technique and their beliefs about "what" should be taught, many Method Authors failed to address the "how to" of technical development. In other words, they provided drills, but instructions were lacking regarding how a technique was to be carried out physically. Instead, the Method Authors, with few exceptions, assumed that the teacher possessed the knowledge to explain the execution of a certain technique. However, opinions on aspects of technique vary greatly. If the teacher does not have firm ideas about teaching technique or does not have sufficient knowledge regarding the teaching of technique, technique books associated with methods may end up being used merely as books of

musically inferior reading examples. Because of this, method books imply that teaching technique is about "what" to practice rather than "how" to execute a certain technique. This promotes the mistaken idea that if the student plays a certain number of technical exercises out of a technique book associated with a method, the student will acquire a proficient technique.

It is not clear whether the Method Authors assumed that a certain written drill would have the desired technical effect, however it may be practiced; whether they had great faith that the teacher would understand the author's intent regarding how to play a certain technical exercise; or whether the Method Authors did not have a strong opinion about a specific way of teaching technique.

Only two authors stated their thoughts on this subject. Albergo et al. (2002) said that their method refrains from making any but general directives about technique, "because there are many routes to a healthy piano technique" (*Teacher's Guide*, p. 10). In contrast, Burr and Gillock (1976) stated that they aimed to present "*a definite way to play the piano" (Level 1B,* Preface). More explanation by Method Authors is required if they want their technical ideas to be faithfully carried out by teachers and students.

Most Complete Information

Tan (1991), Chronister and Kraehenbuehl (1980), and Lowe (2004) provided the most detail concerning their philosophy of technique. The teacher's guides included with these methods provide much insight into their approach to teaching piano to children.

Philosophy of Teaching

Reading Approach in Relation to Technical Approach

The reading approaches affect the technical approach of the methods, because they outline different perspectives on what the Method Authors believed about the best way for a student to begin playing the piano. The common reading approaches found in the methods are:

- *Middle C.* The thumbs begin on middle C, which is the first note learned. Reading and playing moves outward from middle C gradually expands toward the 5th finger.

- *Intervallic*. Students learn to read by intervals before learning the fixed notes on the staff. In this way, pieces may be played all over the piano, beginning on any note.
- *Multi-key*. Five-finger patterns are learned in all keys. Pieces are generally limited to five-finger positions and are transposed to all keys.
- *Eclectic*. Uses a combination of the three reading approaches above.

The three main schools of thought found in the methods that form a relationship between technical and reading approaches are:

Beginning with the Longer Fingers (2, 3, 4). Usually these fingers begin on groups of two and three black keys. Uszler et al. (2000) provided a comprehensive discussion on the different types of methods. They recommended this approach because they believed that the long fingers are the easiest to use at the beginning, because they are strong and the complexities associated with thumb technique are avoided.

Intervallic and Eclectic methods tend to use this approach, although it is found in all reading approaches. Although a Middle C reading approach might appear to be incongruous with a technical approach that begins with the longer fingers, many of the newer Middle C and Eclectic methods begin with the longer fingers and then move quickly, usually within a few pages, to middle C position. Clark et al. (1955/2000) method is perhaps the most extreme method that begins with the longer fingers, because the students stay on black keys with the long fingers for half of the first book. Kreader et al. (1996) and Faber and Faber (1995) devoted quite a few pages to the long fingers at the beginning of their methods as well. The methods surveyed that begin with the long fingers are:

- Clark et al. (1955/2000)
- Burr & Gillock (1976)
- Palmer & Lethco (1971)
- Bastien (1985)

- Agay (1987)
- Glover & Stewart (1989)
- Faber & Faber (1995)
- Kreader et al. (1996)
- Noona & Noona (1997)
- Finn & Morris (1998)
- Vogt & Bates (2001)
- Snell & Hidy (2004)
- Alexander et al. (2005)

Beginning with the Thumbs and Working out Toward the 5th Fingers. Middle C methods use this approach. Despite the possible advantages for teaching reading that are found in Middle C methods, beginning with the thumbs on middle C presents two technical disadvantages. First, the thumb position must be correct from the outset, which is difficult for some students. Second, for many students, having thumbs on middle C promotes a cramped and stiff arm position at the piano because of the lack of adequate space between the arms. Schultz and Schultz (1986) avoided this problem by having students use thumbs on C's in different octaves instead of restricting both thumbs to middle C. In this approach, more emphasis is placed on the ability to read notes than on the technical disadvantages inherent to this approach. The methods surveyed that begin with the thumbs are by:

- Thompson & Kaplan (1937/1994)
- Fletcher (1947)
- Schaum (1962/2003)
- Duckworth (1963)
- Suzuki (1978)
- George & George (1980/2003)

- Pace (1983)
- Schultz & Schultz (1986)
- Tan (1991)

Beginning with Fingers 1 and 5 or with Clusters. This approach helps students form a strong hand bridge before using individual fingers. Again, the thumb and 5th finger positions must be correct from the beginning, which is difficult for some students. The methods surveyed that begin with the fingers 1 and 5 or with clusters are:

- Chronister & Kraehenbuehl (1980)
- Olson et al. (1983)
- Albergo et al. (2002)
- Lowe (2004)

Lowe's (2004) method is the most extreme example of beginning with clusters among these methods. Students play with a hand position in a cluster or with the middle finger playing while the other fingers are bunched together for the whole first book. Chronister and Kraehenbuehl (1980) are methodical in their presentation. Students play with a "closed" hand position with the 2nd finger braced by the thumb for an extended period before moving to an "open" hand position, where the hand plays fingers 1 and 5 blocked. Although the open position is prepared at the lesson from the beginning, Chronister and Kraehenbuehl warned that the student should not be allowed to play with an open hand position at home until it is thoroughly mastered at the lesson. Albergo's et al. (2002) method is the least extreme in this category, beginning with the longer fingers in clusters and then moving quickly to single longer fingers, in conformity with the more recent methods.

General Philosophical Points

Other points about teaching philosophy stated in the methods include the following:

Teaching Sequence. Chronister and Kraehenbuehl (1980) believed that the order of teaching concepts should be "preparation, presentation, association, and generalization" (*Teacher Reference*, p. 4). This ensures a thorough understanding and reinforcement of each concept by the student. In addition, Chronister and Kraehenbuehl said, "No student is ever asked to practice something at home until he is able to practice it correctly without help" (*Teacher Reference*, p. 13).

In addition, Chronister and Kraehenbuehl (1980) believed that concepts should be presented several times, since students do not learn something new from only one exposure. Each student absorbs material at a certain speed, and therefore new material must be presented many times. Clark et al. (1955/2000) echoed this careful approach to teaching when they said that the student should practice warm-ups in the lesson at first, and only later should they be allowed to practice them at home. Lowe (2004) emphasized the importance of allowing students the freedom to develop coordination at different rates and advocated physical movement games away from the keyboard to foster this coordination.

Playing on the Student's Arm. The teacher plays on the students arm and allows the student to play on the teacher's arm (Clark et al. 1955/2000).

Judicious Instruction. The teacher needs to be attentive to the child's physical approach to the keyboard and refrain from giving too many instructions (Lowe, 2004).

Whole to Part Learning. Duckworth (1963) emphasized whole to part learning, saying that each song should be sung, walked, and clapped. The student then shows the pitch contour through hand shaping in the air. After this, the student plays the piece by ear. Technical details of how to play are omitted.

Lowe's (2004) method follows a similar approach of moving from larger to smaller movements. Lessons include echoing tonal and rhythmic patterns, singing songs, movement activities, and teaching keyboard pieces that develop a familiarity with the whole keyboard and form a basis for tension-free physical movement. Rather than focusing on details of finger technique, students use only large motions for more than an entire book, delaying the smaller,

finer details of finger action in favor of larger movement patterns. In contrast with Duckworth (1963), who uses whole to part learning for a musical purpose, Lowe's approach of moving from larger to smaller parts of the playing apparatus was conceived to establish a solid technical foundation.

Part to Whole Learning. In contrast with Duckworth (1963), Tan (1991) stated what most of the Method Authors implied, that students learn best with a part to whole method. Tan said,

> The task before us can be accomplished by first isolating and teaching each basic piano playing mechanism, then gradually integrating them into cohesive practice; and along the way, furnishing the mental, visual, aural, and tactile libraries with keyboard shapes and patterns which are the commonly used pianistic vocabulary for this level of study. (*Guidebook, V. 1*, p. vii)

Most Complete Information

Palmer and Lethco (1971) provided detailed information for teachers regarding their philosophy for teaching certain techniques.

II. Basic Components

Posture

Most Method Authors began by discussing proper posture at the piano. George and George (1980/2003) described correct posture as a "balanced and relaxed position" (p. 12). Palmer and Lethco (1971) believed posture is important because many technical problems originate from incorrect posture. Therefore, they advised students to constantly review correct posture at each practice for the first few weeks of study. Following are the factors that lead to correct posture, according to the Method Authors.

Head

The head is erect and still, and only the eyes move when looking at the page (George & George, 1980/2003). Fletcher (1947) said that the music should be placed below eye level, not above, showing her concern with proper head placement. Method authors have tried to accommodate shorter students by producing beginning books that are wider than they are tall.

However, additional adjustments may be needed to ensure that the music is at the proper height for short students.

Sitting on the Bench

- Lowe (2004) said it is unreasonable to expect small children to sit for more than 5 to 15 minutes at a time.
- Schaum (1962/2003), Bigler and Lloyd-Watts (1979), Bastien (1985), and Faber and Faber (1995) said that students should sit in front of the middle of piano. Perhaps more Method Authors did not specify this because it is seen as self-evident.
- Students should lean forward slightly (Noona & Noona, 1997; George & George, 1980/2003; Bigler & Lloyd-Watts, 1979; Palmer & Lethco, 1971). George and George explained that this is to allow arm weight to reach the keyboard through the fingers.
- Bigler and Lloyd-Watts (1979) said students should sit so that the edge of the bench touches where the leg joins the body to achieve the most balanced and comfortable posture.

The most frequent phrase describing how to sit on the bench is, "Sit tall," which was used by seven of the authors (Vogt & Bates, 2001; Noona & Noona, 1997; Kreader et al., 1996; Alexander et al., 2005; Snell & Hidy, 2004; Faber & Faber, 1995; Palmer & Lethco, 1971). Vogt and Bates provided the following steps for finding a proper sitting position: First, students round their backs and hang their shoulders like a cat arching its back. Then they pull their shoulders back as if standing at attention. Moving between these two positions enables students to find a comfortable position for the back.

Other terms used to describe proper sitting position included:

- "Straight back" (Agay, 1987; George & George, 1980/2003). George and George added that a straight back is important in order to support the head and shoulders.
- "Sit straight" (Bastien, 1985; George & George, 1980/2003).

- "Sit comfortably straight" (Schaum, 1962/2003; Tan, 1991).

Distance from the Piano

The bench faces the piano squarely according to Palmer and Lethco (1971) and George and George (1980/2003). Tan (1991) added that the pedals are the guide for proper placement of the bench in front of the piano.

A correct distance from the piano is important. Sitting too close is detrimental to good posture. Tan (1991) warned that most students leave their bench at home in the same place and gradually outgrow this distance from the bench to the piano. Therefore, students should adjust the bench at each practice session.

George and George (1980/2003) and Schaum (1962/2003) said that the distance from the piano should allow the arms and hands room to move freely. With this statement, Schaum negated the Middle C approach of his method, because the Middle C approach prevents students from being able to move their arms freely, because both hands are close together with the thumbs on middle C. This leads to a cramped position of the arms in all but the smallest students.

Other descriptions of the proper distance from the piano included:

- Students are to sit on front half of bench and lean slightly forward (Alexander et al., 2005; Faber & Faber, 1995; George & George, 1980/2003). Alexander et al. and Faber and Faber advised students to test their distance by stretching their arms straight out to reach the fallboard with their fists while neither leaning forward nor backward.
- The arms are partly in front of the body (Vogt & Bates, 2001).
- The knees are only partly under the front edge of the piano (Snell & Hidy, 2004; Palmer & Lethco, 1971; George & George, 1980/2003).

Height

Nearly all the Method Authors said that the arms and wrists should be level with keyboard. Slightly different from this norm, Finn and Morris (1998) said that the arms are to be

level or slightly higher than the keys, Agay (1987) and Palmer and Lethco (1971) stated that the elbows should be slightly higher than the keys, George and George (1980/2003) said the arms are to be level with the knuckle ridge, and Bigler and Lloyd-Watts (1979) said the forearm should be parallel to the floor. Bigler and Lloyd-Watts suggested this height because if the seat is too high, the student will not be able to play with round fingers or to use relaxed arm weight. If seated too low, the child will play with flat fingers, which will hamper the release of tension in the wrist. Mills (1973) said that young students generally have a problem with the wrist being too low. This is corrected by holding a hand under the child's wrist about a quarter of an inch below the ideal position.

Glover and Stewart (1988) and Bastien (1985) were less specific. Glover and Stewart said the pianist is to sit in a position that is not low, and Bastien stated the student should sit high enough to reach the keys easily. Tan (1991) said the student should be high enough to have a natural playing position of the hands and wrists.

In order to obtain the proper height, several Method Authors advocated using cushions or books. Snell and Hidy (2004) and Bigler and Lloyd-Watts (1979) specified that the cushions should be firm.

Feet

Most of the Method Authors said that the feet are to be flat on the floor and that students should use a footstool to prevent dangling feet. Lowe (2004) was alone in her opinion that students can cross their ankles if they do not have a footstool. No Method Authors advocated allowing the feet to swing or dangle.

The right foot is slightly ahead of the left foot for balance (Alexander et al., 2005; George & George, 1980/2003).

Shoulders, Arms, Wrists, and Elbows

The Method Authors believed that the shoulders, arms, wrists, and elbows should be relaxed, flexible, and free. The elbows are held out to the sides a few inches (George & George,

1980/2003; Finn & Morris 1998). George and George explained that this is to help support the 5th fingers.

Most Complete Information

Alexander et al. (2005), Palmer and Lethco (1971), Tan (1991), and George and George (1980/2003) provided the most complete explanations of posture. George and George (1981) included a picture that provides the order in which the components of proper posture should be described to the student.

Hand Position

Philosophy of Hand Position

The Method Authors believed in the importance of hand position just as they believed in the importance of posture. This is shown by their detailed descriptions of proper hand position, which together with posture far exceeded descriptions of any other technical element. Albergo et al. (2002), Finn and Morris (1998), and Burr and Gillock (1976), and Chronister (Darling, 2005) stated that hand position must be established from the beginning of study.

Most Method Authors implied their belief that hand position is one set position by describing one possible hand position as the correct one. The Method Authors did not advocate using various hand positions, perhaps with flatter or more curved fingers, based on the passage but recommended a uniform hand position for all playing.

Schultz and Schultz (1986), Albergo et al. (2002), and Tan (1991) differed from the norm by delving deeper into the mechanics of teaching hand position. They stated that it is important for the teacher to remember that hand position varies for each individual, or as Schultz and Schultz stated, "Find YOUR perfect hand position" (*Technique Level 1*, Introduction). Albergo et al. said teachers should stress the feel of a natural shape in the hand rather than the look of the hand, because direct imitation of a model hand shape, especially that of an adult teacher, often leads to tension. Unless the shape feels natural, students are unlikely to adopt it in the long term.

Tan further warned that students become tense if there is too much detailed instruction on hand position. Instead, she advised teachers to gently promote a natural playing position.

Ideal Hand Position

The Method Authors presented the following advice for establishing a correct hand position.

Hand. Most Method Authors advocated some kind of rounded hand position. Burr and Gillock (1976) said this is because a rounded hand helps the pianist play with smoothness and good tone and promotes a feeling of control. Clark et al. (1955/2000), Faber and Faber (1995), and Burr and Gillock (1976) described a properly positioned hand as one that has a prominent bridge in which all the knuckles, especially the 5th, can be seen. Burr and Gillock noted that if the 2nd knuckle is tall, all the knuckles will be tall.

Schaum (1962/2003) and Alexander et al. (2005), on the other hand, said the back of the hand should be flat like a tabletop. This seems to be related more to keeping the hand horizontal and avoiding letting it slope down to a low wrist than to any disagreement about the necessity of having a prominent bridge.

Fingers Curved. It is interesting to note that none of the Method Authors advocated a flat hand position. All emphasized the necessity of some degree of finger curvature. Burr and Gillock (1976) said this is because "A FLAT HAND with straight fingers will never be able to do the things you want it to do" (*Level 1A,* p. 5). Palmer and Lethco (1971) said curved fingers are necessary because straight fingers have different lengths that make it difficult to play.

Different degrees of curvature were advocated, described as "curved" (Noona & Noona, 1997; Duckworth, 1963; Finn & Morris, 1998; Palmer & Lethco, 1971; Burr & Gillock, 1976), "gently curved" (Glover & Stewart, 1988; George & George, 1980/2003), "nicely curved" (Pace, 1961/1983; Bastien, 1985), "naturally curved" (Schultz & Schultz 1986; Olson et al., 1983), "curved but not curled" (Snell & Hidy, 2004), "curved but not too much so" (Fletcher, 1947; Clark et al., 1955/2000), "curved so that the tip just behind the fingernail touches the key"

(Schaum, 1962/2003; Clark et al.), "tips on the keys" (Snell & Hidy), and "playing on the cushion or finger pads" (Vogt & Bates, 2001; Alexander et al, 2005; Agay, 1987).

In addition, several Method Authors said that the fingers should rest lightly on the keys, and nearly all the Method Authors mentioned the necessity of touching the keys gently. Albergo et al. (2002) said this is because a tense hand makes the fingers fly off the keys.

George and George (1980/2003) and Fletcher (1947) further specified that each finger should rest and play in the middle of its key, while Pace (2000) cautioned that students should play the white keys in the area near the black keys.

Firm Fingernail Joints. The Method Authors said that fingernail joints are to be firm instead of collapsed. No Method Author stated that collapsing joints are acceptable. Clark et al. (1993/2000) said this is because students "…can't control the tone with a collapsed first joint any more than they can control their writing with a broken pencil point" (*Handbook, Part 1,* p. 14). Clark, Alexander et al. (2005), and Faber and Faber (1995) all recommended that the teacher press on the student's nail joints to ensure that they are strong and do not collapse. To develop the proper attitude of the nail joints, Pace (2000) advised students to place one hand palm up and the other hand palm down, join the fingertips, and pull outward without letting the knuckles collapse.

Chronister (Darling, 2005) said, "It is not natural for a child to place five fingers on five adjacent white keys and play those fingers one at a time without allowing the first joint of each finger to collapse, making sure all the other fingers lie quietly on the keys, the thumb remaining on the keyboard" (p. 198). Therefore, Chronister and Kraehenbuehl (1980) break the process of forming a hand position down, starting with a braced 2nd finger in a closed position and gradually working to an open position. In this way, a proper hand position is formed, and the problems with collapsing nail joints are avoided.

Thumb. The majority of the Method Authors did not specifically address proper thumb position. In fact, Albergo et al. (2002) only advised the teacher to "discuss how to use the thumb,

emphasizing playing with a relaxed, rounded hand position" (*Teacher's Guide,* p. 31). This implies that the teacher possesses knowledge of proper thumb position and usage.

In contrast, Burr and Gillock (1976) were adamant about the importance of thumb position, stating that the posture of the hand depends largely on the thumb. They described the proper position of the thumb as standing on its side tip with only the length of the nail on the key and with the tip turned inward. This supports the rounded hand. Playing with the whole first joint of the thumb on the key is not correct, because this will cause the hand to be flat.

The other Method Authors that discussed the topic of thumb position did so in several ways. Alexander et al. (2005), Faber and Faber (1995), Bigler and Lloyd-Watts (1979), and Lowe (2004) said the thumb should rest on its outside tip, which Chronister and Kraehenbuehl (1980) called the thumb's "corner." Lowe and Bigler and Lloyd-Watts explained that this position aids in preventing a sagging wrist. Finn and Morris (1998) said the thumb should stand up strong and not lie flat or curl up. Noona and Noona (1997) and Fletcher (1947) only stated that the thumb should be curved, while Clark et al. (1955/2000) said the thumb should be loose and pointing slightly toward finger 2.

Burr and Gillock (1976) and Snell and Hidy (2004) described the necessity for an open space between the thumb and 2nd finger, which Burr and Gillock described as forming a "C" shape.

5th Finger. Finn and Morris (1998) were the only Method Authors to specifically describe the position of the 5th finger, which they said should stand up and be strong, not lie flat or roll over.

Formation of Hand Position

Four methods for finding a proper hand position were presented:

1. The most common method, recommended by Vogt and Bates (2001), Alexander et al. (2005), Kreader et al. (1996), Tan (1991), and Schultz and Schultz (1986), was to stand or sit and let the hands fall at the side of the body. The fingers are naturally curved when the

arms and hands are relaxed at the side. The student then transfers this position of the hands to the keyboard, keeping the hands relaxed and placing them lightly on the keys.

2. Another method is for students to place their palms on their knees and then to keep that hand position while placing the fingers gently on the keyboard. This was the method recommended by Glover and Stewart (1988) and Faber and Faber (1995). The Method Authors advocated other round objects besides the knees to use or imagine for forming a rounded hand position. These included a ball (Bigler and Lloyd-Watts, 1979; Schaum, 1962/2003; Bastien, 1985; Agay, 1987), an orange (Finn & Morris, 1998), a bubble (Alexander et al., 2005; Palmer & Lethco, 1971), and a bird (Albergo et al., 2002). Imagining breakable items, such as a bubble and bird, was meant to advocate a gentle rather than a tense hand shape.
3. Several authors suggested beginning with a cluster position where all the fingers are touching each other in a row (Olson et al., 1983); or one fingertip is used to brace the nail joint of another finger with the rest of the fingers in cluster position (Chronister & Kraehenbuehl, 1980; Lowe, 2004); or a loose fist is formed (Faber & Faber, 1995; Burr & Gillock, 1976). Gradually, the hand is opened from this contracted, cluster position to form a rounded hand position. One slight difference between Faber and Faber and Burr and Gillock's methods is that although they both advocated beginning with a loose fist and gradually opening it, Faber and Faber said the wrist should become high as the hand opens, while Burr and Gillock said the wrist should stay low.
4. Clark et al. (1955/2000) and Palmer and Lethco (1971) suggested forming a rounded hand position in the opposite manner from the cluster idea. They advocated putting the hand flat on a table and slowly drawing the fingertips toward the palm until an arch is formed and the knuckles are firm.

Photos and Drawings

One interesting feature of method books is the many pictures of posture and hand position that are included. Most books feature drawings instead of photographs, which is unfortunate because photographs may provided a clearer model for students to imitate. The number of extremely poor drawings found in the method books is surprising. For instance, Glover and Stewart's (1988) method contains a drawing of a child where the forearms are not in a straight line with the keyboard and where the feet are on tiptoe as the student strains to reach the books that have been placed under the feet. The drawings in Noona and Noona (1997), Snell and Hidy (2004), and Bastien's (1985) methods feature extremely curved fingers. Agay's (1987) method has photos on the front covers of the books that feature children with hand positions that look very tense, fingers that hang off the keys, overly curved fingers with collapsed joints, awkward finger angles, and a sitting position that is much too high.

The best photos are found in Finn and Morris' (1998) method, which has a photo of a hand position with moderately curved fingers and also includes a drawing of fingers with collapsed joints crossed out to show that this finger shape is wrong next to a picture with nicely shaped and firm fingers (*Lesson Preparatory A,* p. 3). Method Authors may have included pictures to appeal to children, but they should have made sure that all pictures show correct, rather than dysfunctional, technique so that the pictures can reinforce their written words about proper posture and hand position.

Most Complete Information

From the first lesson, Clark et al. (1955/2000) presented steps for developing a correct hand position and checklists for keeping that good hand position. Alexander et al. (2005) presented all the key components to hand position including formation of the hand position, and information about the proper position of the wrist, hand, fingers, and thumb. Albergo et al. (2002) evidenced thought about hand shape and differences between individual hands and between student and teacher hands. Finn and Morris (1998) emphasized shape of the thumb and

5th finger and included good pictures of the shape of the fingers. Burr and Gillock (1976) emphasized hand position throughout by asking questions of the students and highlighted the importance of the thumb in forming a hand position. This method also provided reasons for the directives regarding certain aspects of hand position.

Tone Production

General Considerations

Schaum (1962/2003), Noona and Noona (1997), Fletcher (1947), Pace (1961/1983), and Tan (1991) all advocated a prepared or as close to a prepared attack as possible with fingers held close to the keys. Schaum, George and George (1980/2003), and Tan emphasized listening for clear sound and an even tone at the piano.

Surprisingly, only two Method Authors, Kreader et al. (1996) and George and George (1980/2003), mentioned the necessity of the fingers playing from the knuckle joint. Kreader et al. suggested introducing this through waving a hand at the teacher with the fingers and noticing that the fingers move from the bridge.

Clark et al. (1955/2000) was the only one to describe the foundational fact that the piano tone sounds when the key goes down and stops when the key comes up. Although this is a simple concept, it does require explanation to students and can assist them in understanding the basics of piano key mechanics.

Finger Stroke

Most Method Authors advocated use of a finger stroke at the beginning of study. The most commonly described finger stroke was the weight transference touch, recommended by Vogt and Bates (2001), Fletcher (1947), Finn and Morris (1998), Kreader et al. (1996), Pace (1961/1983), and Noona and Noona (1997). It is described by Finn and Morris, Lowe (2004), and Vogt and Bates as being similar to leg action in walking. Production of finger stroke was described in various ways by the Method Authors, from a simple explanation such as, "Feel your fingers walk up and down the melody" (*On Staff Discoverer,* p. 17) by Vogt and Bates to more

complete explanations like the following descriptions by Pace (1961) and Noona and Noona (1997).

> Have the student transfer the weight of his arm from one finger to the next as he plays each note. The sensation of pulling gently on the keys with the fingertips will assure firm fingers. Stress controlled relaxation of the hand, wrist and arm. Avoid tension and false motions. Control and agility develop gradually--not over-night. Have persistence, but also patience. (Pace, 1961, *Skills and Drills Bk. 1,* Cover)

Noona and Noona (1997) provided the following steps for executing a finger stroke:

> *Step 1.* Feel the first few keys.
>
> *Step 2.* Place the hand and wrist over the keys
>
> *Step 3.* The finger drops gently into the key. The wrist and arm settle so that they are level with the white keys. At the end of the phrase, the wrist rolls forward, pulling the fingers out of the keys.

Some refinements to basic finger technique included the following:

- Lowe (2004) and Kreader et al. (1996) stated that the arm follows the fingers, shifting into a position behind each finger as it plays.
- Tan (1991) and Pace (1961/1983) suggested pulling each finger slightly toward the body to avoid collapsing finger nail joints.
- Several Method Authors mentioned the need for playing gently but firmly with curved fingers all the way to the bottom of the key. No Method Author said students should aim for the escapement level rather than the keybed.
- Weight was frequently mentioned as necessary for sound. No author mentioned muscular effort as necessary.
- Burr and Gillock (1976) and Tan (1991) warned that young students tend to push or press the fingers down, which Burr and Gillock said creates tension, jogging of the forearm, and collapsing of the nail joints. They recommended preparing the fingers slightly above the keys and dropping into the keys. In

contrast, Agay (1987) instructed students to "Press the keys down gently but firmly" (*Book 1*, p. 6), which emphasized pressing rather than dropping the fingers.

- Palmer and Lethco (1971) advised silent tapping on the surface of the keys to train independent dropping of the fingers and to develop finger control.

Hand or Wrist Stroke

Most Method Authors that mentioned wrist or hand stroke said that the wrist should not move very much and that the movements should be executed close to the keys. Palmer and Lethco (1971) was the only Method Author to describe the execution of hand stroke in detail by providing the following steps:

Step 1. Hang the right hand above the keys with the wrist completely relaxed. Avoid harshness of tone.

Step 2. Drop to bottom of the keybed. Listen for a quiet, beautiful tone.

Step 3. Draw the wrist close to the tip of finger 3 slowly and smoothly for perfect roundness of the hand.

Step 4. Lift the wrist in preparation for repeating Step 1. The fingertip is the last part of the finger to leave the key. Repeat the steps until five neighboring white keys have been played (*Teacher's Manual,* p. 20).

Tan (1991) discussed the importance of integrating finger motions with the rhythm of wrist movements. She said that young students naturally drop their wrists to begin a phrase. Therefore, the teacher should focus attention only on the up motions (unless the student needs help with the down motion) by instructing the student to point to the ceiling with the wrist. Exaggerating the motions is acceptable at the beginning. The wrist slowly lowers and sinks into the keys as the fingers play. As the technique becomes more refined, the wrist motions will become smaller and more fluid.

Arm Stroke

Although it is generally true that in the methods, "Emphasis is placed upon the immediate use and development of the small levers (i.e. the fingers), while the larger levers (hand, forearm, upper arm and torso), the initiators of sound, are in the main ignored" (Rhoodie, 2005, p. 1), some methods did address the larger levers, and a few even based their approach on the arm instead of the fingers.

Lowe (2004), Mills (1973), and Olson et al. (1983) believed it is best for children to begin with an arm stroke, because the finger control necessary for finger touch is difficult for young students. Chronister and Kraehenbuehl (1980), Albergo et al. (2002), Kreader et al. (1996), and Clark et al. (1955/2000) also began their methods with large arm motions.

Lowe provided a complete explanation of arm stroke for young students. The arm makes a preparatory movement with a breath. Then the weight of the arm drops into the key and avoids all twisting, reaching, and stretching movements with the hand and fingers. The arm and hand float to the bottom of the key as if using a parachute. The student feels the bottom of the key and experiments with the amount of weight required to hold the key down. On subsequent notes, the arm moves as the fingers walk from key to key.

Lowe's (2004) advocated an extreme arm approach in her method that almost negated the function of the individual fingers. She said that the arm, not the fingers, is responsible for depressing the keys and for carrying the hand to new places on the keyboard. She recommended having students play pieces in the air with gentle, loose, light arm and forearm movements.

Mills (1973) said that in Suzuki piano technique, the first variation of "Twinkle" uses a free arm stroke for the repeated notes in the  rhythm. The arm is loose, the fingers are firm, and the wrist is flexible. The 8th notes are played with forearm staccato, and the 16th notes are played with hand staccato (Bigler and Lloyd-Watts, 1979).

One other explanation of arm movement relates to using arm movements after tone production. In this type of movement, which Burr and Gillock (1976) called "arm swings," the arm moves away from the side of the body for the duration of a long note. Burr and Gillock said that this adds finesse and musicality to a phrase. Finn and Morris (2001) described the motion as "drawing a happy face with your elbow" (*Technique Preparatory A*, p. 16). The only other post-tone production movement described by the Method Authors is a lift of the wrist at the end of the phrases, which is mentioned by several authors.

Most Complete Information

Noona and Noona (1997), Pace (1961/1983), Palmer and Lethco (1971), and Lowe (2004) presented thorough descriptions of the execution of arm, hand, or finger strokes. The other Method Authors that presented some information on the "how to" of tone production limited their instructions to short and infrequent sentences. What was most surprising is the number of methods that did not present any explanation of the mechanics of tone production, leaving it to the teacher to explain this most important and basic skill in piano technique. Suzuki (1978), Bastien (1985), Duckworth (1963), Alexander et al. (2005), Snell and Hidy (2004), and Faber and Faber (1995) gave no specific instructions for the process of tone production.

Playing Apparatus

Body

Noona and Noona (1997) stated, "The fingers, hands, wrists and arms work together in a coordinated manner to play the piano" (*Complete Performer Level 1*, p. 6). Tan (1991) expanded the playing apparatus to include the fingers, wrist, hands, ears, eyes, mind, pulse, foot, and body. Lowe (2004) limited the playing mechanism to the shoulders, arms, hands, and fingers. These are the only Method Authors who provided a list of the parts of the body used in piano playing. Among the Method Authors, Noona and Noona's description was the only stated recognition of the coordinated nature of the body.

Ear

Tan (1991) commented that it is important to train students to hear the tone before and after it is produced. The pianist predicts the tone quality before it is sounded and then listens to the tone as it is produced. Clark et al. (1955/2000) stated the teacher should set standards for the desired sound based on how the hands and body look and feel when producing a sound. Other Method Authors advocated listening carefully to achieve an even sound and proper balance between the hands.

Shoulder and Upper Arm

Regarding the role of the shoulder, Noona and Noona (1997) said, "The shoulder levers or hinges are the great movers. They, along with the arms, transport us to the new location and prepare for the combination of touches that follow" (*Complete Performer Level 4*, p. 18).

Elbow and Forearm

Noona and Noona (1997) were the only Method Authors who mentioned the role of the forearm, which they said is used to play detached octaves and accents. The Method Authors did not discuss using a forearm stroke in general playing.

Wrist

Tan (1991) provided a comprehensive description of the function of the wrists, saying that the wrist is useful for "the up and down movements for phrase shaping, pianistic breathing, and wrist staccato, and [for] develop[ing] keyboard traveling skills" (*Guidebook Vol. 1,* p. vii).

Most of the other Method Authors said that the wrist's main responsibility is to shape phrases through a down impulse of the arm that is followed by an up motion of the wrist (Kreader et al., 1996). Faber and Faber (1995) called this up motion a "wrist float off" (*Technique Level 1*, p. 2) and said the student should pretend that a balloon on a string is slowly pulling the wrist up. The wrist rises in slow motion until only the tip of 3rd finger touches the key surface.

Hand

Tan (1991) said that the responsibility of the hands is to develop an internalized feeling for the location of each key and to develop a tactile vocabulary for pentachords, intervals, chords, and scales.

Noona and Noona (1997) were the other Method Authors who discussed the role of the hands, saying that the hand drops from the wrist into the keys to play staccato or repeated note passages.

Fingers

The Method Authors believed that finger dexterity and finger independence are important, with the exception of Lowe (2004), who believed the arm is the principal playing unit. Noona and Noona (1997) and Tan (1991) provided lists of the functions of each playing unit, and both listed the fingers first and then worked out toward the larger playing units, showing the importance they placed on finger function.

Most Complete Information

Noona and Noona (1997) and Tan (1991) provide the most complete description of the parts of the body used in piano playing.

Contraction and Relaxation

None of the Method Authors discussed contraction in playing the piano. Instead, they focused exclusively on relaxation. Lowe (2004) was the greatest proponent of relaxation and aimed to "form a base for physical movement that is tension-free" (*Teacher's Guide Preparatory,* p. 2). She said, "Young children tend to be tight and rigid when approaching the keyboard" and urged teachers to "check the hands and arms to see if they are loose" (*Teacher's Guide Preparatory,* p. 12).

Other Method Authors, including Fletcher (1947), echoed Lowe's (2004) belief that students should play without stiffness and tension, and Burr and Gillock (1976) and Lowe said

that the fingers, as well as the arm and wrist, should be loose. Burr and Gillock provided the following steps for achieving a loose arm and wrist.

Step 1. Hang the hand loosely from the wrist.

Step 2. Drop into middle C with the tip of the 3rd finger.

Step 3. Bring the wrist close to the keys until tall knuckles are formed. Stay on the key without pressing.

Step 4. The hand rises with the wrist when releasing the key, but the finger stays on the key surface. The hand is now loose and hanging from the wrist, ready to drop into the next key. The rising of the wrist may be exaggerated at first. Arrows written in the music tell the student when to drop and when to rise.

Most Complete Information

Burr and Gillock (1976) and Lowe (2004) emphasized and described the importance of relaxation thoroughly.

Mind/Body Relationship

Many of the Method Authors discussed the necessity of using the mind in practicing and playing the piano. They mentioned thinking before playing (Tan, 1991; Glover & Stewart, 1988), sensing the connection between ears, body, hands and mind (Clark et al., 1955/2000), practicing thoughtfully and with attention to detail (Pace, 1961/1983), and coordinating the body and mind to develop visual, auditory, and tactile sensations in playing (George & George, 1980/2003). Bigler and Lloyd-Watts (1979) used the term "Stop-Prepare" (p. 17), practicing a technique where the student stops before playing a new section and prepares mentally for the next step. George (1979) also instructed students to remain alert and to play with feeling and purpose, because "It is only by clear musical intentions…that the best performances can be achieved" (*Repertoire 2*, p. 6). When practicing, George (1979) said, "Ideally, each time you have played a piece, you will be able to say—"I *improved* something important"…and "I *learned* something important" (*Repertoire 2,* p. 7).

Most Complete Information

George and George (1980/2003) presented well thought out, philosophical directives about the importance of the using the mind in playing the piano.

III. Exercises

Gymnastic Exercises

Faber and Faber (1995) and Lowe (2004) offered several gymnastic exercises that are designed to help students develop body awareness. One exercise recommended by Faber and Faber to demonstrate arm weight is to let the arms dangle from the shoulders like heavy, wet ropes. Then the arms are brought up slowly and dropped into the lap.

Schultz and Schultz (1986), Albergo et al. (2002), Palmer and Lethco (1971), and Clark et al. (1955/2000) encouraged practicing finger exercises on the keyboard cover to develop finger stroke without having to concentrate on the key mechanism.

Lowe (2004) and Tan (1991) presented several exercises for joint and body awareness, including the following:

- Swing the arms.
- Feel the arms hanging from the shoulders.
- Raise and drop the shoulders.
- Raise the forearms until they are parallel to the floor. Check the elbow joint to see if it is loose.
- Move the wrist up and down.
- Shake the hand while moving the arm without tightening the fingers.
- For pronation and supination of the arm, turn the hand and arm as a unit with the palm up and pretend to catch raindrops. Then reverse the direction, and pretend to bounce a beach ball with the palm down.

Tan (1991) recommended gymnastic exercises for differentiating fingers, including:

- Finger wiggles. Watch the knucklebone go up and down as each finger wiggles.
- Finger wrestles. Bring the hands together, fingertips touching, and imagine holding an apple inside the palms. Each pair of fingers pushes back and forth four times.

Exercises

Nearly all the Method Authors incorporated some type of playing exercises at the piano. Pace (2000) noted the debate between those writers who believed in acquiring technical proficiency from practicing repertoire only and those who believed that exercises are important. Pace belonged to the latter category. He said, "Just as most people seem to 'feel better' when they do systematic exercise involving the various muscles of their bodies, one's fingers should also feel better and be more responsive with daily technical exercise" (p. 10). Three types of exercises were presented include the following.

- Preparatory exercises are assigned for practicing technical concepts before applying them to the solo repertoire, exemplified by the exercises in the Noona and Noona (1997), Agay (1987), and Thompson and Kaplan (1937/1994) methods.
- Finger drills for warming up and for gaining control of the fingers were recommended by several Method Authors. Finn and Morris (1998) said these exercises improve finger dexterity, independence, control, stamina, hand position, style, musicianship, and imagination. They stated, "Like an athlete, the pianist cannot perform to full capability without proper physical conditioning" (*Technique Preparatory A,* p. 2). These exercises are to be practiced daily and are to be repeated a certain number of times. These exercises go by the following names: "warm-up drills," "finger drills," "finger power exercises" (Schaum, 1962/2003), "workouts" (Alexander et al., 2005), "keyboard patterns" (George & George, 1980/2003), "finger gym" (Albergo et al. 2002; Finn & Morris, 1998), and "finger builders" (Pace, 1961/1983).

- The finger independence exercise of holding down one finger while another finger in the same hand plays is included in the methods of Schultz and Schultz (1986), Clark et al. (1955/2000), Agay (1987), Burr and Gillock (1976), and George and George (1980/2003).

Etudes

Noona and Noona (1997), Schaum (1962/2003), Bastien (1985), Clark et al. (1955/2000), Thompson and Kaplan (1937/1994), and Pace (1961/1983) all included standard etudes by Köhler, Czerny, Hanon, Schmitt and other etude composers. In addition, many of the Method Authors included a supplemental book of etudes to provide extra practice for the student in certain techniques.

Most Complete Information

Finn and Morris (1998), Lowe (2004), and Tan (1991) provided the most complete description related to the use of gymnastic exercises and playing exercises.

IV. Movement at the Keyboard

Physical Movement

Lowe (2004) stated that body movement is important, and George (1979) said, "Our posture changes constantly, in large and small details, as we play the piano. We must therefore continue to search for improvements in our *ways of moving*, for refinements that result in more efficiency and economy, more precision and grace" (*Repertoire 2,* p. 6).

Lateral Movement

Many Method Authors, including Noona and Noona (1997) Glover and Stewart (1988), Olson et al. (1983), Chronister and Kraehenbuehl (1980), Clark et al. (1955/2000), Pace (1961/1983), Alexander et al. (2005), Faber and Faber (1995), Burr and Gillock (1976), George and George (1980/2003), Tan (1991), and Lowe (2004) presented pieces that allow students to play over the entire keyboard at the very beginning of study. Only the older Middle C methods did not use this approach. Tan (1991) believed that beginning students need to feel comfortable

all over the piano and learn how to distribute their body weight for traveling around the keyboard and for using their wrists. One goal in elementary level technique, according to Tan, is to "promote total keyboard freedom from the very first lesson" (*Guidebook Vol. 1,* p. viii).

Regarding the execution of lateral movements, Tan (1991) and Lowe (2004) suggested letting small children walk instead of sit when moving along the keyboard. When making a lateral movement from the low to high ranges of the keyboard when sitting, Tan (1991) said that the student is to sit near the center of the keyboard with body weight on the left side of the body and leaning toward the starting position in the bass range of the keyboard. The student uses the left leg for support and moves the right leg slightly out to the right for balance. As the arms travel up to the treble side of the keyboard, the body follows. Gradually, the sitting position is shifted from the left to the right side of the body. The right leg is then used for support while the left leg moves out to the left to balance the body (*Guidebook, Vol. 1,* p. 98).

Other authors added the following advice for lateral movement at the piano:

- Vogt and Bates (2001) reminded students that when moving, the body is to remain seated and centered.
- Lowe (2004) advised students to look before moving and to feel a springing, sideways motion while keeping the hand close to the keys.
- Clark et al. (1955/2000) said the movement should be graceful and rhythmic. The hand is supported and guided by the upper arm, because a move initiated by the hand alone may result in a grab toward the notes in the new position, which destroys the rhythmic flow and tonal beauty.
- Noona and Noona (1997) described a "floating gesture" (*Complete Performer Level 2,* p. 12), where the wrist rolls forward and releases the final finger at the end of a phrase. The arm then immediately shifts the hand and lowers it for the next phrase.

- Kreader et al. (1996) said that when changing positions, fingers 1 or 5 are to act as a guide.
- Kreader et al. (1996), Suzuki (1978) and Clark et al. (1955/2000) both used the "play-prepare" technique in lateral movements, which Clark et al. (2001) described as "the most efficient and musical way to move from one position to another" (*Technic Part 3,* p. 17). In "play-prepare," the same energy used to play the first gesture prepares for the next.
- According to Kreader et al. (1996), in cross hand arpeggios the hands make a continuous, arching motion where one hand moves to its new position while the other hand plays. Burr and Gillock (1976) added that the hand hangs loosely from the wrist.
- Concerning small changes of hand position, Noona and Noona (1997) said that it is important to move the hand slightly between positions without upsetting the flow of the music.

Hand Expansion

Duckworth (1961/1983) and Albergo et al. (2002) said that after the hand expands, it should contract back to a closed position. Clark et al. (1955/2000) prepared hand expansion carefully by expanding the hand to a sixth through a widening between the thumb and 2nd finger before other expansions are practiced.

Keyboard Topography

Pace (1961/1983), George and George (1980/2003), and Tan (1991) paid special attention to keyboard topography, which Tan described as "a systematic order of training the hands to locate piano keys and keyboard patterns instantaneously" (*Guidebook Vol. 1,* p. xvi). Goals for keyboard topography mentioned by the Method Authors included reaching the new key smoothly and without hesitation (Tan) and developing a tactile sensitivity to black and white keys from the beginning (Pace; George & George; Tan).

Kreader et al. (1996) and George and George (1980/2003) suggested moving to new positions with the eyes closed to develop keyboard topography. George (1981) described the following procedure for practicing keyboard topography. "With hand in the lap, prepare a hand position that will fit five adjacent white keys. Keep this hand position and move it to the keyboard. Does the hand shape fit the keys? Does each finger rest precisely in the center of its key? Repeat until you can do it with speed and precision" (*Introduction*, p. 15).

Noona and Noona (1997) said the fingers should reach diagonally and laterally for the black keys. Clark et al. (1955/2000) suggested adjustments in the hand for moving between black and white keys, including moving the hand slightly forward when moving to a black key and keeping the fingers on the white keys close to the black keys. The hand is higher on the black keys because the black keys are higher, and the hand is farther forward on the black keys because they are shorter.

Most Complete Information

Kreader et al. (1996) provided good advice for moving laterally on the keyboard. Tan (1991) included systematic drill for keyboard topography from the beginning of study. Tan and George and George (1980/2003) gave directions for moving from one register of the keyboard to another and for practicing keyboard topography.

V. Fundamental Forms

Five-Finger Patterns

Nearly all the Method Authors included five-finger patterns in their methods, both as technical exercises and as positions for learning to read music and for playing pieces. However, although some of the Method Authors provided practice of five-finger patterns in variations such as parallel, contrary, major, minor, staccato, legato, *crescendo*, and *diminuendo*, etc., most Method Authors provided little specific guidance on how even the simplest of five-finger patterns should be executed technically.

Of the Method Authors, Pace (1983) gave the most complete explanation of how to play a five-finger pattern when he said, "Let the weight of your arm shift from one finger to the next. Make a slow circular motion with your wrist as you play from the bottom note to the top and back to the bottom" (*Way to Play Bk. 1,* p. 24). In this manner, the wrist rotation completes a clockwise rotation, the wrist is relaxed but is not allowed to bounce, and the fingers are firm. This wrist rotation aids in producing a legato articulation and in avoiding the "punching out" (Pace, 1979, *Finger Builders Bk. 1,* Foreword) of each note.

The only other statements regarding the execution of a five-finger pattern are brief instructions. Vogt and Bates (2001) advised students to strike the notes simultaneously when playing hands together. Kreader et al. (2000) gave the following vague statement concerning descending five-finger patterns: "Use a slight rotation of the wrist to give the notes momentum" (*Technique Bk. 4,* p. 42).

Most Complete Information

Pace (1961/1983) provided the most complete information regarding his perspective on the execution of five-finger exercises. This is most likely due to the fact that his method uses the Multi-key approach and therefore is completely centered on five-finger patterns that are transposed to different keys.

Rotation

The authors who discussed the mechanics of rotation described the action in different ways. Noona and Noona (1997), Faber and Faber (1995), and Vogt and Bates (2001) described it as a rocking motion and specified that the hand is the playing unit that does the rocking. Vogt and Bates described this as the same action as is used when turning a doorknob. Similarly, Faber and Faber described the action as that of turning a key in a lock.

Fletcher (1947) and Clark et al. (1955/2000) emphasized the role of rotation in voicing by putting weight behind the rotating hand to bring out melody notes. Faber and Faber (1995) provided exercises that begin this rotation motion with the intervals of a fifth and sixth. Similar to

the rocking action, Thompson and Kaplan (1937/1994) described rotation as being useful in fast five-finger patterns, where the fingers are to be kept close to the keys, the groups of notes are rolled downward and upward, and the last note of the group is tossed off sharply.

Kreader et al. (1996) described the rotating action differently, saying that the arm follows the movement of the fingers from side to side.

Besides using rotation in voicing, Fletcher (1947) also recommended rotation for *tremolo* passages. The arm and wrist are loose to allow the hand freedom of movement in a gentle sideways motion.

None of the Method Authors mentioned the forearm as the playing unit in rotation. Instead, the hand was generally described as the rotating unit.

Most Complete Information

Fletcher (1947), Vogt and Bates (2001), and Faber and Faber (1995) described rotation the most clearly. Fletcher described both voicing and *tremolo*, while Vogt and Bates and Faber and Faber focused on more general rotation between two notes of an interval.

Scales

The Method Authors included surprisingly detailed descriptions of how to play scales in comparison with some of the other topics that were not covered as thoroughly.

Philosophy of Scale Playing

Burr and Gillock (1976) said that studying scales is important because scales are the basis of musicianship and good technique. They provided quotes by famous composers and pianists about the necessity of practicing scales and concluded, "Teachers of a high standard of excellence see to it that their pupils work on scales" (*Level 2B*, p. 32). They stated that it is imperative that students execute scales correctly. Palmer and Lethco (1971) agreed that scales are important and should be learned correctly but advised delaying scale study, because "turning the thumb under too soon results in tension that may destroy the hand rather than build it" (*Teacher's Manual*, p. 1).

Tan (1991), on the other hand, believed that scales should be practiced from the beginning to the advanced stages because,

> Scales are like wines. Good wines need time for aging and fermentation. Scales need time to mature into musical lines….From the time our students learn hands-together scales in the Beginning Level until they have to perform them in standard repertoires, there is just about enough time for their scales to 'ferment' and mature into full-blown musical lines. (*Guidebook Vol. 1*, p. xii)

Hands Together Scales

Most Method Authors advised practicing scales hands separately first followed soon after by hands together scales. Bigler and Lloyd-Watts (1979) and Tan (1991) were the exceptions. Bigler and Lloyd-Watts said students should only practice scales hands separately until far into their piano study, whereas Tan (1991) advised practicing hands together scales from the beginning as soon as the student has mastered the "thumb slides" and "hand swings" (*Guidebook Vol. 1,* p. xi) that allow for passing of the thumb under the hand and the fingers over the thumb. Practicing hands together scales from the beginning allows the student to bind together the mirrored fingerings and keyboard patterns in the mind and to treat them as one entity from the beginning.

Vogt and Bates (2001), Thompson and Kaplan (1937/1994), Faber and Faber (1995), Palmer and Lethco (1971), and Burr and Gillock (1976) all advised using contrary motion scales for the student's first attempts at hands together scales. On the other hand, Tan (1991), Pace (1961/1983), and Bastien (1985) recommended learning parallel motion scales first. Noona and Noona (1997) mentioned both contrary and parallel motion directions from the beginning of scale study.

Exercises
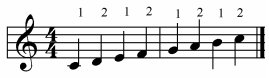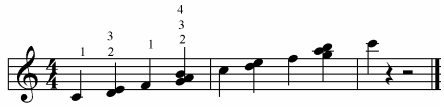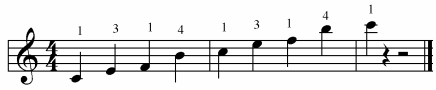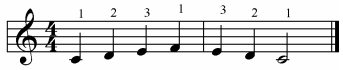
Clark et al. (1955/2000) recommended the following sequence for learning the finger crossing motions in scales.

Step 1. Students practice crossing the 2nd finger over the thumb by rolling onto the thumb nail and allowing finger 2 to cross smoothly and easily over the thumb.

Step 2. Fingers 3 and 2 are crossed over the thumb.

Step 3. Sliding the thumb under fingers 2 and 3 is learned.

Several Method Authors provided preparatory exercises for passing the thumb and fingers, such as:

-  This is practiced with 1 3 1 3 and 1 4 1 4 fingerings also (Schultz & Schultz, 1986; Tan, 1991).
-  This cluster exercise was recommended by Vogt and Bates (2001) for practice in moving the fingers as a group to the new position after the thumb plays.
-  is a variation on the exercise above, recommended by Clark et al. (1955/2000).
-  was recommended by several Method Authors for practice in passing the thumb under the hand and the fingers over the thumb.

Scales Moving out from Center (Right Hand Ascending, Left Hand Descending)

Thumb. All the Method Authors who discussed scale playing recommended some type of motion of the thumb under the hand in scales moving out from center. This motion was given different names, including "stretching the thumb under" (Thompson & Kaplan, 1937/1994), "reaching for its key" (Burr & Gillock, 1976), "passing under" (Fletcher, 1947; Pace, 1961/1983; Clark et al., 1955/2000), "sliding the thumb under" (Clark; Agay, 1987; Tan, 1991), "tucking the thumb under" (Bigler & Lloyd-Watts, 1979; Noona & Noona, 1997; Kreader et al., 1996), and "moving the thumb under smoothly" (Agay; Olson et al., 1983).

Most authors implied or stated their belief in a gradual movement of the thumb under the hand toward its next position. Agay (1987) instructed students, "Move the thumb smoothly

under without sudden twists or jerks" (*Book 2,* p. 45). Palmer and Lethco (1971) said, "After playing the first note, carry the thumb at the base of the 3rd and 4th fingers" (*Book 3,* p. 14). Fletcher (1950) provided the most complete explanation when she described an ascending C major scale in the right hand, saying, "As soon as D is played, the thumb releases C and begins to move along the surface of the keys under the fingers, so that by the time E is played the thumb is over F, ready to play F" (*Book 2,* p. 30).

In contrast, four Method Authors, Bigler and Lloyd-Watts (1979), Noona and Noona (1997), Burr and Gillock (1976), and Tan (1991), believed in a swift movement of the thumb under the hand. Noona and Noona (1997) said "Curved thumbs [should be] tucked under immediately upon releasing a key" (*Complete Performer Level 3*, p. 4). Bigler and Lloyd-Watts said, "When second finger plays, the thumb must tuck under (even though it will not play until after the third finger plays). This is an important preparation for rapid scale playing" (p. 55). Burr and Gillock agreed with this statement. Tan said, "Sliding the thumb in as soon as possible gives the thumb the opportunity to get situated and to calculate the touch needed for the next key" (*Guidebook Vol. 1,* p. 144).
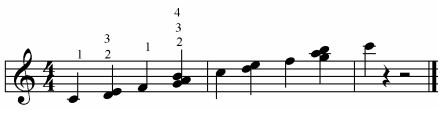
In addition, the Method Authors made the following points regarding the use of the thumb:

- The thumb is loose and moves without excess motion (Clark et al., 1955/2000).
- The thumb is light (Faber & Faber, 1995).
- The thumb stays curved (Noona & Noona, 1997).
- The thumb stays at key surface level and is not drawn up toward the palm (Fletcher, 1947).
- The crossing of the thumb and fingers is as smooth as possible (Schaum, 1962/2003; Pace, 1961/1983).
- Thumb notes are not accented (Pace, 1961/1983). Burr and Gillock (1976) added that unwanted accents on the thumb notes happen when the thumb is used as an extension of

the arm. George and George (1980/2003) said that the thumb should move from the wrist joint and should be independent from the arm's sideways movement.

- Fingers are used actively (Mills, 1973).

Fingers. The Method Authors believed that curved fingers and a tall bridge are important in playing scales so that the thumb has room to reach under the hand. This was specifically mentioned by Fletcher (1947), Clark et al. (1955/2000), Pace (1961/1983), George and George (1980/2003), and Faber and Faber (1995). The Method Authors believed that the fingers should move quickly to their new position as a unit. Vogt and Bates (2001) instructed, "Play [the] thumb and quickly position [the] fingers over [the] next keys" (*Adventurer 2B,* p. 23). The cluster exercise,



, was recommended for aiding the fingers in moving as a unit to the new position.

Tan (1991) explained a specific aspect of scale playing not noted by the other Method Authors when she said that the hand gradually moves closer to and farther away from the black keys based on the topography of the scale. In a D major scale, for instance, the thumb plays D, and then finger 2 plays nearer the black keys to bring the hand closer to the black key F#, which will be played by the 3rd finger.

Wrist. Several differences of opinion were noted in the use of the wrist in scales moving out from center.

First, Noona and Noona (1997) and Tan (1991) said the student should turn the wrist slightly away from the body. In contrast, Vogt and Bates (2001), Burr and Gillock (1976), and Agay (1987) said to avoid turning the wrist when repositioning the hand.

Regarding the level of the wrist, Agay (1987) and Tan (1991) recommended that the student avoid raising the wrist and elbow when the thumb passes under the hand and to avoid dropping the wrist and elbow when the thumb plays. Instead, the thumb and wrist move outward

evenly and gradually. In fact, Schaum (1962/2003) even suggested putting a coin on the back of the hand to keep it level. In contrast, Palmer and Lethco (1971) advised the student to lift the wrist slightly in the direction the hand is moving and to keep the wrist loose and quiet, and George and George (1980/2003) said the wrist and bridge should slant toward the 5th finger.

Third, there was a difference of opinion concerning movement of the wrist. Schaum (1962/2003) and Palmer and Lethco (1971) said there should be a minimum of wrist movement, while Fletcher (1947) said the wrist should be flexible.

Arm. The Method Authors generally focused on the role of the fingers in scale playing, implying that the role of the arm is secondary. The arm guides the fingers smoothly along the keyboard, according to Kreader et al. (1996), Fletcher (1947), and George and George (1980/2003). In addition, George and George said there should be no up and down motion of the arm.

Scales Moving in toward Center

Fingers. When passing the fingers over the thumb, the fingers "cross" (Thompson & Kaplan, 1937/1994; Clark et al., 1955/2000; Burr & Gillock, 1976), "reach" (Vogt & Bates, 2001), "slide" (Noona & Noona, 1997), or "move" (Kreader et al., 1996) over the thumb toward their notes as the thumb plays.

Thumb. Vogt and Bates (2001) and Kreader et al. (1996) explained that while the fingers are crossing over the thumb, the thumb stays over its note. However, Thompson and Kaplan (1937/1994) said that in a C major scale, for example, when E is played by finger 3, the thumb releases F and begins to move back to C. Fletcher (1947) added that this gradually moving thumb increases smoothness and speed.

Clark et al. (1955/2000), Palmer and Lethco (1971), and Tan (1991) discussed the attitude of the thumb, saying that a finger crosses over the thumb by rolling onto the thumb nail, which plays on its outside tip.

Wrist. Kreader et al. (1996), Palmer and Lethco (1971), and George and George (1980/2003) said that the student should gently rotate the wrist toward the thumb when crossing the fingers over the thumb. The wrist and forearm follow through as the fingers cross over the thumb. Agay (1987) differed in his opinion, describing the movement as a slight motion of the hand pointing inward when the thumb strikes the key. However, he cautioned that the hand should not be tilted or rotated in the crossing.

Tan (1991) added that most students swing their hands over into a new position too late and said that instead, the hand should swing while the thumb is playing.

Arm. According to Kreader et al (1996), the arm guides the fingers smoothly up and down the keyboard. Most of the Method Authors did not mention the role of the arm in scale playing.

Most Complete Information

Kreader et al. (1996) not only provided information on passing the thumb and fingers but on the role of the arm in scale playing. Fletcher (1947) and George and George (1980/2003) gave a detailed account of how the thumb is to move in relation to the other fingers. Agay (1987) and Tan (1991) described the motion of passing the thumb and fingers in detail and also noted common faults. Palmer and Lethco (1971) provided statements about the necessity of practicing scales.

Chords

Noona and Noona (1997) and George and George (1980/2003) believed that the forearm is the playing unit that should be used when playing chords, while Kreader et al. (1996) and Fletcher (1947) said the weight of the arm produces chords in conjunction with the wrist.

Fletcher (1947) provided preparatory steps for playing chords:

Step 1. The student practices dropping the arms from a raised position to the sides to feel complete muscular relaxation.

Step 2. The hand is placed over five keys with the fingers touching the key surface.

Step 3. The wrist is slowly dropped and raised without depressing the keys.

Step 4. The hand is placed over a chord with the fingers again touching the key surface.

Step 5. The chord is played, and on hearing the sound, the wrist and arm move downward. The keys are held down by the weight of the arm with no excess pressure.

Faber and Faber (1998) echoed this process more succinctly, limiting the action to the wrist. "Let your wrist 'take a bow' by gently moving it *down,* then *up*" (*Technique Level 3A,* p. 2).

Fingers. Noona and Noona (1997), Albergo et al. (2002), and George and George (1980/2003) agreed that the fingertips are to remain firm. Fletcher (1947) and Faber and Faber (1995) added that the fingers begin on the key surface. The fingers that are not playing are raised slightly, while the playing fingers are held firm and curved and used as a unit "like the tines of a fork" (George & George, *Musicianship 1,* p. 62). The Method Authors generally advocated curved fingers for chord playing.

Hand. The hand prepares the chord shape ahead of time according to Kreader et al. (1996), Agay (1987), and Tan (1991). This allows the three notes of the chord to be played exactly together, which Noona and Noona (1997), Clark et al. (1955/2000), Agay, and George and George (1980/2003) agreed is one of the most important points to remember in chord playing.

Wrist. According to Noona and Noona (1997), the wrist should be flexible. Its main role is cushioning the entrance into the keys, who also advocated rolling the wrists forward to release the chord. Tan (1991) noted that another role of the wrist is adjusting the chord for different combinations of black and white keys. The hand turns slightly to allow a finger on a black key to reach its key comfortably.

Arm. The arm is the main playing unit used in chord playing. It should be relaxed (Kreader et al., 1996), and arm weight helps to produce a beautiful sound (Fletcher, 1947).

Most Complete Information

Fletcher (1947) provided the most detailed description for executing a chord. Faber and Faber (1995) and Noona and Noona (1997) also provided succinct but clear directions.

VI. Basic Musical Inflection

Articulation: Legato

Definition

The Method Authors all defined legato as a "smooth and connected" sound and believed in its importance in elementary level study. Bastien (1985) and Pace (1961/1983) called it the "basic touch" in piano playing. Albergo et al. (2002) said, "Developing a legato line is perhaps the most important technique learned in the first years of lessons" (*Teacher's Guide,* p. 10). Legato is the first touch taught in many method books, although in some method books it is hard to know which articulation the author intended students to use at the beginning. Often slur marks are lacking at the beginning, making it unclear whether the first touch is to be non-legato or is assumed to be legato. Stating the articulation to be used would help the teacher understand what a Method Author expected.

Playing Legato

Because legato is such an important technique, most Method Authors provided at least a short description of how to play legato. Vogt and Bates (2001), Noona and Noona (1997), Glover and Stewart (1988), Pace (1961/1983), Bastien (1985), Albergo et al. (2002), Finn and Morris (1998), Burr and Gillock (1976), and Lowe (2004) all made a comparison between walking with the feet and playing legato with the fingers. Vogt and Bates and Pace specifically defined this walking of the fingers as a shifting of arm weight from one finger to another. Pace further added that exaggerating wrist rotation and keeping the elbow relaxed aids in this weight transference.

Aside from the walking analogy, the Method Authors described legato as one finger lifting while the next note is pressed down. However, the terms used often did not state exactly how much overlap, if any, is to be made between two tones played legato. Noona and Noona (1997), Kreader et al. (1996), Faber and Faber (1995), Palmer and Lethco (1971), and Finn and Morris (1998) implied that the notes should not overlap but should be timed so that one key goes down as the other is coming up. Palmer and Lethco stated, "To play LEGATO correctly, the

fingers must pass each other like the ends of a see-saw, exactly at the right place" (*Book 1*, p. 24). Noona and Noona said, "The finger sounding a tone stays in place as the next finger prepares to play. As the new finger plays the key, the original finger releases" (*Complete Performer 1,* p. 3).

In contrast, Alexander et al. (2005), George and George (1980/2003), Burr and Gillock (1976), and Agay (1987) described an overlapping of the sounds as the proper way to play legato, at least when first learning this articulation. Agay said, "A depressed key is allowed to rise only when the next key is depressed by another finger" (*Book 1*, p. 42).

Besides weight transference with varying amounts of possible sound overlap, the other method for mastering legato is the aural approach. Palmer and Lethco said, "Only by listening carefully can the student develop a true legato" (*Teacher's Manual to Book 1*, p. 24). Glover and Stewart (1988), Clark et al. (1955/2000), Albergo et al. (2002), Palmer and Lethco (1971), George and George (1980/2003), Tan (1991), and Lowe (2004) all discussed the necessity for listening to the connection of tones. George (1981) said, "Listen carefully to the beginning and ending of each note to make sure its sound is connecting smoothly (but not smearing) into the next note" (*Introduction,* p. 29). Tan emphasized the need to listen for matching shades of tone and recommended that teachers demonstrate this by playing on the arm of the student. If the tones match when playing on the piano, the depth and force of the fingers when played on the student's arm will also match.

Clark et al. (1955/2000) also advised careful listening. However, for first experiments in legato, Clark recommended that the student play fingers 3 2 smoothly connected on the keyboard cover. The teacher is then to ask the students if the notes within the slur would sound smooth and connected on the piano. However, since there is no sound to listen to other than the thump of the fingers on the keyboard cover, this strategy is in opposition to the idea of using the ears to govern legato.

Most Complete Information

Palmer and Lethco (1971), Tan (1991), and George and George (1980/2003) all provided a precise definition for legato and an understanding for the subtlety needed to achieve the correct amount of tone overlap. Along with the physical act of legato, these Method Authors also emphasized the listening component involved in playing legato.

Articulation: Non-Legato

Chronister and Kraehenbuehl (1980) and Lowe (2004) stated that non-legato should be the first touch learned by students. Chronister justified this belief when he said, "Non-legato is a sound required in standard piano literature as often as legato, probably more often than staccato. It is easier to play than either legato or staccato. This makes it a natural beginning for piano technic" (Darling, 2005, p. 199).

Although other Method Authors did not state a preference for beginning with non-legato articulation explicitly, some Method Authors, including Alexander et al. (2005), Albergo et al. (2002), Finn and Morris (1998), Agay (1987), Burr and Gillock (1976), Suzuki (1978), and Lowe (2004), implied, through the introduction of legato and staccato later in the first books, that non-legato touch should be the first touch used by beginning students.

To create a non-legato sound, Lowe (2004) said the student is to release the key as if the finger and hand is a ball bouncing. The finger feels as if it is being sent from the key, not as if the arm is lifting the finger from the key. Upon release, the finger keeps contact with the key top. This is first practiced with the fingers clustered together while the 3rd finger makes contact with the key. Similarly, Chronister and Kraehenbuehl (1980) had students begin with a braced 2nd finger in a closed hand position to play beginning pieces, which produces non-legato sounds.

Articulation: Staccato

Staccato is defined by the Method Authors as a short, detached, or separated sound. It is also described like the "bouncing of a ball" (Noona & Noona, 1997; Vogt & Bates, 2001; Tan,

1991; Lowe, 2004), "hopping" (Noona & Noona), "touching something hot" (Schaum, 1962/2003), and a "woodpecker" (George & George, 1980/2003).

Only two of the authors, Tan (1991) and George and George (1980/2003), listed the three types of staccato: finger, wrist, and arm (in that order). They said that finger staccato is used for quick, light passages; hand staccato for passages of moderate speed and tone; and arm staccato for heavy chords, octaves, and slower passages. Tan and Albergo et al. (2002) said that beginning students should use hand staccato rather than finger or arm staccato. Tan said this is because students at this level have been practicing up and down wrist motions, and hand staccato is the next step in mastering wrist movement. Also, repertoire at the beginning stages does not require light and fast or heavy staccato. Therefore, hand staccatos, which are used for medium speed and tone, are the most suitable for the beginning stages.

Hand Staccato

Most of the authors seemed to agree with Tan (1991) and Albergo et al. (2002) that hand staccato is the most suitable for young students, because they described the motion of hand staccato and excluded explanations of finger and arm staccato. Following are some descriptions of the execution of hand staccato:

- Alexander et al. (2005) introduced hand staccato through having the student knock with a loose fist on the keyboard cover with a relaxed wrist. Next, the student taps on the keyboard cover with the 3rd finger. Then this movement is transferred to the piano.
- Tan (1991) recommended that students first practice moving their wrists in the air as if they were dribbling a basketball or waving goodbye. When comfortable, this movement is transferred to the piano. At the beginning, staccato passages sometimes may be uneven and have exaggerated motion. However, as the movement becomes more comfortable, the staccato becomes more subtle and relaxed.
- "The hand drops lightly onto the key and leaves it instantly—just as a rubber ball when dropped a very short distance, bounces quickly back to you" (Fletcher, 1950, *Book 2,* p.

16). Fletcher said that the 3rd finger should be used to practice hand staccato first, followed by the other fingers.

- Pace (1961/1983) said that hand staccato depends on a precise down up motion of the wrist. The fingers are curved and firm, and the arm does not move up and down. If it does move, the non-playing hand can hold it steady by grasping it just behind the wrist.
- "The hand bounces back gently from the wrist and is made ready to drop into the next key. Do not lift the hand. Always keep the finger tips close to the keys" (Burr & Gillock, 1976, *Level 2A*, p. 20).

Other factors mentioned by the Method Authors that the student should be aware of when playing hand staccato include:

- The wrist is loose and the arm is light so that the hand can rebound (Clark et al., 1955/2000; Fletcher, 1947; Alexander et al., 2005; Burr & Gillock, 1976).
- A firm bridge and strong fingertips yield a precise, clear sound (Clark, 1955/2000; Albergo et al., 2002).
- The forearm does not stiffen (Faber & Faber, 1995).
- The fingertips turn under slightly as they drop into the keys in a scratching movement (Burr & Gillock, 1976).

<u>General Staccato</u>

Many of the Method Authors did not specify whether the staccato they were describing was wrist, arm, or finger staccato. They stated that the student should release the key as soon as it is played, placing the emphasis on key release rather than on which playing unit is doing the releasing. In addition, these authors called for:

- Motion of the hand toward the keyboard (Noona & Noona, 1997).
- A drop onto a note and then an immediate rebound to build strong fingers (Mills, 1973).
- Feeling the pulse before playing (Noona & Noona, 1997).

- Arms and wrists that remain loose and free (Glover & Stewart, 1988).
- Quiet hand position (Schultz & Schultz, 1986).
- High wrist (Noona & Noona, 1997).
- Quick finger motion (Schultz & Schultz, 1986).
- Listening to the length of the sound (Glover & Stewart, 1988).

Finger Staccato

Finger staccato, used for quick, light passages, was described in several ways. Pace (1961/1983) said it is like plucking a string with the finger. George and George (1980/2003) said that the fingers brush over the key, and the fingertip moves toward the palm. Agay (1987) provided a somewhat confusing description of finger staccato. He said, "After striking the key, the finger bounces back. It returns instantly to the raised position" (*Book 1,* p. 50). However, he did not describe whether this is a raised finger position or a raised wrist position. Vague or confusing statements abound about many techniques in the method books.

Arm Staccato

Only George and George (1980/2003) and Tan (1991) mentioned arm staccato, which George and George said is executed by bouncing the forearm from the elbow. Arm staccato is used in loud, slow passages or in passages with chords and octaves.

Mixed Articulation

When playing with staccato in one hand and legato in the other hand, the Method Authors provided the following advice:

- Vogt and Bates (2001) suggested practicing the legato hand on the piano while tapping the staccato hand in the lap.
- Kreader et al. (1996) recommended practicing both hands on the keyboard cover before playing on the piano.
- Tan (1991) advised practicing hands separately before putting the hands together.

- Noona and Noona (1997) said to practice the legato part first and then to practice the staccato part legato, reaching the bottom of the key. Next, the staccato part is played as written. Then the hands play together with a light staccato, gradually increasing the tempo.

Most Complete Information

Tan (1991) and George and George (1980/2003) provided the most complete information on the broad scope of staccato by explaining the three types of staccato as well as the uses for each type of staccato.

Rhythm

Most of the Method Authors separated rhythmic instruction from technical instruction. The following advice was given by the few Method Authors who did discuss rhythm in relation to technique:

- Pace (1961/1983) said practicing scales in rhythms of long and short notes aids in developing strong, independent finger action. The long notes must be long and the short notes should be as short as grace notes.
- Duckworth (1963) recommended teaching rhythm in relation to technique through clapping and chanting to establish rhythm in the body. He advised beginning with the larger playing units and then moving to smaller ones. Lowe's (2004) technical method also begins with large motions of the arm and moves gradually to smaller playing units.
- George and George (1980/2003) advised thinking in groups of notes rather than note by note.

Most Complete Information

Duckworth (1963) provided the strongest connection between rhythm and technique.

Dynamics and Tonal Control

Beginning

Forte and *piano* dynamics were introduced by most Method Authors near the beginning of the first book of the method series. Usually these two dynamic markings were introduced together. *Mezzo piano* and *mezzo forte* were usually introduced later, as were *crescendo* and *diminuendo*. Method authors that followed this plan include Noona and Noona (1997), Schaum (1962/2003), Clark et al. (1955/2000), Glover and Stewart (1988), Olson et al. (1983), Chronister and Kraehenbuehl (1980), Finn and Morris (1988), and Palmer and Lethco (1971).

Two Method Authors, Chronister and Kraehenbuehl (1980) and Palmer and Lethco (1971), also explained their philosophy regarding the early introduction of dynamics. Chronister and Kraehenbuehl said there should be emphasis on dynamics from the beginning, because this helps to facilitate strong dynamics contrast. Palmer and Lethco said, "Dynamics are introduced before the student plays a note, and the student learns that no notes may be played without a mental concept of the effect desired. *Listening* is the key word of this course" (*Teacher's Manual to Book 1,* p. 1). Palmer and Lethco presented *piano*, *mezzo forte*, and *forte* in the first lesson and said students should use the 3rd finger on one key to experiment with different dynamics. They believed that "Use of the three dynamic levels introduced here [at the beginning] is well within the capabilities of every student" (*Teacher's Manual to Book 1*, p. 4).

Some Method Authors introduced *forte* and *piano* a little later in the method. Vogt and Bates (2001), Kreader et al. (1996), Schultz and Schultz (1986), Pace (1961/1983), Bastien (1985), Snell and Hidy (2004), and Albergo et al. (2002) introduced dynamics in the middle of the first book. Lowe (2004), Fletcher (1947), and Burr and Gillock (1976) waited until the second book to introduce *forte* and *piano*.

Several Method Authors explained their unique philosophies for introducing dynamics. Fletcher (1947) introduced *piano* first, believing that "Beginners should play with a soft, musical tone" (*Music Lessons have Begun*, Preface). In Book 2, *mezzo piano* and *mezzo forte* were introduced,

followed by *crescendo* and *diminuendo*, and finally by *forte* near the end of the second book. Duckworth (1963), Bigler and Lloyd-Watts (1979), and Burr and Gillock (1976) agreed with Fletcher's philosophy on the introduction of quiet playing first. Duckworth believed that beginning students should play quietly, slowly, and steadily. Bigler and Lloyd-Watts said that playing quietly promotes relaxation. Burr and Gillock informed the teacher that "The sound or tone may be timid at first, but this will grow as the arm learns to stay more relaxed" (*Level 1B*, Preface).

Forte

The Method Authors that explained how to obtain a *forte* sound provided two sources for playing loudly: weight and energy. Kreader et al. (1996), Glover and Stewart (1988), Finn and Morris (1998), Palmer and Lethco (1971), and Tan (1991) advocated using arm weight to produce *forte* sounds. Kreader et al. said, "Press the key to the bottom of the keybed with full arm weight" (*Technique Bk. 1*, p. 7), and recommended "leaning into each key with full arm weight" (*Technique Bk. 1*, p. 7). Finn and Morris and Pace (2000) instructed students to make the arms feel heavy in order to sense arm weight.

Vogt and Bates (2001) and Schultz and Schultz (1986) recommended the use of more energy or force with the fingers to obtain a louder sound. Fletcher (1952) elaborated on this concept, saying that speed is what causes greater force. "The greater the *speed* with which the piano keys are depressed, the louder *the sound* will be" (*Book 4*, p. 10). However, she also advocated the use of arm weight, saying that a relaxed arm should be used for all chords, whether loud or soft.

Piano

To produce a *piano* sound, the Method Authors agreed with Kreader et al. (2000), who said, "Press the key to the bottom of the keybed with less arm weight" (*Technique Bk. 1*, p. 7). Less arm weight and a light touch produces a *piano* sound.

Mezzo forte and *Mezzo piano*

Only Kreader et al. (1996) discussed how to produce *mezzo forte* and *mezzo piano* sounds. To play *mezzo forte*, Kreader et al. advised pressing the key to the keybed with medium arm weight. For *mezzo piano*, less arm weight is used.

Crescendo and *Diminuendo*

Kreader et al. (2000) said students should be taught the gradual change of dynamics by "pressing the key to the bottom of the keybed with increasing or decreasing arm weight" (*Technique Bk. 2*, p. 18). Tan (1991) recommended first teaching a small *crescendo* between two notes by listening to the intensity of the tones, and then reversing this to create a *diminuendo*. Gradually other notes are added to create a longer sequence of notes within the *crescendo* and *diminuendo*. Vogt and Bates (2001) first introduced *crescendo* with staccato and *diminuendo* with legato articulations.

Two-Note Slurs

Many Method Authors discussed how to produce a two-note slur. They agreed that the hand and wrist drop into the first note to make it louder, and an up release of the wrist and hand is used for the second, quieter note. Clark et al. (2001) stated it in the most complete manner.

> Your fingers, wrist, and arm are poised in readiness, feeling the keys... Take a breath as you play the first note, releasing arm-weight into the finger with a slight drop of the wrist. As the tone is produced, the wrist changes direction and floats upward toward the second note… During this upward motion, play the second note. (*Keyboard Technic Part 3,* p. 10)

Noona and Noona (1997) differed slightly by saying that rolling the wrist forward is what lifts the finger from the key. Students are encouraged to say "press-release" (*Complete Performer Level 1*, p. 32) to realize the action. Bigler and Lloyd-Watts (1979) also discussed a roll of the wrist that is used to release long notes or staccato notes and to create a legato sound.

Balance between Hands

Noona and Noona (1997) prefaced a discussion of how to achieve balance between hands by saying, "You probably will not learn to do it immediately. Be patient…" (*Complete Performer Level 1+*, p. 32). The following advice was given for practicing balance between hands.

- Kreader et al. (1996), Fletcher (1947), and Faber and Faber (1995) advised adding more arm weight to the singing hand. Fletcher added that the fingers should stay close to the keys.
- Tan (1991) said to imagine hearing the melody notes near and the accompaniment tones further away.
- Noona and Noona (1997) said to play the fingertips of the right hand on the upper ledge of the piano with a legato touch and to feel the weight on the right side of the body. Then the student plays the left hand fingers softly on the upper ledge of the piano without disturbing the legato flow of the right hand. The next step is to play the right hand melody on the piano, lifting each finger slightly before striking with the finger pad. The tone should be "warm and deep" (*Complete Performer Level 1+,* p. 33). The left hand is added gently when the right hand has mastered its part.

Voicing within the Hand

Fletcher (1947) was the only Method Author who discussed voicing within a hand. She suggested bringing out the melody by turning the hand so that the fingers that play the melody are nearer to the front edge of the keys.

Most Complete Information

Fletcher (1947) gave the most complete information for teaching beginning dynamics, for producing dynamics, and for voicing within a hand. Kreader et al. (1996) also provided in-depth information regarding not just the production of *piano* and *forte* dynamics, but of *mezzo forte*, *mezzo piano*, *crescendo*, and *diminuendo* dynamics as well. Clark (1955/2000) gave clear advice for producing two-note slurs, and Noona and Noona (1997) discussed balance between hands.

Tone Quality

The Method Authors who discussed tone quality believed that the manner of striking the key determines the tone quality.

Tan (1991) said it is important to cultivate a singing tone throughout all the years of piano study, because, "A beautiful singing legato tone is *a lifetime quest*" (*Guidebook Vol. 2,* p. 97). Tan (1991) described the pianist's touch as the ability to predict the finger pressure needed to depress the keys, the depth of the keys, and "the varying ways of contact with the keys needed to produce specific tone colors (*Guidebook Vol. 1,* p. 140).

Noona and Noona (1997) stated,

> The piano is a percussion instrument. Once you strike a key you can do nothing to change the tone quality. It will gradually fade away. Therefore, it is of great importance HOW you enter each melody tone. To obtain a "singing" projected melody line each finger should anticipate that tone before pressing with a firm but gentle weight. Always maintain legato connections. Weight determines volume. By graduating the weight toward a high point or away from it you can simulate a flowing melody line. (*Complete Performer Level 3*, p. 38)

Other Method Authors offered short recommendations for achieving good tone quality, including Burr and Gillock (1976), who said the way the pianist uses the hand determines the tone quality; and Vogt and Bates (2001), who said the pianist should play on the cushion of the finger to produce a beautiful sound. Fletcher (1947) agreed, saying that arm weight in chords produces a pleasing sound.

<u>Most Complete Information</u>

Noona and Noona (1997) and Tan (1991) provided the clearest and most complete discussion of their perspectives on tone quality.

Tempo

Glover and Stewart (1988) stated, "ALWAYS practice SLOWLY to play the correct fingering, notes and rhythm as you begin learning each piece. The tempo may then be gradually increased" (*Technic Primer*, p. 4). The Method Authors generally agreed with Glover and Stewart that the tempo should begin slowly and then gradually increase. George and George (1980/2003)

explained that beginning slowly allows the pianist to play without hesitation or tension in the hands or arms. Pace (1961/1983) cautioned the pianist not to play faster than control can be maintained.

Suzuki (1978) said that students should practice up to performance tempo in small sections. The "Stop-Prepare" (Bigler & Lloyd-Watts, 1979, p. 17) technique is used to achieve this. Similarly, Faber and Faber (1995) instructed the student to play an exercise four times slowly, then four times quickly without a gradual increase of the tempo. Bastien (1985), on the other hand, said that students should play exercises at their own tempo first and later to play them at slow, medium, and fast tempos.

Most Complete Information

Of the Method Authors, George and George (1980/2003) and Pace (1961/1983) provided reasons for their perspectives on tempo, thereby providing the most complete information on the subject.

Conclusion to Method Authors

This section presented information on the method series chosen for this study in relation to the Elementary Level Technical Concepts. In the survey of methods for this study, it was clear that method books do not provide clear or detailed information on the topic of elementary piano technique. This is unfortunate, as method books are the main source most teachers use to begin their students in piano study. The source groups presented in this study that form the 107 Technical Principles in Chapter VII aim to provide teachers with more in-depth knowledge about technique based on sources other than the method books.

Current Pedagogical Materials

Sources

Article Authors

Enoch, Y. (1983)

Tubiana et al. (1989)

Glaser, K. (1993; 1994; 2003)

McCray, M. (1994). With contributions from J. Allen, A. Brandfonbrener, E. Del Rosario, E.L. Lancaster, P. Lehrer, J. Lowenthal, J. Magrath, R. Penneys, P. Pollei, R. Shannon, A. Simon, D. Taubman, and N. True.

Lister-Sink, B. (1994; 1999)

Wristen, B. (2000)

Pedagogical Books

Bastien, J. (1973/1995). *How to Teach Piano Successfully.* With contributions from A. Marcus and N. True.

Lyke, J., Enoch, Y., and Haydon, G. (1977/1996). *Creative Piano Teaching.* With a contribution by G. Berenson.

Agay, D. (1981). *Teaching Piano.*

Camp, M.W. (1981). *Developing Piano Performance.*

Camp, M.W. (1992). *Teaching Piano.*

Clark, F. (1992). *Questions and Answers.*

Uszler et al. (2000). *The Well-Tempered Keyboard Teacher.*

Kropff, K. (2002). *A Symposium for Pianists and Teachers: Strategies to Develop the Mind and Body for Optimal Performance.* With chapters by G. Berenson, J. Csurgai-Schmitt, Y. Enoch, and I. Hobson.

Baker-Jordan, M. (2003) *Practical Piano Pedagogy.*

Mark, T. (2003). *What Every Pianist Needs to Know about the Body.*

Darling, E. (2005). *A Piano Teacher's Legacy: Selected Writings by Richard Chronister.*

Jacobson, J. (2006). *Professional Piano Teaching.*

Note on the Sources: Articles and books related to teaching piano to children abound. In an effort to represent the most recent and thorough materials on the subject of teaching piano technique to children, the sources for this chapter were chosen based on the following criteria:

- The source was published (or revised) after 1980, and
- The source directly addressed the topic of teaching piano technique at the elementary levels, and
- The author is prolific or is well-known in piano pedagogy circles, or
- The source appeared in a scholarly journal.

Sources are referred to by their author even when they are part of a larger work edited by another author so that the remarks are attributed to the proper person. Writings by authors that are also represented in the previous section on methods were treated separately. Those writings explicitly related to that author's method were discussed in the method section, while other writings were discussed in this section.

I. Philosophy

Philosophy of Technique

Importance of Technique

Technique is vitally important to the development of young students. Jacobson (2006) provided a succinct definition for technique: "Being able to do what one wants to do at the keyboard when one wants to do it" (p. 155).

Coordination and Comfort

According to Hobson (1977/1996) and Lister-Sink (1999), coordination of the playing units of the body is essential to a good technique. Lister-Sink said, "Healthy technique is

coordination of the whole body, mind, and spirit—with the piano" (p. 21). Therefore, piano study should begin with a focus on the large movements of the body (Lister-Sink, 1994). Wristen (2000) also spoke about the importance of coordination, saying "The pianist should develop a technique characterized by integrated, coordinated motions, so that forces are distributed throughout the anatomy instead of being localized" (p. 61).

In order to understand coordinations in the body, Mark (2003) believed that it is imperative for the student and teacher to have a clear "body map," or mental representation, of the location of bones and muscles in order to provide intellectual knowledge that correlates with the kinesthetic feeling of coordination. Lister-Sink (1994) believed that a primary goal in teaching technique is instilling and making automatic a vocabulary of gestures in the student's body and mind.

Coordination leads to natural, free, and comfortable playing. As Chronister said, proper piano playing "requires a natural approach to the keyboard—the player must feel physically comfortable at the keyboard in order to control the sound that comes out of the instrument" (Darling, 2005, p. 205). Besides Chronister, this idea of comfort in playing was discussed by Taubman (1994), True (1994), Mark, (2003), and Wristen (2000). Chronister summarized the relationship between comfort and coordination of the body, stating, "The pieces that any child loves to play over and over are those that *feel* good. The pieces he plays correctly and plays often are the pieces that teach him habits. If the habits are good ones, progress will be swift and secure, and our student will enjoy his lessons and his practice" (p. 201).

Wristen (2000), although she agreed that comfort is important in playing, cautioned, "Learning a new skill involves a certain degree of incoordination due to unfamiliarity, but this incoordination of discomfort should not be confused with actual physical pain" (p. 63). Therefore, teachers should help their students develop correct technical habits, even if these habits feel unnatural to the student at first.

Rote Learning

Baker-Jordan (2003), Jacobson (2006), Berenson (2002), and Camp (1992) recommended rote learning for the beginning student. Camp said that rote teaching allows students to develop coordination, which breaks down when notational textures are too complex. "Physical problems tend to disappear if approached from an aural standpoint rather than from a notational one" (p. 14).

Perfection

When teaching children, Chronister (Darling, 2005) and Wristen (2000) recommended that teachers should not expect technical perfection at first. Chronister compared the process of technical attainment to that of drawing. When a child begins to draw, the adult does not expect perfection. The same applies to first efforts at the piano. Teachers need to be reasonable in their expectations of beginning students regarding perfection in technique and in musicality.

Philosophy of Teaching

The Beginning Teacher

The Current Authors agreed with Adele Marcus (1973/1995) that "elementary training is of paramount importance" (p. 329). Bastien (1973/1995) went as far as to state, "The beginning teacher can 'make or break' a young pianist" (p. 5). Simon (1994) agreed, saying, "The playing habits acquired during the early years of piano study that lead to injury result from bad teaching and bad observation by the teacher" (p. 14). Camp (1981) encapsulated these thoughts when he said,

> …Those students who receive effective training during their early years of piano study have the greatest chance of developing their performance potential. The reason, quite simply, is that most successful performers, amateurs and professionals, are individuals who have been fortunate enough to study, from their beginning lessons, with exceptionally-gifted teachers. (Preface)

Chronister (Darling, 2005) and Camp (1981) believed that an excellent teacher is necessary for all students, regardless of a student's talent. Camp and Pollei (1994) stressed the necessity of a careful sequence of concepts and repertoire, because, "When a teacher properly

sequences the instruction, normal students can nearly become as adept as naturally coordinated students" (Camp, p. 49).

Teacher Training

Teacher training is important, because, "The best pianists do not always make the best teachers. Instead of relying solely on personal experience, the piano teacher should consider relevant biomechanical and ergonomic considerations in teaching piano technique" (Wristen, 2000, p. 62). Baker-Jordan (2003) additionally noted that "advanced technique does not always translate well or adequately to what is needed in the very beginning stages of piano study" (p. 99).

Issues in Teaching

Specific issues for teachers to remember that were mentioned by the Current Authors include the following:

- The teacher should use simple terminology that can be easily understood by young students for technical concepts such as arm weight, forearm rotation, and relaxation (Bastien, 1973/1995).
- Teachers need to remember that "a set prescription is never advisable for all piano students at any level of advancement" (Camp, 1981, p. 45).
- Similar to the point above, teachers should be careful not to give instructions that bring about stereotyped movements, because if followed diligently, these instructions could cause the student to "acquire a small repertoire of tense movements instead of a huge repertoire of free movements adaptable to any pianistic situation" (Mark, 2003, p. 7).
- Further, when working with children, "Basing observations on adult norms may be counterproductive; children are not scaled-down adults" (Wristen, 2000, p. 58).
- Teachers should move around the piano to observe the student's technique from all angles (Glaser, 1994).

- The teacher's posture is important, since students will imitate the teacher's posture (Glaser, 1994).
- Chronister (Darling, 2005) stressed the importance of setting students up for success by making sure they have mastered a concept before allowing them to practice it at home, since "a week of poor practice can easily take two or three months to correct" (p. 201).
- Chronister (Darling, 2005) often advised placing a hand over the student's hand and playing the student's hand, thereby passing on the proper sensations and motions in a tactile manner.

II. Basic Components

Posture

The Current Authors all agreed that posture is important. Clark (1992) and Tubiana et al. (1989) stressed that a technical problem could in fact be caused by a dysfunctional posture. Agay (1981) recommended visualizing the entire body, from feet to fingertips, as "a unified, finely integrated playing mechanism" (p. 14).

Sitting Position

When sitting properly, the weight of the body is balanced on the two ischial bones of the pelvis, and the pianist sits on the front half of the bench, aligned to middle D (Jacobson, 2006). Enoch (1977/1996) added that a slight separation of the knees aids in balancing on the ischial bones. Clark (1992) and Mark (2003) said that the base does not come solely from the sitting bones on the bench, but also from the feet in contact with the floor. Bastien (1973/1995), Clark, and Agay (1981) believed that the pianist should lean slightly forward. Glaser (1994) cautioned that body proportions affect positioning at the piano. Arm and torso length affect how much of the hips and thighs rest on the bench, as well as the height of the bench.

Enoch (1977/1996) said that young children can stand while playing, because this allows for greater balance. However, the moment a child becomes so tall that the arms are no longer bent, the student must sit.

Distance from the Piano

According to Jacobson (2006), Clark (1992), and Enoch (1977/1996), the pianist is to sit so that the arms can move freely in front of the body. Sitting too close to the piano causes a cramped position of the arms. Clark said that sitting too far away from the piano is also detrimental, because students then have to reach for the keys.

The proper distance can be tested by placing the hands on the keyboard and then standing up. If it is difficult to stand while keeping the hands on the keyboard, or if the legs touch the bench, the student is sitting too close (Jacobson, 2006).

Height

The proper sitting height is important, because sitting at the wrong height disturbs wrist technique (Jacobson, 2006; Glaser, 1994). Most of the Current Authors, including Jacobson, Mark (2003), Clark (1992), Bastien (1973/1995), Agay (1981), and Berenson (1977/1996), agreed that the proper height is one that allows the forearm to be level with the keys. Clark explained that if the student sits too high or too low with the forearms sloping down or up, the sense of freedom and balance is lost. Enoch (January 1983) disagreed, saying that the forearms should slope gently down from the elbow to the hand.

Mark (2003) said that the proper height may feel high at first and noted that even adjustable benches are not high enough for many pianists. Mark and Berenson (1977/1996) suggested raising the student to the proper height by placing carpet samples on the bench, which provide better support than cushions. Clark (1992), on the other hand, recommended placing the carpet samples under the legs of the bench rather than on the bench. Bastien (1973/1995) said cushions or books are acceptable.

Feet

The Current Authors agreed that the feet should be flat on the floor and slightly apart. Berenson (1977/1996) and Glaser (1994) stated that the right foot should be slightly ahead of the left to maintain stability and balance. Several authors, including Jacobson (2006), Enoch (January

1983), Clark (1992), Bastien (1973/1995), Berenson (2002), Agay (1981), and Glaser, recommended a footstool for children whose feet cannot reach the floor. If a footstool is not available, Jacobson advised students to sit farther back on the bench and to use the whole weight of the body for sitting and to allow the legs to dangle free or the ankles to cross. Clark also mentioned crossing of the ankles as an option if a footstool is not accessible.

Back

The back is to be straight, which, according to Enoch (1977/1996), is the most restful sitting position. Furthermore, Berenson (1977/1996) and Jacobson (2006) said that focusing on the back and shoulder girdle stability ensures flexibility in the torso for moving from side to side. The pianist should feel the spine all the way to the base of the skull, with the neck and head balanced on the spine. The head reaches up and does not tip down or reach forward.

Mark (2003) noted that pianists often "mismap" (p. 24) the spine by thinking that it is close to the surface of the back. In reality, the lumbar region of the spine passes through the center of the body and holds up the head from the center "like a pumpkin on a broomstick" (p. 34). Mark said,

> People who imagine that the support from the spine is along the surface of the back instead of up through the middle of the body develop a 'back-oriented' way of standing and sitting. They may throw the weight backward toward the tailbone, even though the tailbone is not designed to bear weight. Back orientation is extremely common among pianists, and extremely destructive. (p. 24)

The torso should be free to move from side to side and forward and backward by way of a slight movement of the hips (Jacobson, 2006; Glaser, 1994). Lister-Sink (1994) said the torso should be well-balanced and supported.

Shoulders and Upper Arm

The Current Authors agreed that the shoulders are to be dropped and relaxed. Proper position of the scapula is important for fine control of hand movements (Tubiana et al., 1989). If the student's shoulders rise while playing, a teacher's touch on the shoulders is usually enough to

remind the student to relax them. If not, having the student raise and drop the shoulders will bring awareness to their proper position (Clark, 1992).

The upper arms are to be positioned at a slight angle away from the body (Jacobson, 2006; Enoch, January 1983; Baker-Jordan, 2003; Agay, 1981). Csurgai-Schmitt (2002 *Pianist's Physiology*) set this angle at 20 degrees away from the body.

Hand Position

Importance of Hand Position

A correct hand position "allows the student to form a habit of playing with control without undue tension" (Darling, 2005, p. 208) and aids in preventing injury. Most of the Current Authors specifically stated what they believed about the components of a proper hand position. However, Csurgai-Schmitt (2002 *Pianist's Physiology*) put the details of hand position in perspective, saying, "Ultimately, finger position should depend upon the musical context, the dynamics, and the articulation required by the music. It should be chosen not only for physical endurance and comfort, but also for pianistic color and expression" (p. 50). Therefore, she urged pianists to be familiar with several hand positions.

Curvature of the Fingers

Most of the Current Authors, including Jacobson (2006), Baker-Jordan (2003), Agay (1981), Csurgai-Schmitt (2002 *Pianist's Physiology*), Berenson (1977/1996), and Mark (2003), believed that the fingers should be naturally curved as they are when the hand hangs at the side of the body, and that they should play on the finger pads. Naturally curved fingers provide a base position for the fingers, because they yield a "position in which muscles are not working either to straighten the fingers or to curl them. It is neutral for the fingers, the place from which motion is easiest" (Mark, p. 107). Mark added that the pianist needs to be aware that when standing with the arms at the side, the palms will be facing backwards with the thumbs to the sides if the arms are fully released. In this natural position, Agay noted that the fingers do not touch the keys along a straight line but on a curving arc, since some fingers are longer than others. Because of this, the

most natural hand position, according to Agay and Enoch (1977/1996), is the one Chopin used with his students, where the fingers are placed in a five-finger position with fingers 2, 3, and 4 on black keys and fingers 1 and 5 on white keys.

Agay (1981) said that flat fingers should be used at times to produce a "mellow, cantabile effect" (p. 13). Csurgai-Schmitt (2002 *Pianist's Physiology*) said it is easier to play fast with flatter fingers. The other Current Authors did not mention flat fingers, except for Bastien (1973/1995), who said, "Flat fingers…should be discouraged from the beginning" (p. 95).

Overly curved fingers were not advocated by the Current Authors, except for Bastien (1973/1995), who said the fingers should be "curved" (p. 109). His definition of "curved" appears to be quite curved from the photo entitled "Preschool child with the correct hand position" (p. 96), which features a child with very curved and tense-looking hands.

Extremely curved fingers are detrimental, because curling the two end joints of the fingers is accomplished by contracting the flexor muscles on the lower side of the forearm while contraction of the extensor muscles on the top of the forearm lifts the fingers. When curved fingers are lifted, an antagonistic or "co-contraction" (Mark, 2003, p. 107) of the flexors and extensors is effected, causing tension.

Csurgai-Schmitt (2002 *Pianist's Physiology*) noted that lateral movement of the fingers is more difficult with curved fingers and that presetting the hand with curved fingers before key depression creates tension. Therefore, the fingers should not be too curved. Wiggling fingers that are flat, slightly curved, and very curved will show students that slightly curved fingers are easiest to move (Jacobson, 2006).

Collapsing Nail Joints

The Current Authors believed that collapsing nail joints are detrimental to playing. Only Jacobson (2006) said that collapsing nail joints are acceptable, and this is only for a short time until the student learns to move the fingers from the bridge.

To solve collapsing nail joints, Jacobson suggested having the student place the hand flat and gathering the fingers up to the correct position without tension. This strengthens the finger joints and prevents their collapse. Bastien (1973/1995) advised playing triads to develop curved fingers that do not collapse. Berenson (1977/1996) said that holding the nail joints firm is a gradual process of strengthening the muscles that support the finger joints, and Enoch (1977/1996) said collapsing nail joints requires "constant vigilance and correction" (p. 108) on the part of the teacher.

Wrist

The wrist is to be flexible rather than stiff (Jacobson, 2006; Enoch, January 1983). The proper wrist position is one that is level with the hand, according to Jacobson, Baker-Jordan (2003), Taubman (1994), Lancaster (1994), and Berenson (1977/1996). Although there are times when the wrist moves vertically and laterally, it should return to a naturally level position as soon as possible to avoid tension (Jacobson).

Lateral movements of the wrist were only advocated in certain instances. Usually, the wrist should be in a straight line with the hand and arm. Mark (2003), Csurgai-Schmitt (2002 *Pianist's Physiology*), and Taubman (1994) discussed one specific danger related to the line of the hand and arm called "ulnar deviation." This is where the side of the arm closest to the body (the ulnar side) and the thumb form a straight line. This turns the arm so that the hand is "thumb-oriented" (Mark, p. 108), which makes the 5th finger side of the hand feel weak and can cause injury. Instead of an ulnar-deviated hand, the proper position for arm and hand alignment is one where the side of the arm away from the body (the radial side) is aligned with the 5th finger (Mark).

Bridge of the Hand

Jacobson (2006), Enoch (1977/1996), Baker-Jordan (2003), Agay (1981), and Berenson (1977/1996) stated that the bridge should be the highest part of the hand, protruding slightly higher than the wrist. Enoch cautioned teachers not to assign exercises that involve playing the 5th

fingers until the bridge has been formed, because if the hand is weak, there is a risk that the side of the hand, instead of the finger, will be used to play the 5th finger.

Thumb

According to Jacobson (2006), the thumb plays on the pad on the outside of the fingernail and is nearly straight without either of the two thumb joints pointing outward, collapsing inward, or touching the key surface. Agay (1981), Baker-Jordan (2003), and Mark (2003) said that the thumb plays on its corner. Enoch (1977/1996) added that the thumb always stays close to the 2nd finger in a curved position, and Enoch and Bastien (1973/1995) said the thumb is not allowed to hang off the keyboard or to rest on the wood.

5th finger

The Current Authors agreed that the 5th finger should stand up rather than playing flat. Agay (1981) said the 5th finger should play in an almost straight position.

Forming a Correct Hand Position

The authors provided the following approaches to assist students in forming a correct hand position.

- Chronister (Darling, 2005) and Baker-Jordan (2003) advocated beginning with fingers 1 and 5 to form the outside of the hand first and then adding the middle fingers, because "unless the outside of the hand (thumb and fifth finger) are providing support, the entire hand is likely to collapse if the student tries to play with the middle three fingers" (Baker-Jordan, p. 100).
- Jacobson (2006) suggested having students place their hands over their knees or to imagine holding a bubble to feel the rounded position. (Enoch, 1977/1996) recommended having students hold a ball firmly in the palm and then looking at the hand from all directions to see how the fingers are positioned on the ball. Baker-Jordan (2003), on the other hand, disagreed with the use of terms like "bubble" and "ball,"

preferring "specific and appropriate language" (p. 103) that relates directly to the playing apparatus.

- Jacobson (2006) advised having students place their hands flat on a table and gathering the fingers up into the correct position "like a spider" (p. 159).
- Enoch (January 1983) said to let the fingertip of the 3rd finger drop from a loose wrist onto a white note and then to hold it down lightly. The wrist is then drawn close to the 3rd finger with a bent thumb touching finger 2 in a grasping position. This yields an arched hand position.

Tone Production

Order of Presentation

Most of the Current Authors advised beginning with a whole arm stroke, since "children develop large-muscle coordination before small-muscle control in the fingers" (Jacobson, 2006, p. 157). Requiring finger independence too soon ruins hand position, according to Jacobson.

Regarding the order of presentation of the fingers, Bastien (1973/1995) recommended having students begin playing with fingers braced by the thumb. Baker-Jordan (2003) and Chronister (Darling, 2005) believed that students should begin playing with a closed hand position and then move to an open hand position with fingers 1 and 5 blocked. This helps to maintain and build the hand shape. Next, fingers 2, 3, and 4 are introduced. Fingers flying off the keys is a sign of tension that will disappear as the student gains confidence and security with the middle fingers. Those fingers not playing should rest on the keys (Baker-Jordan).

On the other hand, Jacobson (2006) and Camp (1992) said that beginning with fingers 2, 3, and 4 on the black keys is most beneficial, because it allows students to begin playing with fingers that are easier to balance rather than having to coordinate the thumb and fingers. Uszler et al. (2000) added that fingers should be introduced from the weak side of the hand to the strong (4 3 2 rather than 2 3 4) because when drumming fingers on a table, the natural direction is to move from fingers 5 to 2 rather than from fingers 2 to 5.

Whole Arm Stroke

Uszler et al. (2000) stated that in a whole arm stroke, the hand moves in conjunction with the forearm and is directed by the shoulder. Use of large movements fosters the feeling of arm weight, which is the basis of a rich, full sound.

Enoch (May, 1983) described the relationship of the arm to the fingers when using a whole arm stroke, where the finger acts as a support for the whole arm. The wrist falls below the keyboard and rises as each finger plays in a circular movement while the elbow remains the center of this movement and aligned with the wrist. As the arm is extended, the shoulder is free to move forward. This freedom of movement, combined with the weight of the arm supported by the finger, produces a *cantabile* tone. The arm and fingers pull rather than push the keys down. The arm should not jog up and down as each note is played, as this produces "unnecessary jerky movements difficult to eradicate later" (Enoch, March 1983, p. 18).

Camp (1992), on the other hand, said that wrist motion should be minimal. Pumping the wrist on each arm or finger stroke is common among students but is detrimental, because the music played this way lacks a sense of phrasing or rhythmic pulse.

Forearm Stroke

Jacobson (2006) said students should begin learning the whole arm stroke by practicing the forearm drop, which leads to a whole arm drop. The forearm stroke is described as a free drop of the arm using gravity and the weight of the arm. The forearm is raised using the biceps, not the triceps. Then the wrist lifts, and the fingers and hand are relaxed at the wrist. The forearm drops onto clusters of keys. When the fingers land on the keys, the hand should look as it does when the arm is hanging at the side of the body, with naturally curved fingers. The elbow and upper arm feel like "gelatin" (p. 157) during the raising and dropping of the arm.

When the forearm drop has been mastered, the whole arm can be lifted without engaging the shoulder or shoulder girdle, moving freely from the "armpit joint" (Jacobson, 2006, p. 158). The arm lifts effortlessly and then drops.

Mark (2003) described the forearm stroke differently. He said the pianist should pretend that the forearm is an arch, with the top of the arch being the back of the hand (the metacarpal bone). The forearm does not appear to be arched but looks level. Imagining an arch provides structure to the arm without using muscular effort. Moving from the elbow joint, the forearm descends so that the fingers land on the keys. There should be no collapse in the wrist or in any other joint, nor should the fingers or hand anticipate the movement of the arm.

Hand or Wrist Stroke

Agay (1981) was the only Current Author to mention hand stroke, which is a motion where the hand and fingers move up and down as a unit, loosely anchored at the wrist. This touch is useful for articulating slurs and phrases.

Finger Stroke

In a finger stroke, the finger moves as a unit from the bridge (Jacobson, 2006; Csurgai-Schmitt, 2002 *Pianist's Physiology*). To sense this movement, Csurgai-Schmitt suggested placing the fingers of the non-playing hand on the palm side of the playing hand behind the crease where the bridge is located. The student then can wiggle the fingers and see how easily they play when the hand knuckles are stabilized.

Finger stroke was always described as working in conjunction with the arm and was often likened to walking in a weight transference touch (Enoch, July 1983; Berenson, 1977/1996; Hobson, 1977/1996). The arm is in line behind each finger as it plays, and a slight shifting of the wrist accommodates each finger (Enoch; Jacobson, 2006). Berenson said that this wrist shift is a slight rotary action. The arm helps the fingers push the keys down, though the fingers must be strong enough to support the weight of the arm.

The non-playing fingers stay close to the keys (Jacobson, 2006; Enoch, 1977/1996). The playing fingers are not lifted too high, which Csurgai-Schmitt (2002 *Child's First Lessons*) said is a common tendency of inexperienced players, because this causes antagonistic contraction of the flexors and extensors. Del Rosario (1994) and Brandfonbrener (1994) agreed with Csurgai-

Schmitt that high finger technique is detrimental. Agay (1981) disagreed and recommended high finger action to aid in developing a firm touch, finger strength, and finger independence.

After the key has been depressed, pressure on the keybed is released (Jacobson, 2006). Enoch (March 1983) said, "Weight must be controlled before [the keybed] is reached" (p. 18). The student should experiment to find the least amount of finger energy required to make the hammer strike the strings and the least pressure needed to prevent the key from coming up (Enoch).

Playing Apparatus

Muscles

Mark (2003) believed that for pianists, knowing where the muscles are located is just as necessary as understanding the skeletal structure, because this helps the pianist map, or perceive, the body as it really functions, leading to better posture and freer movement in playing. Wristen (2000) said, "Avoiding jerkiness in motion will allow tendons and muscles to stretch gradually and smoothly" (p. 61). This is another reason why comfortable and natural movements are imperative in playing.

Body

Coordinated movement of the parts of the body is important, because if some parts of the body become fixed or stiff, other parts will compensate for the dysfunctional ones, leading to a poor quality of movement (Wristen, 2000; Mark, 2003).

Breathing

Glaser (1994) remarked that inhibited breathing affects every part of the body, and Mark (2003) said that breathing and playing should be coordinated so that breathing does not feel at odds with the music.

Ear

The ear was mentioned repeatedly as an important part of the playing apparatus. Jacobson (2006) said, "It is critical that beginners start with an aural image of sound and music"

(p. 69), because "ultimately really good musical technique will depend on the listening ability of the pianist" (Enoch, March 1983, p. 18). This is made possible through playing by ear or learning by rote before reading music, according to Jacobson and Berenson (2002).

True (1973/1995) said that technique cannot improve without listening. This important skill of listening to the sounds that are being produced is aided by singing (Enoch, 1977/1996). One of Camp's (1981) definitions of technique relies heavily on the ear: "Rather than considering technique as being purely 'physical,' one should consider technique as the ability to meet the demands of the ear" (p. 56).

Back

The spine is a flexible series of bones that can lengthen and gather together. Spinal lengthening and gathering is important for pianists, because it provides support to the arms (Mark, 2003).

Shoulder and Upper Arm

The upper arm and shoulder muscles move the upper limbs over distances and provide strength, stability, and endurance (Wristen, 2000). The shoulders should be free and relaxed but not pulled down actively. Movements of shoulder blade and collarbone are small but vital. However, the shoulder joint should not move too much. Instead, the section between the shoulder and the clavicle should move to assist the shoulder (Mark, 2003).

Elbow and Forearm

The role of the forearm, hand, and fingers is to provide speed for rapid movements at key level (Wristen, 2000).

Wrist

Mark (2003) said that pianists often mismap the wrist by thinking of it as too short. In reality, the wrist extends from the boney lump at the end of the ulna toward the hand about two inches. This means that when looking at the palm side of the hand, the wrist extends about one

inch into the fleshy part of the hand. "The beginning of your palm does not indicate the end of the wrist" (Mark, p. 89). Thinking of the wrist as long and flexible leads to freer movement.

Pianists should avoid extreme flexion or extension of the wrist, because this increases the work of the extensors and flexors. Dropping the wrist below key level should also be avoided. Wrist motions should be gentle and smooth, according to Wristen (2000) and Shannon (1994). Magrath (1994) cautioned pianists to avoid pushing weight into the wrist. Instead, the weight of the arm is allowed to move through the wrist and hand to the fingers.

Hand

Mark (2003) said that a good body map does not include the hand as separate from the fingers. Instead, the radius of the arm connects to a flexible joint, the wrist, which connects to the fingers.

Fingers

The fingers do the major part of the work in playing, but they function in conjunction with the arm, which transfers power to the keyboard through the forearm, hand, and fingers (Enoch, 1977/1996). The fingers move from the bridge, but when looking at the palm, the crease where the palm joins with the fingers does not indicate the location of the finger joints. Movement will be stiff if thought of in this way, because it causes the back of the hand to narrow and to arch upward. Instead, pianists should think of the joint, not the crease, as the place of movement (Mark, 2003).

Thumb. "The thumb has an important role in stabilizing all the arches because of its strength throughout its wide range of motion…" (Tubiana et al., 1989, p. 75). The thumb moves from the joint where the thumb connects to the wrist joint (carpo-metacarpal joint), not from the middle joint (metacarpo-phalangeal joint) (Mark, 2003). The thumb plays on its corner rather than on its side, because playing on the side of the thumb lowers the arm and hampers movement.

When it moves, the thumb receives support from the forearm. There can be a slight feeling of tilting in the forearm when playing the thumb in order to distribute the effort across the

entire forearm. The thumb remains free and the muscles around it are loose (Mark, 2003). Csurgai-Schmitt (2002 *Pianist's Physiology*) said that the thumb should not bend at the nail joint, because the last two phalanges move more efficiently if they are in a straight line instead of being curved. By curving the thumb, the length is shortened and retains unnecessary tension.

4th and 5th Fingers. The 4th and 5th fingers are not weak, as is commonly believed, but they do need to be utilized with proper support from the arm (Mark, 2003). Csurgai-Schmitt (2002 *Pianist's Physiology*) said that the pianist should not allow the side of the hand to move down with the 5th finger and recommended using the non-playing hand to support the bridge of the playing hand until this tendency disappears. Moving the entire bridge of the 5th finger down when playing, instead of the finger from the joint, makes the 5th finger feel difficult to move.

Csurgai-Schmitt (2002 *Pianist's Physiology*) said that the 5th finger should be played with the small finger muscles that flex the finger without moving the whole bridge rather than with the large muscles on the outside of the hand. She added that muscle tone in the small finger muscles will eventually allow the hand knuckles to remain on a level plane without external support, and the tendency for the 4th and 5th fingers to move up and down will cease. Tubiana et al. (1989) said the 4th finger works better when exactly aligned with its metacarpal bone and aided by the well-coordinated action of the muscles.

Contraction and Relaxation

Mark (2003) defined tension as "excessive muscular work—work in excess of what is needed to accomplish the task at hand" (p. 1). The Current Authors believed that excessive tension is detrimental to playing. Lister-Sink (1999) and Glaser (1993) said that muscles should contract when they are needed and release when they are not. Clark (1992) and Glaser (1994) said that extreme tension can manifest anywhere in the body. Clark said that teachers should watch especially for awkward and jerky motions of the head, facial contortions, pressed lips, a drawn mouth, an extended tongue, grimaces, raised shoulders, stiff upper arms, locked elbows, tense wrists or thumbs, and heels on the floor and toes in the air or vice versa.

Magrath (1994), Mark (2003), Glaser (1993), Brandfonbrener (1994), and Shannon (1994) said that excessive tension when practicing can lead to injury. Lowenthal (1994) said tension should be confined to the nail joint of the finger. Tension is necessary in the fingers because otherwise "a pianist is obliged to resort to such harmful practices as raising the shoulders, lifting the elbows, clenching the hand, and crooking the thumb" (Lowenthal, p. 16). Taubman (1994) took the opposite perspective, saying, "Students should not have any tension to relax from in the first place" (p. 18). Enoch (March 1983) advocated a moderate approach, saying that instead of completely relaxing, students should be told to avoid stiffness.

Besides excessive muscular contraction, Glaser (2003) and Magrath (1994) said that tension also is sometimes caused by a lack of finger strength, which may trigger other playing units to tighten. Brandfonbrener (1994) added that tension also can result from exercises that call for unchanging, rigid hand positions for extended periods of time.

Tension in the hands can be tested by lifting the student's finger off the key, which will be easy if no tension is present (Enoch, March 1983). Lister-Sink (1994) suggested having the student learn to voluntarily contract and release muscles, because this will provide students with an awareness of contraction and relaxation. For a tense wrist, Clark (1992) said touching the wrist from underneath will ensure relaxation. If this does not fix the problem, having the student stop playing to dangle the hand from the wrist will encourage the release of tension.

Mind/Body Relationship

The Current Authors, including Jacobson (2006), Camp (1981), and Enoch (1977/1996), agreed that forming a mental picture of the sound and feel before playing is important and that the proper sound will follow this musical intention. Jacobson emphasized, "From the beginning of piano study, young students can be taught to imagine the desired sound and the correct motions for efficient playing" (p. 155).

Mark (2003), Lister-Sink (1999), and Camp (1981) added that mental attention is important not just for the musical intention, but also for technical fluidity. Mark said, "We need

to attend to movement throughout our bodies as we play the piano…That is because *parts of the body that are not included in our awareness are likely to become fixed*" (p. 9). Camp emphasized that if students have played for several years with poor mental direction, physical problems will ensue. Berenson (1977/1996) and Agay (1981) also noted the importance of practicing repetitiously and purposefully but never mindlessly.

III. Exercises

Gymnastic Exercises

Csurgai-Schmitt (2002 *Physiological Envelope*) discussed the importance of gymnastic exercises for warming up and for increasing the range of motion of the muscles. This leads to more finely coordinated pianistic movements and a freer and better coordinated playing mechanism. See Appendix K for a list of gymnastic exercises.

In addition to warming up exercises, Clark (1992) also often advised practicing on the keyboard cover, because this brings a freedom to movements that transfers to playing on the keys.

Exercises

The following reasons for including exercises in the piano curriculum were provided by the Current Authors who believed in using exercises:

- Preparation for a certain technique in a piece (Jacobson, 2006; Del Rosario, 1994). Del Rosario said that simple exercises are best, because they allow the student to concentrate completely on the technique and sound instead of diverting some attention to reading complexities.
- Overcoming difficulties in pieces (Bastien, 1973/1995). Enoch (1977/1996) cautioned that technical exercises should only be given for a specific purpose, because if the exercise does not relate to a piece, students may become bored.
- Learning the fundamental forms common to piano music such as scales, arpeggios, chords, etc. (Jacobson, 2006; Allen, 1994; Agay, 1981).

- Developing technical facility and finger movement (Jacobson, 2006; Clark, 1992; Enoch, 1977/1996).
- Automatizing mechanical details so that the mind is freed to concentrate on musical nuances (Agay, 1981).

The Current Authors who did not believe in using exercises provided the following reasons for not assigning them:

- Rather than exercise regimens, the pianist should be aware of the quality of movement at all times (Mark, 2003; Taubman, 1994).
- "Exercises are not particularly productive after students catch their intent. Unlike an exercise music does not repeat itself over and over again" (Penneys, 1994, p. 20).

The Current Authors gave the following cautions regarding exercises:

- Finger independence exercises where one finger is held while other fingers move were controversial. Mark (2003), Magrath (1994), Lehrer (1994), Berenson (1977/1996), Taubman (1994), Penneys (1994), and Lancaster (1994) said these exercises are dangerous. Mark said this kind of exercise trains a poor quality of movement. In contrast, Enoch (May, 1983) and Bastien (1973/1995) said these types of exercises are useful.
- Exercises where individual fingers pull away from each other are dangerous (Taubman, 1994).
- Exercises that "strengthen the fingers" should be avoided (Taubman, 1994, p 17).
- Prolonged repetition should be avoided (Allen, 1994; Berenson, 2002).
- Caution must be used when practicing exercises that are aimed at increasing extension. These exercises should be practiced *pianissimo* (Del Rosario, 1994).

IV. Movement at the Keyboard

Physical Movement

Mark (2003) stated, "Piano playing that is accomplished by high-quality movement, in which each part contributes its proper share with no tension, will be free, expressive, and secure. Playing that is accomplished by poor quality of movement, with tension, fatigue, and stiffness, will be insecure and unreliable (p. 5). Other Current Authors also emphasized the necessity for natural and fluid, rather than static, movements.

Berenson (1977/1996) recommended using everyday images to describe motions, such as bouncing a basketball for forearm motions or turning a doorknob for rotation, and Camp (1992) suggested using words to describe a motion, such as saying "down and up" to the rhythm of the motive. Camp said that talented students perceive motions in groups and that the physical actions coordinate with these groups. He noted that wrist synchronization with the musical group is especially important.

Wristen (2000) stated that motions should be varied in order to prevent injury, and Enoch (1977/1996) and Wristen said that extraneous movements should be avoided, because, Enoch said, extraneous movements decrease the speed with which a passage can be played. Berenson (1977/1996) and Wristen, while stressing efficiency of motion, also recommended the use of circular motions for playing passagework and rotating passages with the goal of linking the gesture to the appropriate sound.

Lateral Movement

The Current Authors stated that the ability to move laterally around the keyboard allows for free movement of the upper arms, develops flexibility in the student's playing, builds endurance through the repetition of a pattern over multiple octaves, and allows students to build momentum and to enter the rhythmic swing of a pattern as it moves along the keyboard (Clark, 1992).

The following steps regarding the execution of lateral movements of the arm were provided:

- The eyes look at the note that is being leapt to before the motion begins (Jacobson, 2006).
- The pianist rolls on the hips and leans to the right or left to reach the extremes. The hips initiate the movement, and the upper body moves as a unit (Jacobson, 2006).
- The arms are slightly bent at the elbows, and the body supports the work of the arms and hands (Jacobson, 2006).
- Movement is initiated from the shoulder. The whole arm leads the hand and fingers so that the arm is centered over the playing finger. The motion is smooth, and the arm feels like it is floating (Enoch, 1977/1996; Jacobson, 2006).

  Mark (2003) disagreed, saying that the head leads the movement, not the shoulder or the chest. When the pianist leads with the head, the amount of lateral movement needed seems smaller than if the arm or hand leads.
- There should be no tension in the movement. "It is more important to move correctly with freedom and be inaccurate than to be accurate with tension. Accuracy results once the correct motions are learned" (Jacobson, 2006, p. 161).
- When moving quickly, the hand is tossed like a ball (Jacobson, 2006).

Hand Expansion

The Current Authors believed that introducing hand expansion too soon or allowing students to play large chords prematurely may destroy hand position and could lead to injury (Jacobson, 2006; Mark, 2003; Shannon, 1994). Jacobson said that the first hand expansions should be those that move the thumb away from the rest of the hand or the hand away from the thumb rather than expansion at the 5th finger side of the hand. This movement of the thumb away from

the hand is a natural motion. Although this expansion will make the bridge of the hand flatter, the bridge should not collapse.

The hand expands only when necessary and returns to a neutral position whenever possible, because excess tension is produced if the hand stays stretched longer than necessary. Mark (2003) said that the pianist should spread the whole hand rather than just the fingers, refrain from moving the fingers up and down rapidly while the hand is spread, and train the arm to cover distances in order to allow the hand to remain in as unstretched a position as possible.

Keyboard Topography

Keyboard topography comes into play when playing fundamental forms such as five-finger patterns. The fingers require different degrees of curvature depending on the pattern of white and black keys (Agay, 1981).

Clark (1992) and Enoch (1977/1996) said that the finger should not reach for black keys when playing passages or scales. Instead, the whole hand prepares for a new position that accommodates the black keys.

V. Fundamental Forms

Five-Finger Patterns

Importance of Five-Finger Patterns

Agay (1981) said that the purpose of five-finger exercises is to acquire a firm and secure finger action, a full and rounded tone, and an even touch. The goal is not speed. Hobson (1977/1996) said that when practiced slowly, five-finger patterns could be used as an exercise for moving the wrist and forearm slightly to assist the fingers in their work. Each note is released as the next one is played. The forearm stays aligned with the finger that is playing.

Introduction of Five-Finger Patterns

Jacobson (2006) and Baker-Jordan (2003) said five-finger patterns may be assigned when the student can play all five fingers consecutively on white keys while maintaining a good hand
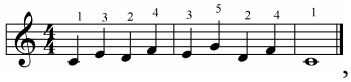
shape. Agay (1981) added that five-finger patterns should be practiced throughout the 1st year of study.

Execution of Five-Finger Patterns

Several authors said that students should play five-finger patterns slowly when first starting to practice them, slowly enough that the student can "kinesthetically feel and visually observe the proper physical motions" (Jacobson, 2006, p. 164). Students first play the patterns hands separately and then play them hands together once the topography of the keys is learned well enough that the patterns can be played without looking at the hands. Baker-Jordan (2003) disagreed, saying it is easier to play the patterns hands together from the beginning. The student should repeat the pattern several times without stopping to "build the motions into the nervous system and make the patterns automatic" (Jacobson, p 164).

The wrist stays level, and the fingers play from the bridge with the assistance of the arm (Jacobson, 2006). Enoch, (1977/1996) in contrast, said that in five-finger patterns moving outward from center, the fingers lean toward each others, with the hand slanting slightly toward the 5th finger side of the hand (supination). The hand slants the opposite direction (pronation) when going back toward center.

After the five-finger patterns are well learned, students can practice variations, including:

- Non-legato, staccato, legato, staccato in one hand and legato in the other hand, *forte*, *piano*, *crescendo*, *diminuendo*, *forte* in one hand and *piano* in the other hand, varied rhythms, and two-note slurs (Jacobson, 2006).
- Arm, hand, and finger staccato (Baker-Jordan, 2003).
- Different orders of fingers (

, etc.) (Agay, 1981).

Rotation

Uses for Rotation

The Current Authors mentioned the following uses for rotation:

- Bringing the hands into playing position (Mark, 2003).
- Playing large broken intervals (Jacobson, 2006; Bastien, 1973/1995).
- Substituting rotary and circular movement for vertical motion and unnecessary finger lifting (Penneys, 1994).
- Zigzagging or rotating patterns of notes such as Alberti bass and trills (Bastien, 1973/1995).

How to Execute Rotation

The Current Authors who described rotation spoke of it as a forearm motion. However, Mark (2003) believed that shoulder joint rotation is involved in forearm rotation. Rotation was explained in the following ways:

- Mark (2003) said that in forearm rotation, the ulna (the forearm bone on the outer side of the arm) remains stationary while the forearm rotates. The radius (the forearm bone on the inner side of the arm) is the one that twists over the ulna. Therefore, pianists should think of the 5th finger side of the arm, rather than the thumb side, as the axis for rotation.
- Jacobson (2006) explained that the arm rotates slightly as the weight shifts from one note to the next. The hand opens slightly for large intervals but should not stretch.
- Bastien (1973/1995) recommended explaining forearm rotation as the same motion used when turning a door knob. In contrast to Mark (2003), Bastien cautioned that the forearm is the only unit to rotate while the upper arm remains stationary.

Scales

Introducing Scales

According to Agay (1981), scale practice provides the student's technique with mobility, finger strength, control of touch, evenness in all key patterns, and an awareness of tonality. Clark (1992) said that scale tempo is not as important as control and that scales should never be
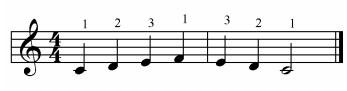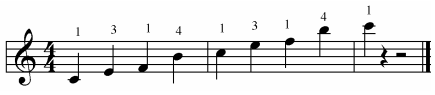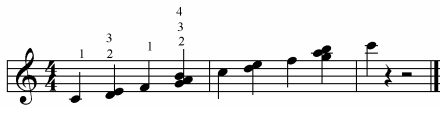
assigned merely for facility but should be practiced to develop finger independence, control of passagework at various tempos, and tonal control.

The Current Authors generally believed that scales should be introduced after the student has mastered the five-finger patterns and has developed the ability to cross the fingers over the thumb and the thumb under the fingers. Introducing scales later rather than sooner was advised by the majority of the Current Authors. Pollei (1994) said that introducing scales before the hand position is formed is dangerous. Enoch (July 1983) and Jacobson (2006) believed that preparation for scales could begin in the late elementary level, while Clark (1992) and Bastien (1973/1995) said that students are generally ready to begin scale studies sometime in their 2nd year of study. Chronister (Darling, 2005) stated, "Playing scales is not where students learn about technique, it is where they practice what they already know about technique" (p. 205). Scale playing is complicated, and therefore it is the "culmination of piano technique, not the beginning" (Darling, p. 205).

When first beginning to learn scales, Agay (1981) advised that they be played hands separately and slowly in one octave. Clark (1992) and Agay said it is wise to begin with B major, because having the longer fingers on the black keys fits the hand well. When hands together scales are introduced, Agay and Enoch (July 1983) said it is best to begin by playing in contrary motion. Later, parallel motion scales can be practiced. Clark remarked that whether scales are practiced in contrary or parallel motion, with accents or rhythms, *pianissimo* or *fortissimo*, or with any other variation, it is important that scale practice is strongly rhythmic and that the tempo, dynamic level, and tone quality is predetermined before playing begins.

Scale Preparation

Enoch (July 1983) stated that scale practice should begin with learning how to cross the fingers over the thumb rather than the thumb under the fingers. Several Current Authors said that scale study should be introduced first through preparatory exercises such as:

-  and  for passing the thumb under the fingers and the fingers over the thumb (Jacobson, 2006; Bastien, 1973/1995; Agay, 1981; Enoch, 1977/1996).
- Blocking the notes  for ensuring that the elbow remains level and follows the hand and fingers (Enoch, July 1983).

Scales Moving Out from Center

Agay (1981) said that smooth passage of the thumb is the most important issue in scale playing. With the exception of Taubman (1994) and Hobson (1977/1996), the Current Authors believed in passing the thumb under the hand in scales moving out from center. Taubman warned that putting the thumb too far under the hand causes problems, and Hobson did not believe in putting the thumb under the hand. The Current Authors discussed the thumb movement as follows:

Enoch (July 1983) and Clark (1992) agreed that as the 2nd finger descends, the thumb begins its movement of release and passes under the hand to prepare for its next note. The thumb rotates onto its nail and then resumes its position on the side of the nail as the hand rotates. This lifts the 2nd finger to its new position. Clark emphasized that it is this rolling action of the thumb that causes the change in hand position, not movement of the fingers. Enoch added that the thumb is in continual movement and is not jerked. The wrist is slightly raised to allow the thumb to pass under, but the wrist does not do the work of the thumb. The thumb moves freely from the joint in the wrist. For scales with black keys, Clark and Enoch stated that the arm moves the hand forward to bring the fingers over the black keys. The fingers do not reach for the notes.

Agay (1981) said that when the thumb passes, it should not be in a hurry, but it also should not be sluggish and jerked suddenly. All unnecessary motions of the wrist and elbow can

be avoided if the arm is light and anchored in the shoulder. The hand is led by the arm, which glides over the keyboard in a relaxed manner like a *glissando*. Raising the wrist when the 3rd or 4th fingers play and dropping the wrist when the thumb plays are the most common habits of students and should be avoided, because these habits produce unwanted accents, make the scale uneven, and hinder speed.

Bastien (1973/1995) said that the thumb should be passed under the hand smoothly without twisting the hand and arm out of shape.

Hobson (1977/1996) differed from the other Current Authors, believing that wrist movement should be used to move the hand in scales because then "that very dangerous habit of 'putting the thumb under' can…be avoided" (Hobson, p. 317). He said that the wrist and elbow enable the fingers to approach any key in a comfortable way, allowing weight to be used for tonal control and eliminating the need for exaggerated finger action and the strain that may result. Jacobson (2006) also emphasized the role of the wrist and forearm, which move slightly to the right to enable the thumb to play, and she cautioned pianists to avoid lifting the elbow. She did not mention the passage of the thumb at all, so her thoughts about the pros or cons of thumb passage are unclear.

Camp (1981) cautioned teachers to correct faulty scale playing only from the standpoint of what is wrong with the sound and what caused the error rather than exclusively relying on the appearance of the hand.

Scales Moving in toward Center

Clark (1992) provided the most complete explanation of passing the fingers over the thumb. She said that the thumb should be loose and curved and that the elbow should refrain from excessive movement. The thumb controls the crossing of the fingers. It rolls onto its side, and the wrist moves laterally to bring the fingers over the thumb to their new position. The fingers cross over the thumb as a unit and prevent the common problem of the fingers popping up into the air, which causes inaccuracy of notes and a loss of rhythmic and tonal control.

Chords

According to Jacobson (2006), the hands need to be sufficiently developed before introducing chords, because if chords are begun too early, the hand will become tense, and the non-playing fingers will fly up from the keyboard. Penneys (1994), Lancaster (1994), and Camp (1992) agreed in the wisdom of delaying the introduction of chords, saying this will help to prevent injury.

Bastien (1973/1995) disagreed and said that because children have weak fingers and the tendency to collapse the nail joints, playing triads early will help students develop well-curved fingers and a good hand position.

To play chords, Jacobson (2006) recommended beginning with the outer notes (fingers 1 and 5) and then adding the inner note of the chord. A down motion of the arm and fingers is used, and the whole arm drops into the keys without tension. Mark (2003) emphasized opening the hand and not just the fingers to play the chord.

Mark (2003) believed that the pianist should not set the hand before playing a chord, because this causes unnecessary tension. Instead, the hand is allowed to fall on the chord, and accuracy will gradually grow. The phrase he used to describe this action is, "Let the piano open your hand" (p. 94). Agay (1981), on the other hand, recommended setting the shape of the hand before impact, though without strain or stiffness, in order to sound the notes together.

VI. Basic Musical Inflection

Articulation: Legato

When to Introduce Legato

Except for Bastien (1973/1995), the Current Authors believed that introduction of legato should be delayed. Jacobson (2006) said, "Proper use of the playing mechanism (arms, hands, fingers) and the production of a beautiful tone are more important for beginning students than legato playing. Once students master the use of the arms, hands, and fingers and consistently produce a full tone, legato playing will develop naturally" (p. 157). Chronister (Darling, 2005)
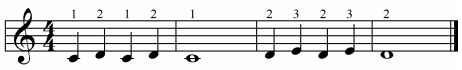
warned "Forcing a child to play legato, to use his hands in a way he has never used them before may be causing him to develop habits he may never break, or, at best, will break with difficulty" (p. 197). Camp (1992) agreed that forcing children to play legato too soon results in tension in the fingers and hands and said it is better to wait until the student begins to hear the need for connecting notes. Bastien, on the other hand, believed that although legato may be difficult for some students, the ability to play legato is important for the beginner.

How to Play Legato

Jacobson (2006) advised introducing legato by starting with two keys and adding more notes one at a time. Jacobson described the process as akin to walking. The first finger releases a small amount of weight. Then as the weight is transferred to the next finger, the rising of the key lifts the finger as the next finger depresses a key. "Playing as though the fingers are stuck to keys with peanut butter or glue are images that can help achieve the desired sound" (Jacobson, p 174).

Enoch (March 1983) recommended having students hold a pencil between the thumb and 2nd finger, and then smoothly transferring the pencil to the thumb and 2nd and 3rd fingers, and then to the thumb and 3rd and 4th fingers, and then to the thumb and 4th and 5th. This walking motion on a pencil with the fingers provides a clear picture of the finger movements in legato sound, because if the fingers do not connect properly, the pencil will drop.

Bastien (1973/1995) advised students to play legato exercises such as



etc. in five-finger position. The other Current Authors did not mention specific exercises for legato playing.

Jacobson (2006), Enoch (March 1983), and Bastien (1973/1995) said that students sometimes overlap the tones in an effort to make notes legato. Enoch said that this overlapping should only be done intentionally, not by accident.

Articulation: Non-legato

Jacobson (2006) and Chronister (Darling, 2005) both stated that beginning with a non-legato touch is easiest for students. Camp (1992) said that non-legato can be used for a few weeks for beginners who have trouble playing legato.

Articulation: Staccato

The Current Authors believed that learning the staccato articulation should follow mastery of legato playing. Camp (1992) noted that staccato is easiest if introduced with a piece that contains only staccato notes and said that staccato should be demonstrated as detached and in opposition to legato. At first, staccato can be explained as a release on the second half of a quarter note, similar to non-legato. Camp discouraged teachers from introducing staccato with analogies like touching a hot iron, because this does not involve the sound, and because not all staccatos are the same length.

The three types of staccato discussed by the Current Authors were arm staccato, hand staccato, and finger staccato.

Arm Staccato

The whole arm is dropped quickly and bounces off the key. It is important to note that the sound is not produced by the upward motion or by pulling away from the key, because this produces tension. Instead, the motion is downward into the key, followed by a quick and tension-free release. The wrist moves as part of the forearm without bending. This type of staccato produces the loudest and longest staccato sounds (Jacobson, 2006; Baker-Jordan, 2003).

Hand Staccato

According to Baker-Jordan (2003), the wrist is flexed upwards about three inches and then drops downward. The finger strikes the key, and the wrist bounces back to its starting place. Tubiana et al. (1989) added that wrist flexion is accompanied by finger extension. Each finger has an independent motion but is constantly "reequilibrated with the entire hand" (p. 74).

Enoch (May 1983) said that to introduce this type of staccato, the student should place the forearm arm at a right angle to the body flat on a table and knock with a closed hand on the table. This is repeated with an open hand position and then transferred to the keyboard. This type of staccato is useful for passages that require a heavier touch than can be achieved by finger staccato but that are too fast for arm staccato.

Finger Staccato

In finger staccato, the forearm and wrist are level, and the fingers rest gently over the keyboard. Before the finger strikes, the wrist flexes upward and then downward as the finger makes a "grabbing and swiping motion" (Baker-Jordan, 2003, p. 107). The grabbing motion propels the finger to release, and the wrist flexes upward as the finger releases. The motions are very slight. Enoch (May 1983) described this type of staccato differently when she said it is not a bouncing up from the key but a lessening of the weight that allows the key to bring the finger up in a flicking motion.

Rhythm

Camp (1981) provided the most information on rhythm in relation to technique. He said that many technical faults are really rhythmic problems and stated, "True artistry at the keyboard occurs when there is an interrelationship among aural, rhythmic, and technical controls" (p. 8). Two main uses of rhythm in relation to technique were discussed.

First, a convincing performance is brought about when the performer's emotional response to the music is a physical response to the basic rhythmic swing of the music. (Camp, 1992).

Second, there must be synchronization between a physical motion and the metric structure of a pattern of notes. In other words, students who perceive music as individual notes may produce a wrist motion for every note. This type of playing is common among beginning students and must be corrected within the first period of piano study (Camp, 1992). Appropriate

technical and rhythmical correspondences will ensure that the size of the metrical pattern relates to the size of the physical motion (Camp, 1981).

Dynamics and Tonal Control

Beginning

Clark (1992) said that students need to develop a clear sense of how different dynamic levels feel and sound from the beginning of study. Chronister (Darling, 2005) recommended that the first pieces have no dynamics markings so that the student can choose the dynamics, thereby developing sensitivity to dynamics. While most of the Current Authors believed that both *forte* and *piano* should be introduced from the beginning, Enoch (March 1983) said that young students will produce only *piano* sounds at first. Jacobson (2006) provided the following advice for teaching dynamics:

- Talk loudly for *forte* and quietly for *piano* when discussing dynamics.
- Have students play as softly as possible, a little louder, still louder, etc. until 10 dynamic levels have been discovered.
- Listen to the sounds produced when playing.
- Listen to recordings.
- Demonstrate different tonal intensities for the student.

How Different Tonal Intensities are Produced

Enoch (1977/1996) and Agay (1981) said that the tone volume depends on the speed with which the finger plays and the height from which the finger is dropped. The finger accelerates to the keybed. However, the weight must be controlled before the keybed is reached in order to avoid driving too much weight into the keybed and called keybedding. The student should experiment with the least amount of energy needed to make a sound and with different degrees of tonal intensities (Enoch).

Forte

According to Jacobson (2006), to produce a *forte* sound, the arm and finger drop quickly into the key so that the hammer hits the string with greater speed. However, this should be done without tightening the arm, hand, or finger and without pushing or hitting the key, since finger force alone produces a harsh sound. She advised dropping with a release of tension rather than the using force in order to produce a full and rich sound. Jacobson said she prefers the terms "full" or "grand" rather than "loud" (p. 173).

Csurgai-Schmitt (2002 *Pianist's Physiology*) presented a different method for producing *forte* sounds. She said that stacking the bones perpendicularly to the piano key provides a skeletal alignment where the finger bones are in a straight line. The more vertical the bones, the more volume will result. Therefore, curved fingers produce more sound than flat fingers.

Piano

Piano sounds are produced by dropping the arm and finger more slowly. This is produced without tightening the upper arm, because tension produces a thin sound. The fingers and arms move together to produce a soft but full sound. The teacher can use words such as "'floating' into the key or 'stroking' the key" (Jacobson, 2006, p. 173) to instruct students about *piano* sounds.

Two-Note Slurs

The Current Authors agreed that a two-note slur should be executed by a drop into the first note and a lift on the second note, which creates more sound on the first note and less on the second note. Baker-Jordan (2003) provided the most complete description of the execution of two-note slurs through the following steps:

Step 1. The arm and hand drop onto the first note.

Step 2. The arm weight is shifted and the hand rolls to the second note.

Step 3. The arm lifts up and forward off the second note.

Step 4. The fingertip stays on the key and rolls forward onto the finger pad in one continuous motion between the two notes.

After an exaggerated down up motion has been practiced on the keyboard cover, the 2nd and 3rd fingers should be the first fingers introduced for playing two-note slurs. Baker-Jordan (2003) was joined by Enoch (May 1983) and Bastien (1973/1995) in the opinion that the release of the second note should be initiated by a roll forward of the arm, hand and wrist rather than just a vertical lift of the hand.

Balance between Hands

Enoch (May 1983) said it is important for students to begin practicing balance between hands early their study. Jacobson (2006) provided the most complete series of steps toward mastering this technique.

Step 1. Hands separately with each hand playing at the correct dynamic level. The hand with the accompaniment moves slowly into the keys while the melody hand moves quickly into the keys.

Step 2. Hands together with a silent accompaniment played on the surface of the keys. Enoch (May 1983) also mentioned this strategy.

Step 3. Hands together with very quiet accompaniment.

Step 4. Hands together with the accompaniment played at the proper dynamic level.

Tone Quality

The development of a pleasing tone quality is important because "A beautiful tone is the primary goal in all music-making" (Jacobson, 2006, p 173). Agay (1981) stated that it is a scientifically proven fact that when producing a single tone, the pianist controls only the volume. However, the color possibilities expand when two or more notes are sounded.

The Current Authors mentioned the following factors as affecting tone quality:

- Speed of key attack (Jacobson, 2006; Agay, 1981).
- Balance between the hands and voicing within a hand (Jacobson, 2006; Agay, 1981).
- Degree of legato between keys (Jacobson, 2006).

- Part of the playing apparatus used. For instance, Jacobson (2006) said that soft, superficial sounds result from students using the fingers instead of the whole arm to play softly.
- Tension in the arms, which Jacobson (2006) said produces harsh sounds.
- Dynamic shaping of the phrase (Jacobson, 2006).
- Pedaling (Jacobson, 2006).
- Overtones (Agay, 1981).

Tempo

Slow Playing

Clark (1992) presented two views on practicing in relation to tempo:

- The piece should be worked out slowly to avoid errors.
- The piece should be worked out near performance tempo in small sections.

Clark (1992) believed that both of these approaches are necessary. The question is in what order they are to be used. Slow, controlled practice is necessary, but when utilized over a prolonged period of time, it can prevent the student from feeling the movement of the phrases. Either viewpoint carried to the extreme is inefficient, in Clark's opinion. Berenson (1977/1996) added that because the muscles are used differently in slow playing than they are in fast playing, both types of practice are imperative. Wristen (2000) commented that the slower the tempo, the bigger and more visible the motions will be.

Fast Playing

When playing fast, Jacobson (2006) emphasized the necessity of using the arm in coordination with the fingers. Overemphasis on finger playing causes tension and inhibits fast playing. The arm should draw the hand along the piano as when playing a *glissando*. On the other hand, Csurgai-Schmitt (2002 *Pianist's Physiology*) said that using flatter fingers and the smaller muscles of the hand, the *lumbricales* and *interossei*, will make playing fast passages easier.

Playing loud and fast for extended periods is fatiguing. Therefore, Csurgai-Schmitt (2002 *Pianist's Physiology*) recommended simulating loudness by playing only some of the notes in a passage with force.

Discussion: Methods and Current Pedagogical Materials

In this section, commonly held beliefs as well as disparate differences among the Pedagogical Authors surveyed in Chapter V, designated "Method Authors" and "Current Authors," will be discussed. Because the views of the separate authors were discussed in the earlier sections of Chapter V, this section focuses on presenting general agreements and disagreements among all the sources studied. Date citations are not provided, as this is a summary of the information already cited elsewhere in this chapter.

I. Philosophy

Philosophy of Technique

Importance of Technique

Both the Current Authors and the Method Authors believed that technical instruction is imperative at the beginning stages for all students.

Coordination vs. Finger Training

Although the Method Authors did note the importance of coordinating the various playing units, they tended to focus mostly on finger training and developing individual parts of the playing mechanism. The Current Authors emphasized the coordination among the parts of the playing units as the most important component of a healthy technique.

Comfort

The Current Authors discussed the importance of comfort at the piano and natural and free playing. Although not many of the Method Authors explicitly discussed this topic of comfort, it can be implied, based on their emphasis on proper posture and on the fun of playing the piano, that they agreed with the Current Authors that piano playing should feel comfortable.

Rote Teaching

Teaching by rote was mentioned by several Method Authors and Current Authors. The authors agreed that rote teaching allows the student to focus on the technique without the complications of notation. In this way, the authors seemed to imply that for children, the best way

to teach technique is that of part to whole in a way that separates the notational, rhythmic, and kinesthetic difficulties so as not to frustrate the child with multiple new and difficult tasks simultaneously.

The "How" in Technique

Because the method books were written for children, they are often sparse in explanations about how certain techniques should be executed. The explanations are usually included only in the teacher's guide rather than in the student books, probably to keep verbiage in the student books to a minimum so that the books are appealing to young children. However, those methods that do not include a teacher's guide leave the teacher at a disadvantage in understanding the Method Authors' philosophy of technique. It is imperative that the teacher read other literature, such as that found in the writings of the Current Authors, in order to fill in the gaps left by the method books regarding the proper introduction and implementation of the elements of technique.

Philosophy of Teaching

Beginning Instruction and Teacher Training

The Current Authors repeatedly stated their beliefs that proper instruction at the beginning of piano study and professional training for beginning piano teachers are imperative. The fact that so many method books for piano have been published when compared to the limited selection available for other instruments would lead one to believe that Method Authors also believed in the importance of sound teaching at the beginning levels of piano study. With the attention paid to the beginning levels of piano study through the many and varied methods, it is ironic that many of the Method Authors failed to provide specific directions for teachers and students regarding their beliefs about the teaching of basic technique.

Tailored Teaching

The Current Authors as well as several Method Authors said that it is important to use a flexible teaching plan in order to allow each student to develop at an individual pace. Piano

teaching should be tailored to fit each student, since children all have different and body proportions, varied learning styles, and individual developmental timelines.

II. Basic Components

Posture

Components of Correct Posture

Posture was described in detail by both the Current Authors and the Method Authors. The authors agreed on the following components of correct posture:

- The weight of the body is on the front part of the bench with the weight balanced between the bench and the feet.
- The feet are on the floor or on a footstool.
- The distance from the piano is one that allows for mobility of the arms in front of the body.
- The height is such that the forearms are level with the keys.
- The back is straight.
- The torso is mobile but well-balanced and supported.
- The shoulders are relaxed.
- The upper arms and elbows are held slightly away from the body.

Hand Position

Components of a Correct Hand Position

Among the Current Authors and Method Authors, nearly all advocated a set, correct hand position that should be taught to students from the beginning of study. This ideal hand position included:

- An arched hand with the hand knuckles forming a prominent bridge.

- Gently curved fingers similar to the natural position formed when the arm and hand are hanging at the side of the body. The Current Authors advocated a less curved finger position than the Method Authors. Overly curved fingers were generally discouraged.
- Gently curved fingers are used for most playing. Flat fingers, with a few exceptions by the Current Authors, were discouraged.
- All the Current Authors and Method Authors said that collapsing nail joints are detrimental to playing.
- The wrist is flexible so as to be able to move vertically and laterally. However, extreme wrist movements are to be avoided, and the wrist should return to a position level with the hand and arm whenever possible.
- The thumb plays on its corner rather than on its side. There was some disagreement as to whether the thumb should be held straight or whether the nail joint should be slightly curved inward. None of the authors advocated a position where the thumb curves outward.
- The 5th finger plays just as the other fingers do, on its finger tip or finger pad. All the authors agreed that the 5th finger should not be allowed to play flat or to fall over on its side.
- Three general strategies for helping students understand how to form a hand position were given:
    - Start with a flat hand and draw the fingers up into a curved hand shape.
    - Start with a loose fist and move the fingers outward into the proper hand shape.
    - Hold or imagine holding round and/or fragile objects such as balls, bubbles, birds etc.

Tone Production

Order of Finger Introduction

There was much difference of opinion among both the Current Authors and Method Authors regarding which fingers to present first. The majority of the most recent sources, including post-1980 methods and the newest Current Authors, favored the use of the longer middle fingers (2 3 4) first, followed by the thumb and 5th finger. The second approach, starting with the thumbs, had advocates from the 1930s and into the early 1990s among the Method Authors. Beginning with the thumbs was not mentioned by the Current Authors. Beginning with fingers 1 and 5 blocked or with clusters of fingers did not have many adherents. Those Method Authors who advocated this approach published their methods in the 1980s and 2000s.

Order of Stroke Presentation

One difference between the Current Authors and the Method Authors is that the Current Authors presented their discussion of tone production beginning with the arm stroke, while the Method Authors, with a few exceptions, presented finger stroke first. It is surprising that although the Current Authors and some of the Method Authors stated emphatically that the arm stroke is the easiest stroke for children to begin using, many of the methods begin by using individual fingers.

Arm Stroke

The Current Authors and Method Authors discussed arm stroke as a descent of the arm using weight and gravity. This stroke is used for slow, *forte* passages.

Forearm Stroke

It was sometimes hard to distinguish whether the authors were talking about a whole arm stroke or a forearm stroke. In general, forearm stroke was probably the more commonly discussed arm stroke, with the stroke of the whole arm limited to the very beginning of study in methods where movement of the large levers was the point of departure for technical development.

Hand or Wrist Stroke

In this stroke, the hand is raised from the wrist and dropped onto the keys. This stroke is used for passages that are faster than can be executed with arm stroke but louder than can be executed by finger stroke.

Finger Stroke

The Current Authors emphasized that the fingers play from the hand knuckle joint, although only a few of the Method Authors mentioned this. The most common kind of finger stroke discussed was weight transference stroke, which was compared to the action of the legs in walking. In this finger stroke, the arm weight is transferred from finger to finger with a slight movement of the arm, which lines up behind each finger to assist it in playing. Therefore, this type of finger touch is not a pure finger touch but works in conjunction with the arm. However, unnecessary pumping of the wrists and arms was discouraged.

Non-Playing Fingers

Non-playing fingers should be carried close to the keys or should remain resting on the keys. Excessive finger lift was generally, though not completely, discouraged.

Keybedding

Keeping pressure on the keybed after the keys are depressed was not advocated by any of the Current or Method Authors at any time.

Playing Apparatus

The Current Authors and Method Authors mentioned the following aspects related to the playing apparatus.

Body

The parts of the body are to work in a coordinated manner when playing the piano.

Ear

The ear is important for two reasons:

1. To form an aural image of a sound before it is produced.

2. To judge the sounds after they are produced in terms of tone quality, evenness, and tonal intensity.

Shoulder and Upper Arm

The chief role of the shoulder and upper arm is to move the hand to a different location on the piano.

Wrist

The wrist's main function is to shape phrases through a gentle vertical or lateral motion.

Fingers

Nearly all the Current Authors and Method Authors believed that the fingers do most of the work in playing and are the principal playing unit. However, the fingers must work in conjunction with the arms.

Contraction and Relaxation

Relaxation is the Focus

The Current Authors and Method Authors, with few exceptions, focused mostly on the importance of relaxation and the dangers of excessive tension. Although some of the Current Authors noted that complete relaxation is not reasonable, the Method Authors and many of the Current Authors did imply that all tension is to be avoided.

Mind/Body Relationship

Uses of the Mind

The Current Authors and Method Authors emphasized the importance of using the mind when playing in order to:

- Form a musical intention before playing.
- Be aware of what the body is doing while playing.
- Think before executing a passage technically.
- Practice intelligently.

III. Exercises

Gymnastic Exercises

Four Types

Various uses for gymnastic exercises were mentioned by the Current Authors and Method Authors, including:

- Warming up before practicing.
- Demonstrating or practicing a movement before playing it on the piano.
- Practicing away from the keyboard to develop freedom of movements.
- Several of the Method Authors also advocated exercises for joint and body awareness.

Exercises

Importance of Exercises

The majority of both Current Authors and Method Authors advocated exercises for students. The few Current Authors that did not agree with assigning exercises did not think that exercises are necessarily detrimental but believed that there is a better way to acquire technique. In the case of Taubman and Mark, who said exercises are not as important as maintaining a good quality of movement at all times, it could be argued that everything they play is used as an exercise for training proper movement. Penneys, the other dissenter, said that music does not repeat itself over and over like exercises do. However, she was referring to one kind of exercise, an exercise for endurance or an etude-like exercise, rather than such exercises as fundamental forms or short preparation exercises of techniques found in pieces to be studied.

Types of Exercises

Of the majority of Current Authors and Method Authors who did advocate assigning exercises, they discussed the following types of exercises:

- Preparatory exercises that can be applied to a specific piece.
- Fundamental forms, such as scales, arpeggios, chords, etc.

- Exercises created from problem spots in repertoire.
- Finger drills for developing facility and finger movement.

Finger Independence Exercise

The most controversial exercise noted by the Current Authors and Method Authors is a finger independence exercise where some fingers are held still while other fingers play. Authors of five method series between the years of 1955 and 1987 (first editions) recommended this exercise. None of the Method Authors who published in the 1990s and 2000s advised using this exercise, and the Current Authors from the 1990s and 2000s said this exercise is dangerous. Only Enoch and Bastien advocated its use. Therefore, most of the Current Authors and Method Authors discouraged using this exercise, and the most recent sources definitely opposed its use.

Etudes

Etude Inclusion

The authors of six of the methods (mostly older methods) included standard etudes. The Current Authors did not mention the use of etudes, preferring gymnastic exercises and playing exercises.

IV. Movement at the Keyboard

Physical Movement

Refining the Movement

The Current Authors and Method Authors agreed that physical motion is necessary at the keyboard, and further, that refined physical motion is the goal. The quality of movement was emphasized, with fluid, graceful, efficient movement being the objective.

Lateral Movement

The Current Authors and the Method Authors, with the exception of the Middle C methods, generally agreed in the importance of playing over the entire keyboard from the beginning of study. This lateral movement develops the free movement of the upper arms and assists the student in learning how to balance the body weight in various registers of the keyboard.

The pianist looks at the place on the keyboard where the change of position is located, and then weight is shifted on the hips to allow the pianist to reach the extremes of the keyboard. Most authors believed that the arm guides the hand, although Mark said the head leads, and Tan said the wrist leads and the body follows.

Hand Expansion

The Current Authors emphasized the need for caution with young students when introducing hand expansion, since premature or extreme stretching of the hand can ruin hand position. The Method Authors tacitly agreed with this by beginning their methods with smaller intervals and then gradually expanding the hand out of five-finger positions to sixths and then to sevenths and octaves. The Current Authors and Method Authors said that if the hand expands, it should contract back to a more closed position as soon as possible, since prolonged stretching is both inefficient and dangerous.

Keyboard Topography

Fundamental Forms

Keyboard topography is developed through practicing fundamental forms such as five-finger patterns. The pianist must learn to form the different patterns of black and white keys quickly.

V. Fundamental Forms

Five-Finger Patterns

How to Play a Five-Finger Pattern

Execution of five-finger patterns was presented in various ways by the authors. The only Method Author to provide a complete description, Pace, advised a combination of weight transfer touch with circular motions of the wrist. Of the Current Authors, Jacobson said the fingers play with assistance from the arm, probably in weight transference touch. Enoch advised leaning the hand in the direction of the notes. Since Pace and Jacobson advocated a type of arm/finger combination, it is safe to assume that the basic weight transference touch, where the

arm stays aligned with the playing finger, is probably what most of the authors who were silent on the subject of execution of these patterns would have advocated. Since this was the most commonly described method of tone production, it is logical that it would be applied to the five-finger patterns.

How to Practice

The Current Authors and Method Authors agreed that five-finger patterns should be practiced slowly at first and that after they are mastered, variations of dynamics, articulations, and rhythms should be studied.

Rotation

Uses of Rotation

Rotation was advocated for use in the following types of passages:

- *Tremolo* and large broken octaves (Method Authors and Current Authors).
- Zigzagging patterns (Method Authors and Current Authors).
- Voicing (Method Authors).
- Playing passages (Current Authors).

However, many of the Current Authors and Method Authors did not even mention rotation, so it may still be rightly viewed as a controversial technical subject.

Forearm or Hand?

One difference between the Current Authors and Method Authors is that the Method Authors did not mention the forearm in their discussions of rotation but focused instead on the hand as the playing unit for rotation. In contrast, the Current Authors made it clear that it is the forearm that initiates the rotation, not the hand.

Scales

Scale Introduction

Scale playing was thoroughly described by the Current Authors and Method Authors, showing their belief in the importance of learning and practicing scales. Most Current Authors and Method Authors believed that scales should be introduced in the late elementary period of study. Although this was not explicitly stated by the Method Authors, the introduction of scales was generally postponed to the second or third book of a method series, which means scales would probably be started 6 to 12 or more months after beginning piano study. The Current Authors stated that delaying scale study is much safer technically than rushing to introduce scales too early, because the hand position must be properly formed before attempting the difficult thumb and finger crossings found in scales.

Contrary or Parallel Motion

With a few exceptions, the Current Authors and Method Authors generally advocated starting scales hands separately. When the scales are later practiced hands together, there was no agreement as to whether they should be practiced in contrary motion or parallel motion first. Each strategy has its pros and cons, and since there was no consensus among the authors, either way can be effective.

Preparatory Exercises

Several, though by no means most, of the Current Authors and Method Authors advocated preparatory exercises for practicing the passing of the thumb and fingers before applying these position changes to a scale.

Scales Moving out from Center

Nearly all the Current Authors and Method Authors advocated passing the thumb under the hand in scales moving out from center. Only Hobson and possibly Jacobson, both Current Authors, suggested swiveling of the elbow and wrist rather than putting the thumb under the hand.

Gradual or Swift Thumb Movement

Although the authors of four methods recommended a swift movement of the thumb, the majority of the Method Authors and all the Current Authors advised a gradual and smooth movement of the thumb under the hand that begins as the thumb releases its note and continues until it plays its next note. Jerking the thumb under quickly was discouraged by these authors.

Wrist

The Current Authors and Method Authors agreed that some movement of the wrist is helpful for aiding the thumb in passage under the hand but that this movement should be kept to a minimum.

Arm

Only a few of the Method Authors and Current Authors described the role of the arm in scale playing, which they said should lead the hand smoothly along the piano. Most of the Current Authors and Method Authors described only the function of the fingers and wrist and ignored the role of the arm.

Scales Moving in toward Center

Many Current Authors and some Method Authors did not discuss scales moving in toward center, since most of the difficulty in scale playing is in the passage of the thumb in scales moving out from center. Those authors that did describe scales moving in from center said that the thumb rolls onto its nail to allow the fingers to pass over the thumb as a group.

Chords

Chord Introduction

The Current Authors, with the exception of Bastien, believed that introducing chords should be delayed so as not to ruin hand position or overstrain children's hands. The Method Authors tacitly agreed with this through a delay in the introduction of chords in the method books.

Chord Shape Formation

The Method Authors said that the hand should be set into the chord shape ahead of time. Only two Current Authors mentioned their opinion, and one of those, Mark, disagreed vehemently, saying the hand should not be set before playing, because this causes unnecessary tension.

VI. Basic Musical Inflection

Articulation: Legato

When to Introduce Legato

In general, the Method Authors believed in introducing legato from the beginning or nearly the beginning of study, while the Current Authors advocated waiting until students feel comfortable with the basic movements of the arms, hands, and fingers.

Execution of Legato

Many varying opinions regarding the exact details of the playing legato were discussed, but the Current Authors and Method Authors agreed that legato requires a connection between finger movements, whether this is by weight transference from one finger to the next, by letting one note come up as the other is pressed down, or by overholding.

Articulation: Non-Legato

Non-legato from the Beginning

Three of the Current Authors and many of the Method Authors believed that a non-legato touch is the easiest for students and therefore should be the first touch introduced. In the methods, most did not state explicitly the articulation to be used for the first pieces. However, it can be implied through the later introduction of both staccato and legato that non-legato is assumed to be the first touch. Non-legato allows for larger arm movements and a simpler stroke, because the student does not have to control complicated movements of the fingers to produce a legato key connection.

Articulation: Staccato

When to Introduce Staccato

The Current Authors and most of the Method Authors agreed that the staccato articulation should be introduced after legato has been mastered to a reasonable degree, although some Method Authors presented legato and staccato in quick succession.

Three Types

The Current Authors agreed on the uses for the three types of staccato. Arm staccato is reserved for heavy passages that are relatively slow. Hand staccato is used for passages of moderate speed and tone. Finger staccato is utilized for quick, light passages. Most Method Authors did not make a distinction between the different types of staccato.

The First Type to Introduce

The major difference between the Current Authors and the Method Authors is that the Current Authors generally said that arm staccato or forearm staccato should be introduced to students first, while those Method Authors that stated a preference believed that wrist (or hand) staccato is most suitable for young students.

Execution of Staccato

The Current Authors and Method Authors agreed on the basic mechanics for executing the three types of staccato.

- An arm staccato is produced by a drop of the arm that bounces off the key. The fingers must be firm enough to withstand the resistance of the keys.
- In wrist, or hand, staccato, the wrist is lifted, and the hand drops downward onto firm, curved fingers. The wrist then returns to its lifted starting position.
- In finger staccato, the finger plucks or brushes the key and moves inward toward the palm.

Rhythm

Although only a few of the Current Authors and Method Authors discussed rhythm in relation to technique, two factors they described were:

- Establishing rhythm in the whole body is important. A whole body rhythm developed through clapping or chanting can help the student learn motions that enhance rhythmic playing.
- Thinking of groups of notes instead of individual notes is important. The physical gesture should fit the pattern of the notes.

Many methods that begin with note reading, especially those that begin with an approach that does not move around the keyboard, set children up to do exactly the opposite of the two points above. Since they are limited to one section of the keyboard, these methods do not allow children to develop rhythm in the body, and since reading is paramount, students may read one note at a time and therefore play note by note without grouping the notes into patterns executed by one gesture. Teachers should be cautious in their method selection and in their teaching to avoid these pitfalls.

Dynamics and Tonal Control

Introduction of Dynamics

Most Current Authors and Method Authors believed in introducing both *forte* and *piano* from the beginning of study. Only a few authors believed in introducing *piano* sounds before *forte* sounds. Listening to the different sounds was stressed by both groups of authors.

How to Produce Different Dynamics

The authors of three methods joined the majority of Current Authors in the belief that the speed of key descent controls the tonal intensity. However, most of the Method Authors said that weight determines tonal intensity, and one Current Author (Csurgai-Schmitt) said that the curvature of the fingers influences tonal intensity.

Two-note Slurs

The Current Authors and Method Authors were all in agreement about the execution of two-note slurs. The slur is played with a down motion of the hand on the first note of the slur and an up motion on the second note of the slur, creating a louder intensity on the first note and a quieter intensity on the second note. Several of the Method Authors and one of the Current Authors (Baker-Jordan) preferred a forward motion of the wrist rather than a vertical lift of the hand for achieving the right sound on the second note. It was not clear what motion for releasing the second note was preferred by the majority of authors, since many did not offer an opinion. They would probably agree that whichever method of release produces the proper sound is acceptable.

Balance between Hands

Although the Current Authors and Method Authors discussed different methods for practicing balance between hands, they agreed that the melody (or louder) hand should play with more weight than the accompanying hand. It is interesting to note that none of the authors commented on striking the melody notes faster, although speed of key descent causes greater tonal intensity, according to some authors.

Tone Quality

Factors that Influence Tone Quality

There were differences regarding factors that influence tone quality among the authors. The Method Authors generally believed that the method of striking the key, including the weight of the playing unit, finger pressure, and part of the finger in contact with the key, determines the sound. None mentioned the factor of tonal intensity through speed of key descent as influencing tone quality.

On the other hand, the few Current Authors who mentioned tone quality did mention speed of key attack as the most important determining factor in tone quality. They also noted such things as balance between hands, combinations of tones, shaping of the phrase, and

overtones as influencing tone quality. The Current Authors agreed with the Method Authors that how the playing unit is used influences tone quality.

Tempo

Practicing

The Method Authors and Current Authors agreed that with regard to tempo, two types of practicing are essential.

- Slow practicing is necessary in order to give proper attention to details, especially when first learning a piece.
- Fast practicing in small sections concurrently with slow practicing is important, because if slow practicing is used exclusively for a prolonged period, it will be difficult to play at a fast tempo.

Conclusion to Chapter V

Chapter V described how the writings of the Pedagogical Authors, comprised of the Method Authors and Current Authors, related to the Elementary Level Technical Concepts. These sources represent an important source for information on this topic because they relate directly to teaching children. Their writings, when combined and compared with the Technique Authors, add a different perspective and are a source group that form the second layer of sources to aid in building a grounded theory related to teaching elementary level technique. The next chapter provides the final source group, Exemplary Teachers. Then in Chapter VII the three source groups: Technique Authors, Pedagogical Authors, and Exemplary Teachers, are compared, and a grounded theory of 107 Technical Principle is presented.

CHAPTER VI

EXEMPLARY TEACHERS

For the field research portion of this study, four "Exemplary Teachers" were chosen for focused interviews and lesson observations based on recommendation by professors of piano pedagogy at the University of Oklahoma and other schools. The principal investigator sought out teachers known for their success in teaching pre-college students ages 5 to 11. Besides recommendation from pedagogy professors, the other criteria for teacher inclusion were:

1. The teacher has students who are ages 5 to 11 and who are playing at the elementary level.
2. The teacher agreed to be identified by name in this study.

The Exemplary Teachers who met these requirements and who agreed to participate in the study were Marvin Blickenstaff, Mary Craig Powell, Carolyn Shaak, and Ted Cooper. They each chose three students, and the principal investigator observed one lesson of each student. See Chapter III for detailed information on procedures for conducting the field research.

The descriptions of the technical systems of the Exemplary Teachers are presented in this chapter in the order in which they were visited by the principal investigator (see Table 33). All students' names have been changed to protect their confidentiality. After the descriptions of their technical systems as they relate to the Elementary Level Technical Concepts, a Discussion of the similarities and differences among the teachers concludes this chapter. Data from the source groups described in Chapters IV and V is not compared to the information described in this Chapter. Instead, comparisons among the three source groups of Technique Authors (Chapter IV), Pedagogical Authors (Chapter V), and Exemplary Teachers (Chapter VI) are found in Chapter VII in the section entitled Discussion: Grounded Theory and 107 Technical Principles.

Marvin Blickenstaff

Sources

Blickenstaff (June 2006): Interview with the principal investigator, June 21, 2006

Blickenstaff (August 21, 2006): Mr. Blickenstaff's comments after reading this section.

Avery (2006): Lesson Observation, June 21, 2006

Ben (2006): Lesson Observation, June 21, 2006

Cassie (2006): Lesson Observation, June 21, 2006

Diana (2006): Lesson Observation, June 21, 2006

Statements not cited are the principal investigator's opinions based on her observations.

I. Interview

Setting for the Interview

The interview and lesson observations took place at Marvin Blickenstaff's historic 18th century farmhouse in Collegeville, Pennsylvania. The studio where he teaches is located in a large room off the front entrance to the house. The room contains a Steinway grand piano, a couch, chairs, small tables, and lamps. The house is located in a beautiful area of Pennsylvania about 30 minutes outside of Philadelphia. The principal investigator arrived at Blickenstaff's house at about 1:00 on June 21, 2006 and was greeted by Mr. Blickenstaff and his wife. The interview lasted about 2 hours, followed by a break and then by the lesson observations. The Blickenstaffs were kind and welcoming and treated the principal investigator like a visiting dignitary. It was a heartening way to start off the series of interviews for this study.

Teacher Background

Marvin Blickenstaff (June 2006) grew up in Nampa, Idaho, and following in the footsteps of his two older brothers, he began taking piano lessons when he was young. Although his older brothers gave up piano for athletics in seventh grade, Blickenstaff's mother, who played piano, encouraged him to keep studying piano when he reached the seventh grade. At the beginning of his eighth grade year, Blickenstaff changed from his first teacher to study with Fern Nolte

Davidson, a well-known teacher and "one of the best piano teachers in the whole Pacific Northwest" (p. 1). Blickenstaff said that Mrs. Davidson's high standards, meticulous attention to the score, and ability to communicate the importance of music, combined with the vast amounts of repertoire they studied together, put him in good stead to enter college far in advance of any entering college freshman student Blickenstaff has encountered himself. Regarding Mrs. Davidson's ability to inspire, Blickenstaff said, "She had a wonderful way to lift standards and yet to affirm all along the way. She was strict and she had demands, and yet, you knew that she liked you and that she thought you were doing well" (p. 2).

After taking lessons from Mrs. Davidson throughout high school, Blickenstaff continued to study with her during his 1st year of college at the College of Idaho before going to Austria for 2 years to work with World War II refugees. During his mission work in Austria, Blickenstaff studied piano, played recitals, and prepared for entrance into Oberlin College. At Oberlin, Blickenstaff reveled in the musical atmosphere of the conservatory and completed his undergraduate study in piano with Emil Dannenberg. He then spent a year in Germany studying piano, and upon return to the United States, Blickenstaff completed a master's degree at Indiana University, where he studied with Béla Böszormenyi-Nagy.

After graduate school, Blickenstaff (June 2006) held teaching positions at McPherson College and Fort Hays State College, both in Kansas, and at the University of North Carolina, Goshen College, and the College of New Jersey. He also spent several years working in New York City at Carl Fischer Publishers. While in New York he met Lynn Freeman Olson, who introduced him to Louise Bianchi. Shortly thereafter, the three pianists created the innovative piano method, *Music Pathways*, which was published by Carl Fischer in 1983.

Blickenstaff (June 2006) currently teaches at his studio in Collegeville, Pennsylvania and at the New School for Music Study in Princeton, New Jersey. His students range in level from beginners to advanced high school and college student to piano teachers. He also devotes much time to furthering the field of piano pedagogy in the United States through his workshops,

presentations, and committee work for the National Conference on Keyboard Pedagogy and Music Teachers National Association.

Students Interviewed

Mr. Blickenstaff was kind enough to schedule all the lessons in one day to make it easier for the principal investigator's travel schedule. Therefore, some of the lessons were not on their regular time or of their normal length.

The children observed were:

Avery (45 minutes) is 8 years old. His parents are from China and are scientists. Avery is involved in piano, chess, and soccer and excels at all. According to Blickenstaff (June 2006), Avery's lessons are always perfectly prepared, and he never needs to be given a correction twice. Blickenstaff commented that Avery is perhaps his most talented student at the moment because Avery's mind is incredible. Blickenstaff noted that there is a connection in Avery's mind whereby his ear guides his hands that makes him successful at piano. In the lesson observed, Avery appeared very nervous about the video camera, and Blickenstaff said it was not a typical lesson. He is eager to do everything correctly and therefore does not like to answer when asked a question for fear of not giving the expected answer. Blickenstaff is very patient in working with him and in providing questions that he can answer successfully.

Ben (45 minutes) is 8 years old, finishing second grade in school, and is just completing his 1st year of piano lessons. His mother is a piano teacher, and his two older sisters also study piano. Therefore, Ben hears much piano playing at home. Blickenstaff (June 2006) described Ben as "a bright student… who catches on very quickly" (p. 27). He is eager to please, and his interest in piano was evidenced by the fact that he learned all his minor five-finger patterns without being asked. Also, in his lesson he asked to transpose two pieces he had learned into other keys, which was not on his assignment.

Cassie (45 minutes) is 7 years old and is a transfer student. However, her previous year of piano lessons with her former teacher did not yield many results. Therefore, Blickenstaff (June

2006) is teaching Cassie as a beginner. He described her as an "amazing child" (p. 28) and predicted that she is going to be "a wonderful student" (p. 28). She has an incredible ear, sings very well, is eager to please, and seemed to enjoy being videotaped. Blickenstaff said all her lessons are perfectly prepared. She was completely engaged in her lesson the entire time and seemed to enjoy playing the piano both in terms of the kinesthetic feel in her fingers and in the sounds she produced.

Diana (15-minute demonstration) is 9 years old and comes from family where Polish is spoken at home. Her older brother and sister also play the piano, and all three studied with Blickenstaff. She has been playing piano for 3 years. Because of learning challenges, she catches on much slower than other students and has to work hard to learn each piece and exercise. Blickenstaff (June 2006) said, "My heart just bleeds for Diana, because she tries so hard. And everything is so difficult for her. And so when there is success, we really celebrate" (p. 28). Because Blickenstaff gives her much encouragement and praise and because of Diana's hard work, she is progressing. Her mother practices with her every day. She seemed shy at her lesson but was well-prepared.

Informed Consent forms were signed by Blickenstaff, the parents, and the students. The lessons and interviews were videotaped.

II. Studio Information

Student Acceptance

Most of Blickenstaff's (June 2006) students are transfer students, referred by word of mouth from other students and teachers. Blickenstaff said that he accepts anyone who calls, space permitting. He interviews the students to assess their knowledge and teaches them a sample lesson so they can decide if they would like to study with him, but he said he has never turned anyone away based on the interview.

Blickenstaff (June 2006) generally starts students when they can read English fairly well. He has taught 6-year-olds but has only once taught a 5-year-old, because the girl could already

read and was precocious. She eventually became a piano major at Indiana University. However, he generally likes to start students when they are 7 or older.

Parents

Cassie and Avery's mothers sat in on their lessons and took notes, watched, or audio taped the lesson. Blickenstaff occasionally would explain some item in the assignment to the mother.

In general, the parent's role is to monitor practicing, to ensure that the student is sitting at the right height at home, and to keep the piano well-maintained (Blickenstaff, June 2006).

Practicing

Practicing is checked through practice sheets that the students fill out weekly. Blickenstaff (June 2006) spends a good deal of time typing up individual weekly assignments before each lesson, which he makes notes on and modifies with the student at the lesson. Although this kind of in-depth planning takes time, Blickenstaff said, "I feel that if I don't put in my time, my students will probably not take their practice as seriously. If they see that I've spent the time to type up a whole new practice assignment for them, I think they say, 'Well, that's kind of special, and that's for me'" (pp. 32-33).

Practicing is taken seriously in Blickenstaff's (June 2006) studio. First year students have a practice sheet on which they check off each aspect of the assignment as they practice it for 5 days of the week. In the 2nd year and above, students are required to practice a minimum of 5 hours a week. Prizes and an honor roll are occasionally instituted to provide motivation for practicing. Students who are too busy with other activities sometimes find it necessary to stop piano lessons due to inadequate practice time.

One of Blickenstaff's (June 2006) resolves for fall of 2006 was to be more proactive about having all his students audio tape their lessons, listen to the tape before their first practice session, and note the most important points to practice for each piece.

Teaching Format

Although Blickenstaff (June 2006) started all beginners out with a combination of group and private instruction each week at Goshen College, his schedule in Pennsylvania does not allow for this format. The beginning students receive a 45-minute lesson each week, and intermediate and advanced students receive 60 minutes. He would like to schedule monthly repertoire classes with his students but has not yet found a way to overcome scheduling difficulties. Although Blickenstaff said he does not feel that the lack of a group component in the curriculum slows the student down, he does believe that they miss out on having an extra lesson each week, peer interaction, and hearing other students play, which causes "almost a social, musical deprivation" (p. 23).

Lesson and Assignment Content

The topics in the observed lessons were covered in this order:

- Gymnastic warm-ups.
- Technical patterns and exercises.
- Work on the floor on reading and eartraining (beginners), or technical etudes (for later elementary and above).
- Repertoire (Between 4 and 8 pieces are on the assignment sheet in a given week). The repertoire comes from the standard literature (i.e., Latour Sonatina), folk songs (i.e., She'll be Comin' Round the Mountain), or tuneful and high quality educationally composed pieces (from *Music Pathways* by Olson et al., 1983).

Topics covered in the lessons included performance, memory, technique, eartraining, analysis, harmonization, improvisation, composition, sightreading, transposition, and musical interpretation.

The lessons always started with technique in order to set up this expectation of warming up with technique first in the student's home practice. The lesson usually finished with a fun piece or duet that the student could play well so that the lessons ended happily.

The weekly assignment contained aspects of the lesson content. Blickenstaff (June 2006) said that approximately half the assignment is technical drills, which the students rotate through, since it is not reasonable for them to cover all the exercises every day.

Materials

- Main method series: *Music Pathways* (Olson et al., 1983).
- Gymnastic exercises for basic movements.
- Rote exercises.
- Finger Twister of the Week—short exercises.
- Edna Mae Burnam's (1957) *A Dozen a Day*.
- Frances Clark's (1990) *Piano Etudes* (Blickenstaff, June 2006).

Curriculum for Technique

Blickenstaff (June 2006) said he teaches the following concepts in approximate order of difficulty, although the exercises continue to be practiced as new concepts are introduced.

- Gymnastic exercises for basic movements.
- Four main touches of tone production.
- Rote exercises for rotation, finger action, and stretching.
- Finger independence exercises.
- Five-finger patterns and variations.
- Triad studies moving around the keyboard.
- Major scale study.
- I-IV6/4-I-V6/5-I chord progressions.
- "Bach-Hanon" and Hanon (1873/1900) exercises (especially Nos. 1 and 11).

- Scales in various routines.
- Chord inversions.
- Extended blocked chords.
- Broken octave chords (Blickenstaff, June 2006).

III. Philosophy

Philosophy of Technique

Stated

Blickenstaff (June 2006) views technique as skill in service of the music. Again and again in the interview and observations, he talked about the sound when asked a question about technique. Blickenstaff said that anytime the ear can direct the hand, the musical and technical results are better, because too much mechanical explanation bogs students down. Blickenstaff said he wants "the ear to correct the sound" (p. 17) and believes, "I can get the fingers to work better if I can get [the students] to listen better" (p. 17). One method Blickenstaff used in the observed lessons to help the ear guide the technique was to have the students sing or count aloud, or Blickenstaff counted and sang while his students played. This not only helps the students develop their aural sense, but also aids their rhythmic sense and expands their powers of concentration.

Blickenstaff (June 2006) said that technical development is a continuum that starts at the beginning of study and continues without ceasing. It is the teacher's job to keep the process going and to think of new ways for the student to practice the same technical skills. If practice of technique stops, improvement is hampered.

Although it is the music that draws students to the piano, technique is necessary to express the music. In planning a curriculum, Blickenstaff (June 2006) said he tries to juggle three components: building reading skill, establishing good technical principles, and having fun with the

repertoire. Blickenstaff stated, "If any of those three things lags behind, I feel that the whole curriculum is in jeopardy" (p. 30).

Observed

Blickenstaff's (June 2006) system of technique focuses on development of hand and finger strength, exercises, and constant refining and expanding of the student's technical ability. Students begin by playing by rote for several weeks before using a method book.

Philosophy of Teaching

Stated

Although Blickenstaff (June 2006) has a curriculum that students cover, the rate they complete aspects of the technical program depends on the individual student. Blickenstaff tries to be sensitive to each student's "own natural timeline in their physical development" (p. 11).

Blickenstaff's (June 2006) goal is to build a vocabulary of gesture that helps his students solidify a technical system and easily apply certain basic gestures to the repertoire.

Observed

There are many characteristics in Blickenstaff's teaching personality that can be said to exemplify an excellent teacher of children. Although these characteristics may not relate directly to technique, they inform the way he teaches technique and the process by which he achieves such excellent results with his students.

Continual Growth. Blickenstaff (June 2006) stated his resolves for fall of 2006, because "I always feel that I should be a better teacher" (p. 30). This attitude of continual growth as a teacher produces excellent results, as shown through his students' enthusiasm for piano and their skillful playing. He is a teacher that always strives to provide his students with a better piano education.

Realistic about Weaknesses. Blickenstaff (June 2006) mentioned weaknesses in his teaching regarding sequencing of repertoire and knowing how much to assign to students, showing that he recognizes and seeks to remedy weaknesses in his teaching in order to keep growing as a teacher.

It is inspiring to see a teacher who has had such a long and varied teaching career keep striving to be an even better teacher for the sake of his students.

Greeting. Blickenstaff greeted the students happily at the beginning of the lesson, showing them that he was glad to see them, and he thanked them at the end of the lesson. This set up a friendly rapport with the students.

Lighthearted. The lessons were upbeat and lighthearted. There was laughter and humor throughout each lesson.

Formality. The students took their lessons seriously because Blickenstaff did. He was prepared with typed assignment sheets for the student at each lesson. He was also serious in his expectations and worked on a certain aspect in a piece during the lesson until it was conquered or until the student knew exactly how to practice at home. Blickenstaff showed formality and authority in the lessons by adding the word "please" to the end of commands, which seemed to cause a polite expectation that the student would concentrate and work hard. He also called the student by name to emphasize important points.

High Praise. The observed lessons were full of enthusiastic comments such as "Very good" (Diana, 2006, p. 1), "Terrific" (Ben, 2006, p. 1), "That's wonderful. That's really an accomplishment" (Cassie, 2006, p. 2), "That's just fantastic" (Ben, p. 5), and "Now I want to say, that is just a miracle. I've never had a student do that. Can you imagine anybody that can possibly do that? In one day, transpose 'On Our Way' to B major? I'm so lucky to have you for a student" (Ben, p. 14). Even though the students might possibly have thought he was being a little bit too congratulatory in proportion to their achievement, it did not seem to come across to them as anything but genuine praise, and they were encouraged to keep trying for good results and were confident in their ability as a result of the praise. He was able to avoid the trap teachers often fall into of saying one positive thing to preface a list of corrections, where the students start to see that the positive thing is not real encouragement but is just meant to be a nice sounding segue to the things that need to be corrected. Blickenstaff's encouragement was thorough and authentic,

and he had a way of correcting without always using direct commands that made the student feel successful instead of criticized.

Reinforcement. Blickenstaff did not only give general words of praise. He also gave specific examples of what the student did that was correct technically. For instance, when Cassie suddenly started rocking her hand in a piece, he affirmed her, saying, "I saw something really remarkable which I really appreciate. When I said curved tips, the thing that really impressed me is that you did a rocking, which is perfect for this" (Cassie, 2006, pp. 12-13).

Realistic Expectations. Although Blickenstaff works continually with his students to help them grow technically and musically, in the lessons it was clear that he did not expect instant perfection but was realistic about what each student was capable of at the moment.

Diagnosis. Blickenstaff diagnosed problems and chose the most crucial thing at the moment to fix so that the student was not overwhelmed with corrections. The students seemed confident in their ability to meet his expectations and were not discouraged by the detailed work involved in perfecting a piece.

Lack of Negative Corrections. In the observed lessons, Blickenstaff had a way of helping the students correct a flaw without pointing it out verbally. For instance, instead of asking Cassie to use a Knock instead of her whole arm to play "Ebenezer Sneezer," he just said, "You're knocking, aren't you?" (Cassie, 2006, p. 2). She replied, "Yes," (p. 2) and then started knocking on the subsequent repetition. Or, in another instance, Blickenstaff avoided having to tell Avery (2006) that he missed a *crescendo* by just asking him to repeat the section again and then coaching him verbally to make the *crescendo*.

Questions. Blickenstaff asked three kinds of questions in the lessons:

1. Direct analysis questions to cause the students to think about the piece in terms of how it was constructed. For instance, in Cassie's (2006) lesson Blickenstaff asked, "Does 'Birthday' have skips or steps in it?" (p. 13). Cassie answered, "It has skips" (p. 13).

Blickenstaff then asked, "And what is different about these skips from the skips you had before" (p. 13)?

2. Choice questions, where the students were allowed a simple choice, such as instructing Avery (2006) to "Pick a scale that begins on a black key" (p. 2).
3. Interpretive questions, where Blickenstaff asked the students for their interpretive opinions, such as, "Now, which note in these two measures is going to be the very softest note" (Ben, 2006, p. 6)?

Most questions were of the first type, which were easy enough for the student to be successful in answering, especially students like Avery who felt insecure when asked questions of the second and third type.

Demonstration and Coaching. Blickenstaff often demonstrated a piece, a section, or a technique for the student and then had the student play while coaching the student verbally, by singing, or by playing along with the student in a higher octave. No time was wasted in allowing the student to play something wrong all the way through. Blickenstaff always intervened by coaching to allow each repetition to be as close to perfection as possible.

Commands. Direct instruction and imperative sentences were used to guide the student through the lesson. These commands provided structure and security for the student and also led to an efficient use of lesson time. Instruction, both to diagnose a problem and to state the solution, was given in brief explanations of a sentence or two so that most of the lesson was spent playing instead of talking. For example, Blickenstaff said, "I sometimes feel as I watch you play that you are reading one note at a time, but you don't know quite where the hands are going to go next" (Avery, 2006, p. 9). Then he advised, "Take, please, two measure groups, and play each of those two measure groups four or five times" (p. 9).

Discernment. Blickenstaff noted quickly when the student seemed apprehensive or unsure about a command and adjusted to one that was less rigorous and more manageable for the student. For instance, upon asking Ben (2006) to tap an entire piece hands together, Ben looked

worried. Blickenstaff immediately suggested going slowly and tapping just two measures, which Ben felt capable of accomplishing successfully.

Repetition. Blickenstaff asked the students to repeat a piece or a section several times in a row, varying the tempo, key, or the hand that played, or even just repeating without variation. There was little explanation between repetitions, because the repetitions were used for reinforcement and as a model for home practice. This was especially helpful since many of the pieces the students in the beginning of study were playing were so short. Blickenstaff played accompaniments with the students to provide interest, interpretive help, and a steady tempo.

Analysis. Analysis of the form, patterns, dynamics, notes, intervals, and rhythm of the pieces was an integral component of every lesson.

Practice Advice. Blickenstaff often made reference to specific steps to use when practicing at home, like deciding in Avery's (2006) lesson how many repetitions were required for a certain part or practicing in two-measure groups.

Mood. Blickenstaff worked on creating the right sound in pieces through analysis questions such as, "What do you suppose is the quietest note in the whole piece" (Cassie, 2006, p. 13)? In Ben's (2006) lesson, Blickenstaff matched his voice to the mood by talking quietly in a calm piece and talking louder to evoke a march-like quality.

Details. Blickenstaff expected the student to focus on a problem until it was corrected. Blickenstaff led the student through the process by way of coaching, repetition, and having the student listen and diagnose whether the problem was fixed. For example, when Avery (2006) was working on lifting on the rests in an etude, Blickenstaff did not let him move on until the problem had been solved.

Patient. Great patience was expressed throughout the lessons, which allowed the students to think through concepts and learn at their own pace.

Flexible. Blickenstaff let the lesson be sidetracked momentarily if the student was thinking in a different direction. For instance, he let Ben (2006) analyze a piece for notes when Blickenstaff

had been asking for an analysis of the rhythm, because Ben was intrigued with discovering the similarities and differences between two lines and was focused on the notes first. Eventually, Blickenstaff brought him back to the initial question of rhythm.

Gentle. Blickenstaff was gentle with the students when they made mistakes and let them try again. There was never a moment of antagonism or disappointment shown toward the students in the observed lessons.

Humble. When Blickenstaff made a mistake in a lesson, he admitted it and apologized. For instance, when he demonstrated an exercise at a fast tempo and then Diana (2006) tried to copy him at that tempo, he stopped her, apologized for demonstrating too fast, and reset the tempo.

Student Choices. Although Blickenstaff set the requirements for piano study, he did offer the students choices in small things to allow them some ownership over their studies and to teach them to be independent practicers. For instance, in Cassie's (2006) lesson, Blickenstaff said, "I'd like for you to pick up fly swatters in both arms, please. And how many times do you want to swat flies" (p. 1)? In Avery's (2006) lesson, Blickenstaff asked, "I wonder how many times you need to do that in order to train your hand" (p. 5)? And in Ben's (2006) lesson, Blickenstaff asked, "Would you name a five-finger pattern and play it hands together for me hands together" (p. 1)? Ben answered, "F# major!" (p. 1) while smiling. Also, Blickenstaff asked students how much they thought they could handle in a week by asking questions such as, "Do you want to learn the middle part, or shall we just stay with that for another week?" (Cassie, 2006, p. 11). This allowed Cassie some control over the length of her assignment so that she would not feel overwhelmed.

Counting. Students always counted an introduction aloud before playing, "1 2 3 4 ta ta ready play" (Ben, 2006, p. 11). This helped the students establish the tempo and focus their concentration before beginning to play.

Part to Whole. The rhythm was always tackled separately from the notes through tapping, which allowed the students to master one component without being overwhelmed. Also, this part

to whole philosophy is evidenced at the beginning of study when, Blickenstaff (June 2006) said, the student learns by rote for several weeks before tackling notation.

Pacing. The lessons were focused and detailed, and yet Blickenstaff had a way of moving through a great deal of material quickly without making the lessons feel hurried. Blickenstaff and the student focused on some parts of the assignment in detail for up to 10 minutes of the lesson, while other parts of the assignment were played once or twice, moving on to the next piece or exercise. This allowed the whole assignment to be covered without the lesson feeling either rushed or sluggish.

Integrative Learning. Blickenstaff used examples from other subjects, including geography, math, and English, to set the mood or to explain a certain aspect of a piece. For instance, when Avery (2006) was working on a piece entitled "Grand Canyon," Blickenstaff and Avery stopped to discuss where the Grand Canyon is and to talk about a *Smithsonian Magazine* article about the Grand Canyon.

IV. Basic Components

Posture

The first thing Blickenstaff (June 2006) mentioned with regards to posture was to sit tall. "I love Ted Cooper's phrase of 'Sit tall'" (p. 14). To get the children sitting at the right height, Blickenstaff uses a flat bench rather than an artist bench and adds firm sitting pads, which are about two inches thick, to the bench. He also has an adjustable footstool for students who cannot reach the floor. He said that the New School for Music Study used to have students cross their ankles instead of using footstools, but Blickenstaff convinced them that this did not provide enough stability and persuaded them to put footstools in each studio. He said that a pedal extender will be his next purchase so that students can sit at the right height while pedaling.

Blickenstaff (June 2006) said that students are to sit at a height that allows their forearms to be level with the keys. However, in the lesson observations of Cassie (2006), Ben (2006), and Avery (2006), the children sat high with their forearms sloping down, while Diana (2006) sat with

her forearms level. As for distance from the piano, students should sit far enough away that they can "stiff arm the fallboard" (Blickenstaff, June 2006, p. 15), with arms straight out in front of them.

Hand Position

Blickenstaff (June 2006) said, "A common problem in transfer students is that they have such poor hand shape" (p. 27). However, if a student is taught well at the beginning of study, problems in technique that result from a dysfunctional hand position can be avoided. According to Blickenstaff, any student can develop a good hand position. The teacher just needs to stress its importance.

The basic hand position is formed by making a cluster, where the fingers are "placed next to each other in a line with the curved thumb lightly touching the side of the second finger" (Blickenstaff, August 21, 2006). This position shows the place where the finger should strike the key and helps the student sense that the hand is always a series of curves. The hand can be in a more extended position, but is never flat.

Keeping firm fingernail joints is an important part of a good hand position. Blickenstaff (June 2006) does not tolerate flat and flimsy fingers. Strong joints are practiced by making O's between each finger and the thumb. The students also play a game where Blickenstaff pushes on the nail joint to see if he can cave the knuckle in. Also, firm finger joints are formed by constant reminders to play with curved fingers and to keep the fingers strong.

The students observed all had good hand position and played with fluency. The students' hands were not perfectly shaped at all times, because their technique is still a work in progress. Sometimes a left wrist was lower than a right wrist, or the thumbs and 5th fingers played flat. At other times the students had perfect looking hands. Blickenstaff reminded the students frequently about the basics of hand position but did not expect perfection instantaneously. In spite of lapses from perfection at times, the students all played easily with an arched bridge and strong fingers. They had a technique capable of meeting the demands of their current repertoire and were well

on their way to growing in their technical capacity in order to conquer harder repertoire in the future.

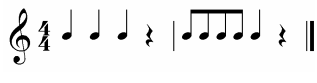
Tone Production

Blickenstaff (June 2006) stated that he "believes strongly that it's helpful to start with larger gestures and move to the smaller gestures" (p. 7). Within the first 5 or 6 weeks of lessons, he establishes the following gestures: Fly Swatter, Knock, Rocking Hand, and Finger Action.

Fly Swatter
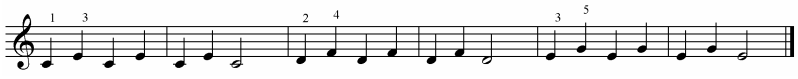
The first gesture, presented at the first lesson, is a motion of the forearm called the Fly Swatter. The student is instructed to pick up an imaginary fly swatter and swat some flies slowly on the keyboard cover. This motion is then used in a piece entitled "Engine, Engine, Number Nine." This rote piece is played on the black keys with a braced 3rd finger with the right hand, left hand, and hands together at various tempos. When the tempo gets too fast, the motion becomes a Knock (Blickenstaff, June 2006).

Knock

The Knock is a hand or wrist stroke. The student knocks on the keyboard cover from the wrist using the rhythm  to the lyrics "Knock, knock, knock. Anybody home" (Blickenstaff, 2006, p. 8)? And the answer, "Yes, yes, yes. Everybody's here" (p. 8). The student discovers that a Knock is more efficient for fast notes while a Fly Swatter is ideal for slower passages. The student then plays "Ebenezer Sneezer," another rote piece that uses one finger moving by step. This piece has the  rhythm. Students use Knocks to play the 16th notes. Blickenstaff plays an accompaniment with these rote pieces to reinforce the rhythmic pulse and to guide the student in playing at different tempos.

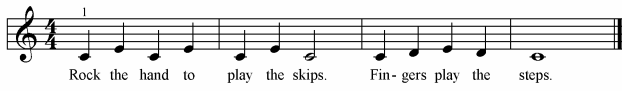
Rocking Hand

The Rocking Hand is a gentle, visible, rotation movement of the forearm and is the basis for legato as well as a basic form of tone production. The Rocking Hand is introduced through a

rote exercise called a Finger Twister of the Week within the first few weeks of the student's study, where the student plays 

. The exercise is then repeated with the same fingers in the left hand and then hands together (Blickenstaff, June 2006).

Finger Action
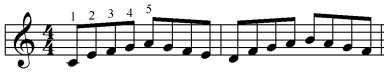
Blickenstaff (June 2006) emphasized that while melodic thirds are played by a Rocking Hand, the fingers play melodic seconds. Steps are added to the previous exercise to yield 

, which is shifted up by step to work with different fingers. When it comes to finger action, a moderate finger lift with firm knuckle joints is what Blickenstaff tries to instill in his students. The finger "swings from the knuckle" (p. 25) with no collapsing of the mid-joint or nail joint. From the lifted position, it is not a matter of pushing the finger down but just of letting the finger drop from a lifted position. If the pianist is relaxed, this will yield a pleasing *mezzo forte* sound due to a combination of the mass of the finger, relaxation, and gravity. This eliminates stress in the hand that is caused by pressing.

Arm Push

Young students often like to push their arm up and down on every note in an exaggerated manner, since this is an easier motion than using individual fingers. Blickenstaff (June 2006) said that this arm jogging must be eliminated immediately in and replaced by finger action. However, the Arm Push is a viable use of the arm that differs from arm jogging. In this touch, the hand is placed on the keys, whether on a single note, double note, or chord, and the arm pushes sound into the fingertips. This utilizes the muscles that boxers use when they punch, which Blickenstaff said is the strongest muscle that can be used in playing, according to György Sebok.

Out Around

Although Blickenstaff (June 2006) said that he does not discuss arm function often, he does use a gesture called Out Around, which is a circular movement of the wrist that moves the arm out. This is used in five-finger exercises and in Hanon's (1873/1900) Exercise No. 1, which begins 

, where a counterclockwise circle of the right hand is made.

Playing Apparatus

Blickenstaff (June 2006) focused mostly on the workings of the fingers, hands, and arms in his discussion of technique.

The ears are important for listening critically to the sounds being produced (Blickenstaff, June 2006).

Contraction and Relaxation

Blickenstaff (June 2006) said he believes that "If I get my students sitting well and playing comfortably that those are components that lead to relaxation" (p. 16). Therefore, he does not discuss relaxation specifically with his students unless they are obviously playing with too much tension or have very high wrists or ill-formed fingers, which lead to tension.

Mind/Body Relationship

In the lessons, Blickenstaff brought to the student's attention the fact that the mind controls the fingers. For instance, when Cassie (2006) was practicing a finger independence exercise, Blickenstaff stopped and commented, "Isn't that incredible? That your mind is so strong that it can say, 'All right, one. You're going to hold down.' And so you send the message to your finger…" (p. 4). Blickenstaff also emphasized that counting aloud and singing helps the mind control the fingers better.

V. Exercises

Gymnastic Exercises

From the first lesson, gymnastic exercises, called "warm-ups" (Blickenstaff, June 2006, p. 7) are stressed in Blickenstaff's teaching of technique. These exercises are used for stimulating circulation in the hand. Exercises include:

Stretch Grabs

Beginning at the very first lesson, the student stretches the fingers out straight and then makes a gentle fist. These Stretch Grabs are repeated while the tempo gets faster and slower (Blickenstaff, June 2006).

Finger O's

From the first lesson, the student makes O's between each finger and the thumb and presses for two counts on each finger. This exercise aids in developing strong finger knuckle joints.

Shoulder Shrugs

From the first lesson, the student lifts the shoulders to the ears and drops the shoulders. This aids in realizing a relaxed torso position (Blickenstaff, June 2006).

Finger Stretches

For the more advanced student, the 3rd fingers are placed on the edge of the keys and the palms are turned toward each other. The student stretches as far as possible to the 2nd fingers, then turns the hands completely around with palms outward and goes back to 3rd fingers. This is repeated with fingers 4 into 3 and 3 back out to 4, and 5 into 4 and 4 back out to 5 (Blickenstaff, June 2006).
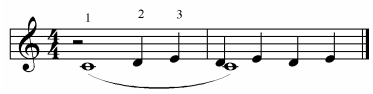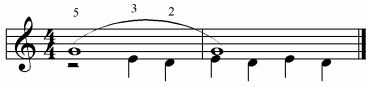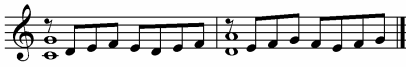
Finger Pulls

The student puts a finger on a flat surface and tugs down on the finger (Blickenstaff, June 2006).

Exercises

Exercises are an integral part of Blickenstaff's (June 2006) technical curriculum. At the beginning stages, the exercises are taught by rote or are written out with finger numbers on the student's assignment sheet. The student continues practicing the same exercises for a period of time. Exercises are also transposed to different keys.

Blickenstaff (June 2006) has his students practice finger independence exercises. Two types are shown below.

-  and  are given in the first 5 or 6 weeks of lessons.
- Later, after the student has learned the five-finger patterns, another finger independence exercise with holding notes is practiced.  which continues up by step and then is transposed to other keys.

Blickenstaff (June 2006) encourages the student to play gently and does not force the hands. These exercises are meant to gradually develop more and more muscle control over the fingers.

Etudes

Standard etudes are assigned to supplement the student's technical work and for practice in reading (Blickenstaff, June 2006).

<u>VI. Movement at the Keyboard</u>

Lateral Movement
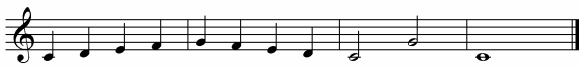
From the first lesson the students move around the keyboard laterally both in their pieces, where they decide whether high or low sounds fit the mood of the piece best, and in their composition exercises (Blickenstaff, June 2006).

VII. Fundamental Forms
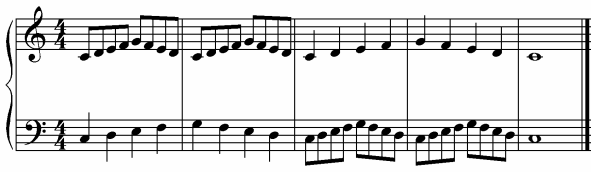
Five-Finger Patterns

Five-finger patterns are the main body of technical study at the elementary level for Blickenstaff's (June 2006) students. They are played with finger action and some finger lift, and it is important that the patterns with many black keys are played with fingers between the black keys in order to preserve a good hand position. Playing over the black keys also necessitates a slightly higher arm position. Blickenstaff has a curriculum of five-finger pattern variations that includes:

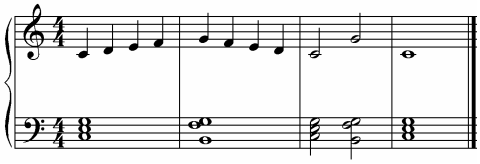
- Major and minor white key patterns, hands together in parallel motion, legato.
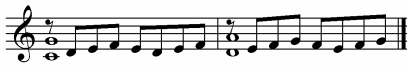


- Black key patterns (beginning at the end of the 1st or the beginning of the 2nd year).
- All keys in chromatic order.
- One hand twice as fast as the other.



- Right hand pattern with left hand chordal accompaniment.



- With fingers 1 and 5 held down.
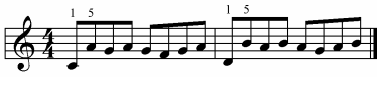


- Major, minor, and diminished.
- Staccato (Blickenstaff, June 2006).

Students start practicing five-finger patterns near the beginning of study. They learn the white key patterns beginning on F major and going around the circle of fifths. The students start the patterns hands separately but almost immediately put the hands together. Blickenstaff (June 2006) teaches the students to play these patterns in parallel rather than in contrary motion, because contrary motion can be a "confusing sound" (p. 9), while parallel motion is an "easier sound" (p. 9). The ear helps the hands play together in parallel motion. Students continue practicing five-finger patterns for several years, even after they begin learning scales. Students announce the black keys in their five-finger patterns and scales before playing them to encourage thinking before playing (Diana, 2006).

Rotation
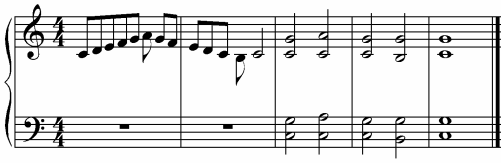
Rotation is taught from the beginning of study, starting with a slow Rocking Hand in melodic thirds. Stepwise motion is played with finger action, not with rotation. The main reason for using rotation at the beginning of study is to provide the students with an easy entrance into legato playing (Blickenstaff, June 2006).

Later, students practice Hanon's (1873/1900) Exercise No. 11, which begins , to gain more practice in rotation (Blickenstaff, June 2006).
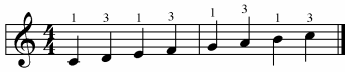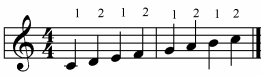
Scales
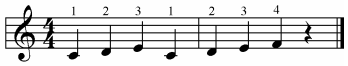
A uniform, curved hand shape with firm fingertips is essential for developing scale fluency. The student plays on the very end of the black keys. The arm is the secret for success in scale playing, because use of the arm keeps the wrist from jerking up and down (Blickenstaff, June 2006).

To introduce scales, Blickenstaff (June 2006) builds on the student's knowledge of five-finger patterns. The student learns the notes in the scale through a major key study where the left hand plays the notes *la* and *ti*, which are added to the top and bottom of the five-finger pattern.

This also leads to playing a I-IV6/4-I-V6/5-I chord progression, which is first played with just the outer notes, like  (down stems=left hand). Later the inner notes are added.

For scales that move out from center, Blickenstaff (June 2006) is a "thumbs under" (p. 13) proponent, though he has "waxed and waned" (p. 13) on this point. The thumb is to be under the finger that is playing. The thumb plays and then moves under the 2nd finger and the 3rd finger to be ready to play again. As preparatory exercises for this thumb movement, Blickenstaff assigns the following exercises:

- Play the C major scale with this fingering: 
- Play the C major scale with this fingering: 
- Play the regular scale fingering while staying in a C major five-finger pattern:

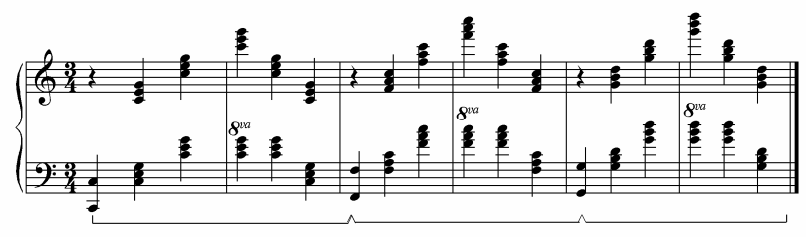


- Play the scale with the traditional fingering (Blickenstaff, June 2006).

Students learn scales in all keys and gradually practice them through 10 or 12 different routines to prevent boredom. One routine that increases scale speed is to play two octaves in 8th notes, three octaves in triplets, and four octaves in 16th notes. Metronome practice is also used, and Blickenstaff (June 2006) and the student establish three speeds to practice: very easy, comfortable, and out of the question. Because of the persistent and continual practice of scales, some of his high schools students can play these scales at ♩=160.

Chords

Students begin playing chords quite early in their study. They play an exercise that combines I, IV, and V chords with moving around the piano.



Although students begin learning chords hands separately, they quickly learn to play them hands together (Blickenstaff, June 2006). When playing the I-IV6/4-I-V6/5-I chord progression, the principal investigator noticed that Avery's (2006) wrists were up quite high when black keys were necessary. Blickenstaff did not comment on this, perhaps because Avery's hands were still small, and this adjustment was necessary to reach the black keys.

When students begin learning chord inversions, they play the same exercise and substitute the triads with chord inversions (Blickenstaff, June 2006).

VIII. Basic Musical Inflection

Articulation: Legato

Legato is taught near the beginning of study through rotation. Blickenstaff (June 2006) emphasizes the smooth sound rather than delving into the mechanics of when a finger is to lift or depress a key or how much overlap there should be between sounds. A generally smooth character is what Blickenstaff has his students strive for.
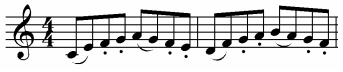
Articulation: Staccato

Knock. The Knock gives an entrance into the staccato articulation, but Blickenstaff (June 2006) does not discuss staccato by name until it appears in the student's pieces in the method book. He then presents the sound and has the student work out the technique without discussion of the mechanics of execution. If the student puts too much effort into the staccato by hitting the

key from above, Blickenstaff points out that a staccato can be played without effort by starting on the key and just lifting off.

Scratching. A later staccato technique is called "Scratching" (Blickenstaff, June 2006, p. 21). In fast playing, there is not time for individual finger bouncing. Instead, the fingers pull in slightly from the key surface, as if scratching, which produces a staccato for fast passages.

Articulation: Mixed

Following the articulations in a score is very important. For learning to mix articulations, Blickenstaff (June 2006) introduces "Bach-Hanon" (p. 21), which he calls this specific slurring of the first Hanon (1873/1900) exercise. .

Rhythm

Blickenstaff devoted much time in the observed lessons to having the students tap the rhythm on the keyboard cover before playing a piece, because he believes in separating the notational, rhythmic, and technical difficulties and tackling them one by one. Blickenstaff (August 21, 2006) said, "Until proven to me otherwise, I will believe that rhythm should be solved before reading the notes. Daily I see the unfortunate results of a student working out the notes of a piece before the rhythm is secure."

Regarding the relationship between rhythm and technique, Blickenstaff (June 2006) noted that oftentimes a rhythmic problem is really a technical discomfort where the student does not know how to manage a shift or when to move.

Dynamics and Tonal Control

<u>Dynamics</u>

Students begin playing *forte* and *piano* from the beginning of study. Blickenstaff (June 2006) said, "Rather than getting a student bogged down with the mechanics of *forte* and *piano*, I would rather have their ear guide [them]. I'm quite convinced, Julie, that anytime I can let the ear take over to direct the hand, I'm way ahead musically" (p. 17). Therefore, he does not describe

the physical mechanics of playing *forte* and *piano*. Instead, at the beginning, contrast between loud and quiet sounds is what is desired. Then gradually the quality of sound is refined.

If Blickenstaff (June 2006) has a student who has trouble with pushing excessively in loud playing, he explains that letting the arm come out of the key rather than punching down into the key produces a better sound.

Phrase Inflection

For phrase endings and two-note slurs, Blickenstaff (June 2006) presents a rule that carries him through the 1st year or more of lessons. He tells students, "There's a rule about musical sound that everybody all over the world agrees with. And you could talk to somebody in Russia, and you could talk to somebody in China, and they would say, 'Oh yes, of course. This is what we agree on, that the last note of a group is the quietest'" (p. 21). Along with making the last note quiet, Blickenstaff also discusses the necessity for a breath, lift, or break between slur markings. It is not, however, an exaggerated lift but is just enough to allow a break in the sound. In Ben's (2006) lesson, Blickenstaff spent quite a bit of time working on getting Ben to listen, concentrate, and play every phrase ending quietly, with good results.

Hand Balance

In balancing a melody over an accompaniment, the accompaniment should be played on the surface of the keys while the melody is felt deeper into the keys (Blickenstaff, June 2006).

Tone Quality

Tone quality is produced through imagining the mood of the piece and trying to obtain a sound that fits the mood (Blickenstaff, June 2006). The students that were observed all played with a rich, full tone quality.

Tempo

Smaller gestures are used for faster tempos, as demonstrated from the first lesson through the difference between the Fly Swatter and Knock gestures (Blickenstaff, June 2006).

In the observed lessons, Blickenstaff used the metronome as a tool for increasing the tempo in scales and in pieces. He also played accompaniments with the students at different tempos to allow the students to experience faster or slower tempos.

Table 29

Elementary Level Technical Concepts According to Blickenstaff

Elementary Level Technical Concepts	**Marvin Blickenstaff**
I. Interview	See descriptions above.
II. Studio Information	See descriptions above.
III. Philosophy	
Philosophy of Technique	- Technique is a skill in service of the music. - The ear directs the hand. - Technical development is a continuum that continues without interruption throughout piano study. - Balance between reading, technique, and repertoire is necessary. - Hand and finger development with exercises. - Begin playing by rote.
Philosophy of Teaching	- Follow the student's natural timeline of physical development. - Vocabulary of gesture. - Continual growth as a teacher. - Realistic about teacher weaknesses. - Greet the student. - Lighthearted lessons. - Formality and authority. - High praise. - Reinforcement. - Realistic expectations. - Diagnosis. - Lack of negative corrections. - Three kinds of questions. - Demonstration and coaching. - Commands. - Discernment. - Repetition. - Analysis. - Practice advice. - Mood setting. - Detailed.

	- Patient. - Flexible. - Gentle. - Humble. - Student choices. - Counting. - Part to whole. - Pacing. - Integrative learning.
IV. Basic Components	
Posture	- Sit tall. - Forearms level with keys. - Distance. Stiff arm the fallboard. - Footstool. - Pedal extender.
Hand Position	- Good hand shape from the beginning for every student. - Cluster, play on fingertips. - Hand and fingers are a series of curves. - Strong finger joints through O's, press on the knuckles, and remind students.
Tone Production	- Fly Swatter—Forearm gesture. - Knock—Hand gesture. - Rocking Hand—Rotating gesture for thirds. - Finger Action for seconds. - Arm Push from surface of keys. - Out Around—Wrist and arm gesture.
Playing Apparatus	- Fingers, hands, and arms. - Ears are important.
Contraction and Relaxation	- Good posture leads to relaxed playing.
Mind/Body Relationship	- The mind controls the fingers. - Counting aloud and singing help.
V. Exercises	
Gymnastic Exercises	- Essential for blood circulation in the hands. - Stretch Grabs. - O's. - Shoulder Shrugs. - Finger Stretches. - Finger Pulls.
Exercises	- Essential, taught by rote first. - Keep the exercises for a period of time.

	- Finger independence through exercises where fingers are held down while others play.
Etudes	- Standard etudes are assigned.
V. Movement at the Keyboard	
Lateral Movement	- Begun from the first lesson.
VII. Fundamental Forms	
Five-Finger Patterns	- Integral to technique. - Finger action with some finger lift. - Black key patterns with fingers between the black keys. - Variations continue through the first years of study. - Parallel motion for easier sound.
Rotation	- Taught from the beginning. - For rotating passages, but not stepwise motion.
Scales	- Curved hand shape is essential. - Thumb passes under the hand and is under the finger that plays. - Routines and metronome for speed.
Chords	- Begun early in study through triads that move around the keyboard.
VIII. Basic Musical Inflection	
Articulation: Legato	- Taught from the beginning through rotation. - Listen for a smooth sound.
Articulation: Staccato	- Knock. - Scratching.
Articulation: Mixed	- Attention to detail is important. - Bach-Hanon.
Rhythm	- Tap before playing. - Separate technique from notation. - A rhythmic problem often presents as technical discomfort.
Dynamics and Tonal Control	- *Forte* and *piano* from the beginning. Contrast. - For *forte*, let the arm come out of the key rather than punching down into the keys. - The last note of a slur is the quietest. - Breathe, lift, or break between slur marks, but not excessive. - Hand balance, accompaniment on the surface and melody deep into the keys.

Tone Quality	- Imagine the mood.
Tempo	- Smaller gestures for faster tempos. - Accompaniments and metronome used for establishing different tempos.

Mary Craig Powell

Sources

Powell (1988). *Focus on Suzuki Piano*. Miami, FL: Summy-Birchard Music.

Powell (September 2006): Interview with the principal investigator, September 19, 2006

Powell (October 15, 2006): Powell's comments after reading this section.

Felicia (2006): Lesson Observation, September 19, 2006

Grace (2006): Lesson Observation, September 19, 2006

Hannah (2006): Lesson Observation, September 19, 2006

Statements not cited are the principal investigator's opinions based on her observations.

I. Interview

Setting for the Interview

On September 19, 2006 at 11:00 a.m., the principal investigator arrived at the home of Mary Craig Powell in Columbus, Ohio. Powell teaches in the front room of her house, which contains a Steinway grand piano, a keyboard, and couches. The interview took place in two portions, from 11:30 to 1:00, and 2:00 to 2:30, with a break for lunch between sessions. Powell's teaching day began at 2:45 and continued until 8:30 p.m. Three lessons were videotaped for this study. Both the interview and lessons were very informative and rich in information, as Powell has obviously thought through her pedagogical philosophies thoroughly. At the end of the visit, Powell presented the principal investigator with an autographed copy of her book, *Focus on Suzuki Piano* (1988), which provides information about her method of teaching.

Teacher Background

Mary Craig Powell (September, 2006) grew up in North Carolina. She began piano lessons in the fourth grade. Powell's ability to learn rapidly and her love for music enabled her to persevere in spite of sporadic lessons and poor instruction in her pre-college years. After high school, Powell majored in music at East Carolina University, where she studied with Elizabeth Drake, who had studied with James Friskin at the Juilliard School. Ms. Drake took Powell under

her wing and nurtured her talent, providing her with many extra lessons. After graduating, Powell obtained a master's degree in piano performance from Wichita State University, where she studied with Dr. Robert Steinbauer. After graduate school, Powell married and started a family but still managed to continue studying piano periodically until 2000. Her teachers included William Doppman, Loren Withers, Earl Wilde, Seymour Fink, and studies at the Peabody Conservatory and University of Iowa, where she also studied organ and harpsichord.

Powell (September, 2006) held several positions at colleges, teaching piano at Campbell College in Buies Creek, North Carolina; Erskine College in Due West, South Carolina; and Capital University in Columbus, Ohio, from where she retired last year. During her years of teaching at various colleges, Powell began teaching children as a traditional method teacher. Her sons were enrolled in Suzuki violin lessons in Athens, Ohio in the 1970s, and it was there that Powell became interested in Suzuki training for the piano after seeing the terrific results the teachers were able to achieve with her sons and the other Suzuki violin students. She took a Suzuki teacher training course at Stevens Point, Wisconsin and began teaching the Suzuki Piano Method (1978). She has subsequently gained an international reputation as a Suzuki piano teacher and leads Suzuki teacher training workshops all over the world. She was also piano editor of *Suzuki World* magazine in the 1980s. Powell's (1988) book, *Focus on Suzuki Piano*, is a compilation of articles she wrote for that periodical.

Students Interviewed

Three students were videotaped and observed for this study.

Felicia (30 minutes) is in second grade and has been studying piano for approximately 2 years. She is in Suzuki (1978) Book 2. Powell (September 2006) described her as "an early reader and early on scale development" (p. 24) and a "very, very musical little girl" (p. 24). Powell said that Felicia and her older sister both show "real depth in their playing" (p. 24). Both parents and grandparents were music majors. The lesson was 30 minutes in length, because Felicia's mother

takes responsibility for aspects like reading and theory at home, allowing Powell to focus on interpretation and technique at the lesson.

Grace (30 minutes) is 6 years old and in first grade. Grace just began lessons in fall of 2006 with Powell, although she had had some Suzuki lessons previously. She is near the beginning of Suzuki (1978) Book 1 and takes a 30-minute lesson each week. Powell (September 2006) said she has moved Grace more rapidly than she would a rank beginner because of her previous training but is "going back over what she learned and checking things very closely" (p. 24). Powell described her as an "excellent student" (p. 24) and Grace's mother as "bright and conscientious" (p. 25).

Hannah (45 minutes) is in second grade and was two days shy of turning 7 years old the day of the observation. She has been studying about a year and a half and is in the beginning of Suzuki (1978) Book 2. Her family moved to Akron, Ohio this summer, and they commute 2 hours to take a 45-minute lesson every other week, because they wanted Hannah to finish the year with Powell so she could have a solid foundation in piano. Hannah's father sat in on the lesson to observe, videotape, and take notes (Powell, September 2006).

Informed Consent forms were signed by Powell, the parents, and the students. The lessons and interviews were videotaped.

II. Studio Information

Student Acceptance

The Suzuki method requires a greater commitment from the parent than from the student at the beginning of study. The parent must practice with the child daily; observe, take notes, and participate in weekly lessons; and attend group lessons with the child monthly. Because of this high commitment level, Powell (September 2006) said she interviews parents and requires them to observe at least two lessons and group classes before she considers accepting them into her studio. This allows the parent to realize the commitment expected. Powell teaches students ages 4 and up.

Parents

The parent must practice with the student at home every day, in effect teaching the student daily what was learned at the lesson. This is necessary because Powell generally starts students at the age of 4 or 5, when they are too young for independent practice. Parental input in practice gradually lessens as the student gets older, although the parent keeps attending lessons and taking notes for the student (Powell, September 2006).

At the observed lessons, Powell sat on the right side of the student, and the parent sat to the left of the student, observing, interacting, videotaping, and taking notes for the week's practice. Much of the lesson time was spent in teaching the parent how to teach the child at home, providing the parent with games and practice strategies for home practice, and explaining to the parent what Powell expected in terms of technique and interpretation.

When asked how she handles problems with overscheduled children, Powell (September 2006) said she discusses the problem with the parents, suggesting that the children choose piano and one other activity. She likes them to do a physical activity for their bodies along with piano, but more activities than that make it impossible to commit the necessary time to piano study. However, she noted that she does not have many problems with students dropping out, saying, "I usually start the 4- and the 5- and the 6-year-olds, [and I find that] if they're doing well, and I usually manage to make them do pretty well, that by the time other things come along, that most of them, like 95% of them, are so committed to the music, and it's become so meaningful to them, that I don't lose them" (p. 24).

Practicing

Powell (September 2006) said she requires an hour or more a day of practice from her students by the time they are in Book 2. Beginners start with several 10-minute practice sessions a day and gradually expand the practice time as their concentration level increases. Powell makes it clear to prospective parents that this is her requirement, and that if they feel unprepared to commit that much time, she can refer them to other teachers in the area.

Teaching Format

The students take a 45-minute lesson per week. Very young beginning students have 30-minute lessons, and some advanced students have 60-minute lessons. However, the 45-minute lesson is the norm in Powell's (September 2006) studio. Group lessons are held once a month, where students perform for each other and play games to learn about music theory and music history.

Lesson and Assignment Content

The material in the observed lessons was covered in this order:

- Attention to posture and piano hand formation. The parents were encouraged to help the child sit at the proper height and distance from the piano, so that Powell (September 2006) knows they understand how the child should sit at the piano at home.
- Technical exercises, including scales and rhythm exercises.
- Reading series, Faber and Faber (1995).
- Work on interpretation on Suzuki pieces.
- Work on learning new Suzuki pieces in the form of videotaping while Powell plays the piece so the students can listen to the new piece at home or working on sections by rote.

Materials

- Main series: *Suzuki Piano School* (1978). Students generally complete Book 1 in a year and a half or 2 years.
- Rote technical exercises and scales.
- Reading series: Powell has used Frances Clark's *Music Tree* (1955/2000) and James Bastien's *Bastien Piano Basics* (1985) in the past as her reading series, but now uses the following progression:
    - Constance Starr. (1981). *The Music Road*, Book 1.
    - Faber and Faber (1995). *Piano Adventures*, Lesson Book Primer Level.

    - Faber and Faber. *Piano Adventures*, Levels 1 and up, all four books.
    - Frances Clark. Various repertoire books.
- Theory books: Faber *Piano Adventures*, and Bastien (1982/1983) *Intermediate Theory books*.
- Rhythm: Edward Ayola. (1985) *Winning Rhythms* (Powell, September 2006).

Curriculum for Technique

Powell (September 2006) teaches technique through the Suzuki pieces, beginning with the four variations on "Twinkle, Twinkle, Little Star," which the students spend 3 to 6 months learning. Technique is taught through games at the piano and through preparatory pieces created from the repertoire pieces in the Suzuki books. Scales with the metronome in quarter and 8th notes are begun quite early, followed by arpeggios. Technique is perfected through work on the Suzuki repertoire pieces, and in intermediate and advanced levels, through supplementary pieces from the standard repertoire. Reading practice and technical reinforcement at easier levels are provided through the Faber method series and later through educational, jazz, and standard repertoire books.

III. Philosophy

Philosophy of Technique

Stated

Powell (September 2006) was attracted to the Suzuki method because "it's been extremely exciting to be able to start the preschool child and to have that many years to develop them" (p. 2). Although Powell is one of the most well known Suzuki piano teachers in the world and adheres closely to the Suzuki method, she also has added materials from other sources outside the Suzuki method such as reading books, rhythm books, exercises, transposition of pieces, and stuffed animals in order to form her completed version of the Suzuki method.

Powell (September 2006) treats technique and music reading in "two different packages" (p. 6). Technique and repertoire pieces are taught by rote in the beginning of a child's piano study to allow the student to focus on sound, interpretation, and technical motions without the added

difficulty of reading the music. "By the second Suzuki book, the child begins reading in a traditional reading book and soon after begins to read the Suzuki literature [as well]" (Powell, October 15, 2006).

One of the most important philosophies related to technical training that was both stated and observed constantly in the lessons was Powell's (September 2006) belief in constant preparation for techniques to come. Every exercise she assigned and every piece studied was meticulously prepared so that the student not only mastered a piece but gained a solid foundation in a certain technique that could be used in future pieces.

Observed

Powell's (September 2006) technical approach begins with detailed attention to posture and hand shape and is characterized by a relaxed approach to the keyboard. This approach begins with a non-legato forearm stroke combined with a forward and ascending roll of the wrist. Careful attention is given to the placement of the fingers on the keys in relation to keyboard topography and alignment of the arm. The technique is constantly refined and developed in an extremely detailed and careful manner.

Philosophy of Teaching

Stated

Knowing how to Teach. Powell (September 2006) emphasizes knowing not just what to teach, but how to teach a concept. Powell relayed the following conversation she had with a woman who studied at the Juilliard School and attended one of Powell's Suzuki training sessions. The woman said, ""If I could manage it, to get here from New York City, could I come in about once a month or every 6 weeks and study with you?' I looked at her in amazement and said, 'Well, why would you want to do that? You study at Juilliard.' She said, 'Because you know *how* to help people. And my teacher doesn't"' (p. 13). Powell went on to say, "I've realized that all across the world on the international scene, from the babies who start to the people who are studying at the

Juilliard's of the world, their teachers might know what they want, but they don't know how to get it across, except just to tell you that you can't do it, or to play it themselves" (p. 13).

Children are capable. Powell (September 2006) said she has developed

> …a philosophy that believes that children can do just about anything we want them to do. And they can do it well. They're like little sponges. And a lot of reading and writing from leading people, well outside of Suzuki method, they have supported that. And they look to the Suzuki method to strengthen their ideas, I think. And I really feel that children can do just about anything I ask them as long as I find a childlike approach to make it attractive for them and make it so appealing that they don't mind doing whatever I ask. (pp. 19-20)

Commitment to Pedagogy. Although Powell (October 15, 2006) is committed to the Suzuki method of training, she cares about the piano teaching world in general. Concerning the relationship between Suzuki and traditional teaching methods, Powell said, "I don't feel so strongly about Suzuki method as I do about just loving pedagogy period and wanting to strengthen it for everyone. I think there are many things that we do well in Suzuki in spite of some problems we often see. When you know what you're doing, I think there are many things that we do [as Suzuki teachers] that the traditional world could benefit from" (Powell, September 2006, p. 4).

Childlike Approaches through Games. One of the most attractive aspects of Powell's teaching is the way she makes use of childlike approaches through games and stuffed animals. The games, which are used to develop awareness aurally, to teach new concepts, and to prevent boredom in the many repetitions required by the Suzuki approach, are used by the parents at home also.

Frogs. The main stuffed animal Powell (September 2006) uses in her teaching is Fred the Frog. She said, "I had read that psychologists say that children respond well to an inanimate object like a stuffed animal or a puppet. I dialogue through them. They take no offense from them. It's fun" (p. 20). Powell uses Fred to motivate her preschool and elementary age students to do their best by appealing to the child's feelings for the frog. "I find that children are irritated and annoyed by just constant teacher hacking at them….So I've tried to find some fun type things that we can laugh through and still improve [the technique being practiced]" (p. 9). Fred whispers

in Powell's ear what he thinks about the student's performance, how many stickers the child deserves for a well-prepared lesson, and jumps for joy when the student does well. Powell noted, "Because it's a frog, they like it and they remember it. I've seen examples of the retention they get just from it being somewhat imaginative" (p. 15). It was observed in Grace's (2006) lesson that, though she is a shy and serious little girl, her face lit up whenever Fred was used in the lesson.

Powell (September 2006) said, "I try my best to use every childlike approach that I can even though there's a seriousness of intent behind it." She said that teachers who attended her training sessions, whether Suzuki or traditional teachers, wrote her and said, "The first thing they did when they got home was buy a frog, or if they couldn't find it, another stuffed animal, and…it had changed the whole attitude of the studio. There were so much more smiling and pleasure, and they thanked me" (p. 21). She noted, laughing, "So I also think that the stuffed animal industry has no idea that they owe me some royalties… They have no idea how many stuffed animals, especially frogs, have been purchased because of me" (p 21)!

Simplicity. Along with this childlike approach is a simplicity of vocabulary. Powell (September 2006) said, "I keep it simple. I think everything should be kept simple with children, to teach them as simply as we can and not get too fancy unless necessary" (p. 15).

Teaching Control. Powell (September 2006) said, "The only way that you could start a young child, I think, is to be able to have some control over it. If you can make it fun, you can get by with anything" (p. 19). This is evidenced in the Stop-Prepare technique, where Powell says "Stop," (p. 13) checks the child's hand, and then says "Ready, go" (p. 13) to allow the child to continue. This keeps the student from rushing ahead and developing bad technical and musical habits. Powell added that if children start with this teacher control, "They don't seem to mind. A few do, but most of them don't seem to mind, if that's the way they started. The transfer, it'll drive them nuts, you know. But we are just stopping to make sure that the technical preparation is started [well] at the beginning" (p. 14).

Observed

Specific characteristics that helped Powell attain excellent results with her students were observed. They included:

Long-range Plan. In the observed lessons, it was clear that Powell had a complete understanding of the long-range goals for the students and had a successful plan for managing student learning from the beginning through advanced stages. There was nothing haphazard in Powell's approach. Every step was calculated to be efficient and to lead to excellent playing.

Steps. This long-range plan was broken into manageable steps for the student. This was evidenced in all learning, from the exercises that prepared a student for future techniques to the learning of pieces.

Parental Involvement. Unique to the Suzuki method is its use of the parent as an integral part of the lesson and practice. In fact, at the beginning, the parent has more responsibility in the child's piano development than the child does. Much of the lesson time was spent dialoguing with and instructing the parent about what to look for in a child's playing and how to practice. In this way, Powell was not only training the child in piano playing but the parent also. This alleviates the entire burden for success at the piano from the child and places responsibility for the child's progress on the parent where it belongs with a very young child. It also enhances the familial bond between the child and parent because of the concentrated one-on-one time they spend together in practice each day. For example, instead of asking Felicia (2006) what she had accomplished in her practice that week, Powell asked Felicia's mother, which kept the mother accountable for making sure Felicia had a successful practice week. Powell also had a subtle way of making it clear to the parent that although piano study should be taken seriously, it is important to be kind, patient, and lighthearted with the child so that the parent and child could have fun together learning the piano.

Kindness. There was never a negative emotion shown in the lessons. Powell was always kind and loving to her students and to their parents. When she corrected them, it was in a gentle

but firm way. The bond was further established by asking the student for a hug at the end of the lesson. The students clearly loved their teacher.

Seriousness and Perfection. Powell took her job as a piano teacher with the utmost seriousness and professionalism. She expected perfection from her students and worked with them until they had mastered a concept or technique. In fact, it was observed in Felicia's (2006) lesson that although her scales were excellent, and although Powell even complimented her on her excellent scale technique, she still took the opportunity to make them even more perfect. No mistakes were allowed to pass unaddressed. Powell was picky in the best sense of the word, working for perfection in a repetitious, yet kind, manner and changing the approach to explain the concept in several different ways to both the student and the parent. Yet in spite of the seriousness of study and the perfection required, there was never a tense moment, never a terse word or tone of voice. Powell was always positive and encouraging.

Repetition. Powell (September 2006) noted Suzuki's statement, "Skill is knowledge plus 10,000 times" (p. 16). In Hannah's (2006) lesson, where the balance between her hands was good in Schumann's "The Happy Farmer" from Suzuki's (1978) Book 2, Hannah, Powell, and Hannah's dad worked to improve it even more by repeating the sections and talking through the balance in several different ways. Powell demonstrated again and again, sang lyrics, played along in an upper octave, and used imagery to explain the desired sound. In this way, Powell shaped Hannah's balance between her hands from being good to excellent. The repetition firmly implanted in Hannah and her dad's mind the main focus for their practice on this piece.

Preemptive Strategies. Powell prevented her students from playing a wrong way by using several preemptive strategies that set the students up for success.

- Stop-Prepare. The students had to stop when Powell (September 2006) said stop, so that she could make sure they were prepared technically for the next section or for a dynamic change. This technique "eliminates doing it 19 times out of 20 wrong until you get it right

the 20th time and wanting to quit lessons because you're so frustrated. You keep practicing doing it correctly" (p. 14).

- Powell discussed the sound the student was striving for before allowing the student to play, even if the student already knew the sound. This allowed the student to review mentally and to prepare for the right sound before playing.
- Powell demonstrated the sound for the student and set the tempo for the student before allowing the student to play. Demonstration was used for almost every aspect of the lesson to provide the student with the proper sound, technique, and tempo and to give the student time to focus and concentrate on what was expected before playing.
- If the student made a mistake or playing in a technically incorrect manner, instead of allowing the child to keep playing that way, Powell took the child's hand gently off the keys, corrected the problem, and allowed the child to try again.

Because of these strategies, a very high percentage of each student's lesson time was spent in mistake-free playing. Students learned to play only after thinking. Consequently, their hands were using proper motions most of the time, which minimized the repetition of wrong movements and made the technical learning process more efficient.

Expectation. Along with the preemptive practice that prevented students from making mistakes, Powell also told the students exactly what they would be playing each time they put their hands on the piano. For instance, she said, "Probably I'll stop you before you finish it" (Grace, 2006, p. 1). In this way, the child knew exactly what to play and played exactly what was expected in exactly the expected way, which enhanced focus and minimized mistakes.

Security in Performance. Powell only allowed students to perform pieces that were solidly prepared so that students could be successful and have a good experience playing in front of an audience. For instance, even though Grace (2006) seemed relatively secure with her hands together Twinkle Variation A, Powell noted that the skip from the C to the G in that variation was not secure 100% of the time, saying to Grace's mother, "I felt like she was just the tiniest bit

nervous about here to here. And to me it's most important for her to feel happy about what she's playing and confident" (p. 9). Powell therefore suggested that Grace play a piece she was completely confident with for group class rather than Twinkle A.

Hands on Approach. Powell constantly touched the student's hands and arms to check for looseness. She also helped the student play correctly by moving the student's arm and by taking the student's hand and dropping it into the first notes of phrases to get a good sound from the beginning of the phrase. Control over the student's technique was maintained through this hands on approach.

Stories and Imagery. Besides using Fred the Frog, Powell made up stories and imagery to teach concepts. For example, to teach balance in Schumann's "The Happy Farmer" from Suzuki's (1978) Book 2, Powell talked about the left hand representing the farmer singing happily, with the right hand accompaniment being the animals on the farm. Then, in the B section, the farmer's wife joined the farmer in singing. When this imagery failed to illicit the balance Powell desired from Hannah (2006), Powell changed the image from a farmer to a Santa Claus farmer so that Hannah could imagine the large, deep, resonant voice of Santa and improve the tone in her left hand. Due to the repetition required in the Suzuki method, Powell (September 2006) said she has to "find a thousand ways to hold the child's interest" (p. 8). Imagery and stories grew out of this need.

Clear Practice Strategies. Powell always gave specific goals for practice, practice steps for accomplishing the goals, and the number of repetitions expected on each step to ensure that the parent knew exactly how to help the child practice. In this way, the parent was developing proper practice strategies that would be transferred to the student as the student became more independent at practicing.

Questions. Powell asked the students direct questions about the sound and look of a passage. For instance, in discussing scales, Powell asked Felicia (2006), "Do you think I should leave my thumb out there until the last minute and bring it under or have it ready ahead of time"

(p. 8)? These kind of direct questions were easy for the child to answer and helped the child understand the techniques Powell was teaching.

Metronome. The metronome was constantly in use in the lessons to help the student keep a steady beat, to play at the appropriate tempo, and to structure practice for the parent and student.

Praise. Although Powell was very kind to the children throughout the lessons, she was not effusive in her praise. Praise was only given for a legitimately good tonal result. In this way, the student and parent knew without a doubt when the child played well, and the praise meant a lot because it had to be earned. However, because Powell set the students up so well for success through preemptive strategies, praise was well-deserved many times throughout the lessons. Praise was given in three ways:

- From Powell herself through clapping, pats on the back, stickers, and specific verbal praise, such as, "Good! You sure are good at keeping your eyes on the page" (Hannah, 2006, p. 2). "Wonderful" (Felicia, 2006, p. 2)! And, "You're good piano player. Both of you. So pretty. Thank you for that" (Felicia, p. 3).
- From Powell through Fred the Frog. Powell said, "What did you think Fred? Did you like that? [Fred whispers in her ear.] Oh, he's very so excited about it! He's very excited" (Grace, 2006, p. 1); and "That's a beautiful sound you make with lots of tone. It's a really beautiful sound. It sounds very like Fred is a happy hop frog the way you do it" (p. 1)!
- From Powell to the parent. "She is certainly secure with notes, and she plays at the front of those black keys just beautifully" (Grace, 2006, p. 2).

Respect. The students bowed at the end of the lesson as is the tradition in the Suzuki method. This was evidence of the respect that Powell earned from her students and from their parents, who obviously understood how privileged they were to have Powell teach their children.

IV. Basic Components

Posture

Powell takes posture very seriously and spent several minutes at the beginning of each observed lesson having the parent help the child get seated properly at the piano. The bench was adjusted so that the forearm is level with the keys, and a footstool was used for the student's feet.

- Sitting. To sit properly, Powell (September 2006) asked the student to pretend to be a squirrel, stand up, stick out a bushy tail, and sit on the bench tail first. This enabled the child to sit on the sit bones in accordance with Alexander Technique, because if the student sits slightly slumped, "everything is thrown off balance" (p. 22).
- The child sits in front of the middle of the piano. Powell instructed Grace's (2006) mother, "I'd like her belly button to be right in front of the center of the piano…That way when she puts her arm up, she doesn't have to twist it" (p. 1).
- Distance. The student sits so that there is some "air under those [upper] legs," (Hannah, 2006, p. 7). This is to ensure that the child is sitting on the front part of the bench.
- After sitting like a squirrel, Powell (September 2006) said, "I compare them to a tree. Their legs and their feet are like the roots of the tree, and their back is like a tall, beautiful, but comfortable tree trunk. The little hands and arms are the limbs and the branches" (p. 6). The child sits tall or slightly leaning forward, not slumped back.
- The shoulders are relaxed. If the shoulders are raised, Powell (September 2006) said she weights a shoulder down with a stuffed frog to remind the child to keep the shoulders relaxed. She said, "Children don't like just an adult to say, 'Get your shoulders down. Mrs. Powell said your shoulders are up.'" (p. 20). But they are willing to work when the frog is involved, because it is fun.

Hand Position

Powell (September 2006) said, "I try not to use the word hand position anymore, because it can imply some kind of a fixed, rigid shape. So I sometimes call it their piano hand…" (p. 7). To form the piano hand, in the past Powell (1988) suggested having the child hold a ball in the hand to feel the rounded position. However, she said that currently she has students drop their hand to the side of their body, because this is a natural position. This is done away from the piano at first and then brought to the keyboard cover.

Powell (September 2006) discussed the relationship between the hand, wrist, and arm as follows.

> I made up this story about how the lower arm and hand is like a straight road. And I take a pencil and I say, "This is us in the car." And we drive on the straight road. A lot of children will hang their wrist down like this…and in the beginning we just want it straight. We talk about the knuckles being like bumps in the road. We talk about how the fingers look like rainbow arches…and we talk about how the thumb touches only on the side of the nail to avoid this problem [flat thumb]. Then I turn the pencil into a pretend kitty, and I pass it under the bridge. And if [it] can get under the bridge, the kitty purrs. If [it] can't, the kitty meows. (pp. 7-8)

Regarding the curvature of the fingers, Powell (September 2006) uses the term "rainbow fingers" (p. 7) instead of "curved" (p. 7), because fingers that are too curved cause tension due to use of the long flexors on the top of the forearm instead of the smaller flexors that are used when the fingers move from the bridge. Powell said, "I'm very bothered that even some of the newer method books…talk about [curved fingers], because I have to undo all of that" (p. 7).

Powell (September 2006) said she talks about the hand "being loose and soft and comfortable, and Fred's arm, my frog, is very soft and loose and comfortable. We flop his arm, and we talk about it feeling like that so that they don't get knotted up" (p. 8).

When asked how she deals with collapsing nail joints, Powell (September 2006) said, "Well, I go crazy with it" (p. 9). She then offered three suggestions for combating this common problem.

First, Powell (September 2006) uses an awareness game where she tells the student to stop when she says "Freeze" (p. 9). If the finger is collapsed when she says "Freeze," the child is allowed to fix it. However, the goal is to have rainbow fingers instead of collapsed fingers when she says "Freeze."

Second, she uses Fred as a lighthearted way to motivate the student to fix the problem. Powell (September 2006) said,

> Fred the Frog, he's a pretty big frog, and his hands can cover his eyes. When he sees that in a lesson, he covers his eyes in horror. I fuss with him and tell Fred that's bad manners, he should not do this. He's a little too shy to talk out loud for the children, so he whispers in my ear what's wrong. And it's these [collapsed nail joints]. [So] I say, "Fred, just don't look for a minute." I turn him away and we'll practice this and see if we can do a better. [Then] I turn him back, and they play looking better, and then he jumps for joy instead. (p. 9)

This prevents exasperating the child through constant nagging by the teacher or parent.

Third, Twinkle A and Twinkle C variations are full of detached repeated notes. This strengthens the fingers. Powell (September 2006) said,

> There's far less of a tendency to collapse when you're playing detached than when you're playing legato. And you know, in Russia they teach the children—and of course Russia is the place for me that honors the art of piano playing more than any other place in the world—I understand that they teach the children to play everything detached at first for that reason, to help strengthen the finger joints. And so we keep reviewing Twinkle A a lot, and that seems to help strengthen [their fingers] too. (p. 9)

After providing these three methods for correcting collapsing nail joints, Powell (September 2006) said that Seymour Fink believed that teachers should not worry about this problem as much as teachers tend to do, because "You are risking having them have a worse problem, which is tightening with a curving of the fingers to prevent it…He said it's far better that their fingers collapse some and that they are playing [with less curved fingers] even if it causes more collapse" (p. 9). Therefore, Powell said she tries not to worry about the collapsing joints as much, but to place more emphasis on developing a relaxed technique in her students.
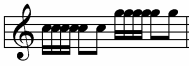
Powell (September 2006) said she pays careful attention to developing alignment from the beginning to avoid twisting the wrist laterally. To develop proper alignment, Powell has the
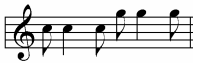
student make a fist and put the knuckles against the fallboard. Then the child opens the hand and brings the hand back into playing position with the knuckles parallel to the fallboard. The thumb plays close to the edge of the white keys, and as the fingers play from the thumb to the 5th finger in a five-finger pattern, they move in closer toward the fallboard. The child is reminded to play the 5th finger close to the black keys by placing the finger on removable colored tape Powell puts on the key to mark the proper placement of the finger. This prevents twisting of the hand and keeps the hand aligned. The general alignment found by making the bridge parallel to the fallboard is preserved by allowing the arm to stay aligned behind the finger that is playing.
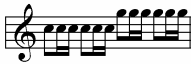
Tone Production
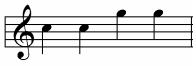
The students observed all played with a natural, free, easy technique characterized by solid tone, naturally curved fingers, and finger action in conjunction with the forearm movement. All the students evidenced a full tone and incredible agility at the keyboard.

Development of the hands begins with right hand first on the four variations on "Twinkle, Twinkle Little Star."

Variation A begins 

Variation B: 

Variation C: 

Variation D:  (Suzuki, 1978, Vol. 1, pp. 12-15).

The right hand plays an octave above middle C to preserve the alignment of the hand and arm, which can become twisted if the student plays on middle C. The left hand is practiced an octave below middle C after the right hand is comfortable, and then the variations are played hands together. The child is not allowed to advance to a new stage in playing until one has been thoroughly mastered and is completely comfortable (Powell, September 2006).

Arm Weight

Powell (September 2006) explains the concept of arm weight, which is used to make tone, through dropping Fred the Frog in the student's hand and saying "This is the way we make it tone. There is no pushing. There is no poking. We just fall" (p. 15). She then lets the student feel her arm and hand fall on the child's hand and then has the child drop a hand and arm into Powell's hand.

Forearm Stroke

Powell (September 2006) said, "On the Twinkles…one of my biggest goals is to teach them to incorporate the use of their arm along with the fingers from the beginning" (p. 6). The first stroke learned is the forearm stroke. The arm is used before the fingers, because it is natural for children to use big motions. In fact, the motion is exaggerated at the beginning. As the student advances, the motion is modified and made smaller.

Powell (September 2006) said she begins by having the student play a forearm motion with the whole hand on the keyboard cover in the rhythm of Variation A, because, "It's very easy to get used to feeling the hand when you use the whole hand. Very, very easy…I love playing on an inanimate object like a closed lid. And I love using the whole hand, because it takes away from some of the problems that can come as soon as you individualize the fingers" (p. 22).

If the student has the tendency to use the whole arm, which is common in very young students, Powell (September 2006) holds the upper arm steady to encourage the student to play from the elbow. She also uses words for the Twinkle Variation A rhythm such as "Move it from the elbow" (p. 8) or bounces Fred and says "Low bounce, low bounce, high bounce" (p. 8). The height of the bounces is coordinated with the tempo, because if the bounce is too high, speed is not possible.

After the motion is secure using the whole hand on the keyboard cover, the motion is transferred to the keyboard with individual fingers on Twinkle Variations A and C. Powell (September 2006) shows the parent how to hold the child's hand to maintain the good piano
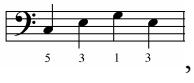
hand and to avoid the child "pushing the keys instead of dropping in with gravity" (p. 8). Stop-Prepare technique is used, where the student stops between each note to allow the piano hand to be checked before the student is allowed to play.

Wrist Roll

The next technique learned is the wrist roll. This is the technique that is perhaps used most in the Suzuki Book 1 (Powell, October 15, 2006). In this motion, the forearm and wrist move up and forward in a rolling motion, aided by the upper arm. Again, this is exaggerated at the beginning, because "children do not do subtleties well. They use big motions" (Powell, September 2006, p. 7). This motion is used on the longer notes in Twinkle Variations B and D and for "tonalization" (p. 15), which Powell borrowed from the *Suzuki Violin School* (1975) to teach good tone. In tonalization, the student listens for even tone while playing each tone of a legato five-finger pattern using a down motion of the forearm followed by an upward and forward wrist roll. Powell noted, "At first it might look good and they might be flopping the arm, but they will not really be using the weight of the arm" (p. 16). They work until the child feels a connection between the arm motion, arm weight, and the good tone that is produced. In the lessons, Powell was often observed taking the child's arm and helping the child drop into the first note.
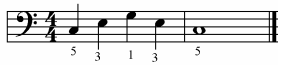
A continuation of the wrist roll idea is used at the ends of phrases, where the roll leads the hand off the keyboard. Powell (September 2006) uses the analogy of a helicopter lifting the wrist off the keys to help the child understand the motion.

Circles

Circular motions are an important part of Powell's (September 2006) technical system. Since many of the pieces in the Suzuki Book 1 have an accompaniment pattern amenable to circular motion such as 

, Powell teaches circular motion near the beginning of study so the child will be comfortable with the motion when it appears in their pieces. To teach this motion, Powell puts two pieces of tape, one in the middle of the white part of the E key and

one on the part of the E key next to the black key. The student plays the first E of the



pattern on the tape close to the black key and the second E on the tape in the middle part of the white key, which produces a circular motion of the hand and arm. This allows even the very young student to master the circular movement and also prevents a drooping wrist that inhibits movement. The motion is taught using the Follow the Leader game in addition to the tape, where Powell plays with the proper motion, and the student copies. This game is used for many things in Powell's studio, including teaching technical motions, eartraining, rote pieces, dynamics, and articulation.

Pulling Fingers

Powell (September 2006) said she sometimes likes the student to practice playing the keys and then sliding the fingers along the keys toward the hand.

Hand and Finger Stroke

Forearm stroke is an important motion in Powell's (October 15, 2006) system at the beginning of study, although the wrist roll is used most often in Book 1. As the student progresses, other motions become important as well. Hand stroke is used when it occurs in the music, and finger stroke is used in combination with the forearm movement or for finger staccato (Powell, September 2006).

Playing Apparatus

Ear

Listening is an integral part of Suzuki method. Students listen to CDs of their pieces before learning them, and Powell constantly made mention of the tone and had the student listen carefully to the sounds being produced. This was evidenced in the tonalization exercises, where the student listens for even tone on each note, and in the Follow the Leader game, where Powell plays a pattern and the student listens and copies not only the notes and rhythm, but the inflection.

Elbow and Forearm

The forearm is an important movement in Powell's (October 15, 2006) technical system, especially in beginning technique. Students play Twinkle Variations A and C with a forearm stroke, and forearm movement is often in evidence in the beginning pieces, in combination with other playing units such as the wrist and fingers.

Wrist

Students learn to roll the wrist and forearm from the beginning of study in order to connect arm weight with the keys (September 2006).

Fingers

Exercises are provided for development of the fingers. However, more attention is given to arm movement than to finger development in the beginning of study and in the Suzuki Book 1. Fingers work in conjunction with the arm (Powell, September 2006).

Contraction and Relaxation

Powell (September 2006) constantly discusses a "soft and floppy" (p. 20) arm, and checks the student's arms and hands by gently slapping the fingers and arm to check for tension. She has the students compare their loose arms to Fred's loose and floppy arms. One of the reasons Powell insists on "rainbow fingers" (p. 7) rather than curved fingers is because curved fingers cause tension in the long flexors on the top of the forearm. Instead, the student should use the short flexors by playing the fingers from the bridge.

All the students observed played with a loose and easy technique due to Powell's vigilance in preventing unnecessary tension. Powell (September 2006) said

> I must say that I have a class, and have for years, of very loose players…They manage so well as we advance, and the Suzuki books advance rapidly in difficulty. They manage and can play them brilliantly. And I really think, honestly, that it's because I've got them loose physically. And that they, even though they are not doing extreme motions from the arm and the hand, like we do in the beginning, that that beginning helps them to just feel loose back here [at the arm]. I see so many children that just move their fingers, and everything behind them is so rigid, you know. There is no movement. (p. 9)

Mind/Body Relationship

Powell (September 2006) said her "colorful approach to teaching" (p. 8) is important because,

> Back in about the 1980s, learning psychologists were realizing that learning did not involve just from the neck up, just the brain, so to speak. But that learning was greatly heightened through the use of creativity. And…there are studies to support this. Also, when the right side, the creative side, of the brain is engaged in learning with the left side, the neural connections between the two sides of the brain are supposed to be strengthened and help children in the learning process in whatever they do. (p. 8)

V. Exercises

Gymnastic Exercises

Gymnastic exercises do not comprise a large part of Powell's (September 2006) technical system, although some motions, chiefly the forearm motion, are practiced away from the piano before applying them to the piano.

Exercises

Powell's (September 2006) system is full of short exercises, and the pieces are used as exercises as well, particularly the Twinkle Variations. Exercises are used to practice concepts that are going to be learned in pieces and to prepare for necessary techniques to come.
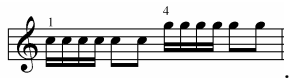
VI. Movement at the Keyboard

Physical Movement

The children that were observed played with free and easy movements of the arms and with exaggerated motions at the beginning of study. Powell (September 2006) said these motions are reduced as the student advances.

Lateral Movement

Powell (September 2006) confines movement around the keyboard to the leaps and shifts required by the music. Powell noted that this is because very young children have trouble moving around the keyboard unless they stand, because they are so small. However, she noted that the Suzuki literature expands the students away from one position sooner than other methods.

When playing leaps, Powell (September 2006) emphasized being prepared for the note after the leap by using the Stop-Prepare technique. This appears in the Twinkle Variations on the shift from the first note to the second note . This is a large leap for very small hands. Powell has the student move to the G and stop to make sure the student is securely over the note and maintains a good piano hand before being allowed to play.

Hand Expansion

Powell (September 2006) said, "I'm very opposed to stretching hands. Very opposed. I teach that in the training too. We give up legato when necessary to prevent stretching…instead of stretching hands, we move the arm to it" (p. 19). This helps the children play with a loose and easy technique.

Keyboard Topography
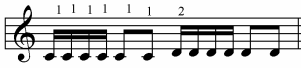
Careful attention is given to key topography in the form of placement of the fingers on the keys in order to play Alberti bass and other accompaniment patterns with circular patterns. The colored tape placed on the keys helps students know exactly where their fingers should be placed. In addition, ascending five-finger patterns are played moving from the edge of the keys in toward the fallboard. Powell (September 2006) assigned names to the regions of the keys to help the children visualize where they should play on the keys:

- The edge of the white keys is the street.
- Black keys are the houses.
- The front edges of the black keys are the front doors of the black houses.

VII. Fundamental Forms
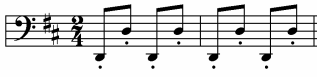
Five-Finger Patterns

Five-finger patterns are practiced in three ways:

1. With repeated notes on each note of the pattern  using a forearm stroke.
2. With wrist rolls on each note of slow, legato five-finger patterns, listening for matching tones and deep, rich tone.
3. With fingers walking in toward the fallboard so that the 5th finger ends up at the "front door to the black house" (Grace, 2006, p. 6). This keeps the bridge parallel to the fallboard and preserves the alignment between the arm, hand, and fingers so that there is no laterally twisting of the wrist. The arm aids the fingers by being aligned behind each finger that plays.

Five-finger patterns are not practiced systematically in all keys. However, pieces in a C five finger pattern are transposed to other keys. Transposition is not an integral part of the Suzuki method, but is something that Powell (September 2006) added.

Rotation

Rotation is not as large a part in Powell's (September 2006) technical system as circular motion. For instance, rather than playing Alberti bass with a side to side rotating motion, Powell focuses more on a circular motion. For the most part, Powell teaches rotation only when it appears in a piece. For instance, Powell noted that in the Bach (Snell, 1995) Musette in D Major, BWV 126, the left hand contains a broken octave accompaniment . Powell makes this left hand into an exercise for practice before teaching the piece hands together, because "They could play those notes, but it wouldn't be the way I wanted it" (p. 18). Powell also noted that a counterclockwise circle that swipes the key out on the 5th finger and in on the thumb works better for some students than a strictly side to side rotating motion.

Although Powell (September 2006) does not focus greatly on rotation, she did mention that she is not opposed to it. In fact, she said she is interested in the Taubman (1995) technique,
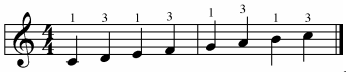
which emphasizes rotation, but has not yet had the chance to attend a Taubman workshop. In conclusion, she said, "I probably don't work with rotation as much as some teachers. I definitely do when it's obvious" (p. 19).

Scales
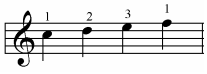
Great care is taken in every phase of scale development. No deviations from Powell's instructions on scale playing were allowed in the observed lessons. Because of this attention to detail, Powell's students gradually develop perfect scale technique that enables them to increase their scale playing ability without impediment. Before beginning scales, Powell (September 2006) reviews alignment by having the student put their knuckles flat against the fallboard. The hand is then brought back into playing position, and the bridge is parallel to the fallboard. She said, "I make an analogy and call this the bridge. Bridges don't move. The thumb is the boat going under the bridge. Boats can move, but the bridge can't" (p. 12). This keeps the hand from twisting laterally.

Two other important points for playing scales are:

- The thumb plays near the edge of the white keys (or street), and the other fingers play closer to the black keys (at the front door of the black houses). This gives the thumb room to move under the bridge without being cramped. This also prevents the need to move in and out constantly in scales that contain black keys.
- The body moves on a diagonal as the right hand plays an ascending scale. This keeps the arm from becoming straight in the extreme ranges of the keyboard. Powell had Hannah (2006) feel this diagonal body movement while moving the closed fist along the surface of the keys. Then, when Hannah played the scale, Powell gently pushed Hannah in the proper direction to remind her to move her body. This was repeated several times so that Hannah and her dad could remember this important component of scale playing.

Before beginning standard scale fingerings, Powell (September 2006) has the students play the C scale with this fingering: 

. This allows the student to concentrate on the bridge position and the thumb movement without worrying about the fingering.

The next step is to play 
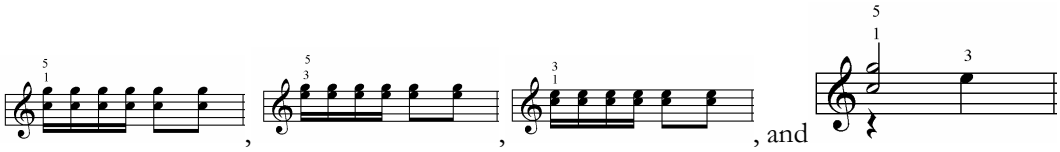
and stop with the thumb on F. This ensures that the thumb arrives at its next note on time. The thumb starts on the C above middle C to prevent twisting that may result from starting on middle C.

After learning the 1 3 1 3 fingering, students practice the C major scale with the standard fingering hands separately with the metronome in one and two octaves. A wrist roll is used on each note to provide good tone on the one-octave scales. Powell insisted on a deep tone in the one-octave scales and worked with Hannah (2006) until she succeeded in producing a *mezzo forte* sound. For the two-octave scales, which are twice as fast as the one-octave scales, the fingers take more of the responsibility since speed prohibits the arm from making a large motion on each note. Students make several repetitions of the scale in each hand every day, alternating hands to prevent fatigue. At the observed lessons, the scales were played several times each, gradually increasing the tempo with the metronome. Felicia (2006) and Hannah practiced their scales in quarter notes for one octave and 8th notes for two octaves from ♩=80-126 and played quite fluently. Scales are practiced hands separately for a long time before they are attempted hands together.

Powell (October 15, 2006) noted that as students advance, they also play three-octave scales in triplets and four-octave scales in 16th notes. The tempo is gradually increased with the metronome to ♩=120, and most students achieve four-octave scales at ♩=100 by the end of the Suzuki Book 2.

Chords

Chords are begun when students play "Mary had a Little Lamb," which is their fourth piece after the Twinkle Variations. If the student cannot play the whole triad because of a small hand, exercises are given or a note is omitted. Exercises include:



(Powell, September 2006).

VIII. Basic Musical Inflection

Articulation: Legato

In the Suzuki method, students first hear how a concept sounds, and then they learn the written sign for what they hear. Therefore, legato is introduced through a listening game. The student listens with eyes closed, and Powell (September 2006) explains it as follows. "'I'm going to play something for you that's called legato.' No explanation whatsoever. Just, 'It's called legato. Listen to the sound of legato.' And with their eyes closed, they hear legato. Then I say, 'Now close your eyes, and if you hear anything different, anything that's not legato, raise your hand'" (p. 14). Then she plays an obvious staccato in the pattern, gradually becoming more subtle with the separation. The student raises a hand when the lack of legato is heard. In this way, the student hears the sound required and understands it without a long explanation.

Legato is simulated in the repeated notes of Twinkle Variation D by pretending the notes are stuck to the keys with glue while the arm plays the notes with a wrist roll. Then the changing notes in the variation are connected with the aid of a forearm roll. The Follow the Leader game is used to master legato in Twinkle Variation D.

Articulation: Non-legato

Non-legato is the first touch introduced in Powell's (September 2006) system and is taught through Twinkle Variations A and C. Non-legato is executed using a forearm stroke.

Articulation: Staccato

Finger staccato is introduced when it appears in the repertoire and is not practiced through separate exercises. This touch is obtained by pulling the finger back slightly in a scratching motion. Although Powell (September 2006) said that some Suzuki teachers begin students on Twinkle A with finger staccato, Powell prefers to begin with the forearm stroke, because she is "so intent on the arm…and the use of the body" (p. 17).

Hand staccato is taught when it appears in the repertoire, and Powell (September 2006) said there are not as many places for it in the literature as for forearm or finger staccato. Therefore, forearm staccato (or non-legato) is the most used type of detached articulation, followed by finger staccato and then hand staccato.

Dynamics and Tonal Control

Dynamics are taught through listening. Students play a game in group class where they crouch low for *pianissimo* and gradually stand up as they say the louder dynamics levels, finally jumping for *fortissimo*. They also say the names of the dynamic levels with their voices at the appropriate tonal levels (Powell, September 2006).

At the beginning of study, Powell (September 2006) said she is most concerned with helping the student produce a good, solid tone with arm weight, aiming for *mezzo forte* or *mezzo piano* sounds. Dynamics are not introduced until halfway through the Suzuki Book 1, at which point Powell plays five-finger patterns *forte* and *piano*, and the child copies in a Follow the Leader game. She also compares good sound to Fred the Frog. If the sound is too thin and small, she says the sound is like "I'm a tired hop frog" (p. 15) using the Twinkle Variation A rhythm (). If the sound is too harsh, she says it is "I'm an angry hop frog" (p. 15). Good sound is "I'm a happy hop frog" (p. 15), and the students aim to make the happy hop frog sound. The Stop-Prepare technique is used before sudden dynamic changes to allow the student to stop and prepare for the new tonal level.

Two-note slurs are taught in Suzuki's (1978) Book 2 and grow out of the tonalization exercises of Book 1. From an arm movement on each note, one arm gesture is used to join two notes into a two-note slur, three notes into a three-note slur, etc. (Powell, September 2006).

To teach balance between hands, Powell (September 2006) uses three stuffed animals: a ghost, a mouse, and an elephant. First, the melody hand is played *forte* like a graceful elephant. Then the left hand plays silently like a ghost. Then the right and left hands play like an elephant and a ghost together. When this is successful, the left hand plays with a little sound, like a mouse. Before beginning the piece, the first few measures are played with the right hand alone with elephant tone. Then the student begins the piece. This allows the student set the hand with the large tone in the correct motion with the proper tone before adding the accompanying hand. Powell also explained in Hannah's (2006) lesson, for the dad's benefit, that a *piano* marking does not mean that both hands are equally *piano*. Instead, "One is softer than *piano* and one is bigger than *piano*, and the overall effect is soft" (p. 10).

Powell also uses imagery to teach balance between hands. For instance, in Schumann's "Happy Farmer" in the Suzuki (1978) Book 2, the singing left hand is the farmer, and the right hand accompanying chords are the farm animals.

Tone Quality

Tone quality is developed through listening and playing with arm weight in the tonalization exercises with an arm movement on each note. The goal is a rich, deep sound (Powell, September 2006).

Tempo

Students play fast from the beginning using Twinkle Variation A. This is unique to the Suzuki method, Powell (September 2006) believes. She said, "We feel that if we have mechanics set up and have them done correctly, that they can be loose and free enough to do this. If they can't do the speed, then we know they're tight…and we work with it" (p. 6).

Metronome is used frequently in Powell's teaching to keep the rhythm steady, to give structure to practice and repetition, and to increase scale speed gradually. Pieces are played at a moderate tempo until very secure before Powell allows the student to play faster.

Table 30

Elementary Level Technical Concepts According to Powell

Elementary Level Technical Concepts	Mary Craig Powell
I. Interview	See descriptions above.
II. Studio Information	See descriptions above.
III. Philosophy	
Philosophy of Technique	- Suzuki method philosophy. - Beginning the preschool child. - Solid teacher training is necessary. - Teachers must have good playing skills. - Making piano pedagogy better in general is important. - Technique and reading are taught separately at first. - Rote teaching in the beginning of study. - Preparation for future techniques through exercises. - Attention to detail and a solid foundation from the beginning.
Philosophy of Teaching	- How to teach, not just what to teach. - Children can do anything teachers want if they approach it in a childlike way. - Dialogue through stuffed animals. - Simplicity of vocabulary. - Control over the child's playing through Stop-Prepare. - Long-range plan. - Step-by-step approach. - Parental involvement in every aspect. - Kindness. - Seriousness and perfection. - Repetition. - Preemptive strategies. - Expectation. - Security in performance. - Hands on approach. - Stories and imagery. - Clear practice strategies. - Direct questions. - Metronome for motivation and control.

	- Praise. - Respect.
IV. Basic Components	
Posture	- Stick out the tail when sitting, like a squirrel. - Sit with the bellybutton in front of the middle of the piano. - Sit tall like a tree. - Sit on the front half of the bench. - Relaxed shoulders.
Hand Position	- Loose and floppy arm and hand. - "Piano hand," not "hand position." Not a rigid shape. - Arm aligned. No ulnar deviation or lateral movement of the wrist. - Rainbow fingers, not overly curved. - Strong nail joints are encouraged but are not required right away. - Thumb plays close to the edge of the white keys. Other fingers play closer to the black keys.
Tone Production	- Forearm stroke on fast, repeated notes. - Arm weight for tone. - Wrist roll. - Circular motion. - Pulling fingers. - Hand and finger stroke less important than forearm stroke.
Playing Apparatus	- Listening is important. - Forearm is the one of the main playing units. - Wrist movements are very important.
Contraction and Relaxation	- Avoid unnecessary tension. - Looseness is important at the beginning.
Mind/Body Relationship	- Colorful approach to teaching helps students learn through brain connections.
V. Exercises	
Gymnastic Exercises	- Not many.
Exercises	- Many short exercises are practiced to prepare for techniques and to practice technique.
VI. Movement at the Keyboard	
Physical Movement	- Exaggeration of motions at the beginning.
Lateral Movement	- Not much lateral movement at first, although the literature

	expands positions sooner than most methods.
Hand Expansion	- Keep the hand small. Move the arm instead of stretching.
Keyboard Topography	- Placement of the fingers on the keys is important for circular motion.
VII. Fundamental Forms	
Five-Finger Patterns	- Repeated notes - Wrist rolls on slow patterns. - Fingers walk in toward the fallboard.
Rotation	- Used when required, but circular motion is more often used.
Scales	- Thumb plays on the edge of the white keys to allow room to move under the hand. - Thumb passes under gradually. - Bridge stays parallel to the fallboard. - Body moves in diagonally as right hand ascends to keep arm bent. - Wrist rolls on one-octave scales. Fingers on two octaves. - Metronome.
Chords	- Begun in the fourth piece beyond the Twinkle Variations. - Practice two notes of the chord if chords are difficult.
VIII. Basic Musical Inflection	
Articulation: Legato	- Taught through listening.
Articulation: Non-legato	- Beginning of study through forearm stroke.
Articulation: Staccato	- Finger staccato through a scratching motion. - Hand staccato is taught when required by the repertoire.
Dynamics and Tonal Control	- Taught through listening. - Balance through ghost, mouse, and elephant. - Two-note slurs are a continuation of the wrist roll.
Tone Quality	- Developed through listening with arm weight.
Tempo	- Fast from the beginning. - If the student is loose, fast speeds are possible.

Sources

www.shaakpianomusic.com

Shaak (September 2006): Interview with the principal investigator, September 22, 2006

Shaak (October 31, 2006): Shaak's comments after reading this section.

Jessica (2006): Lesson Observation, September 22, 2006

Kevin (2006): Lesson Observation, September 22, 2006

Leah (2006): Lesson Observation, September 22, 2006

Statements not cited are the principal investigator's opinions based on her observations.

I. Interview

Setting for the Interview

The interview and lesson observations took place on September 22, 2006 at Carolyn Shaak's Denver home. She and her husband, Bernard Shaak, who passed away in 1999, taught jointly for many years. Therefore, Mrs. Shaak's home contains two studios with two Steinway grand pianos in each. Group classes are held in both studios, but the majority of the teaching is done in the basement studio, which, besides pianos, contains a table and chalkboard for theory work, drums, a small marimba, temple blocks, an electric harpsichord, and several keyboards. The principal investigator was greeted kindly by both Mrs. Shaak and by her sister, who moved to Denver in the summer of 2006 from New Mexico and helps Mrs. Shaak with administrative details of the studio. She also greets the students when they arrive for lessons. Besides the interview and observations of the lessons for this study, the principal researcher also observed some group classes for her own enjoyment and was able to see how the group classes and private lessons work together and also observed many young students playing advanced literature. All the students displayed extreme technical proficiency, intellectual knowledge about music, and musical playing that was advanced for their ages.

Teacher Background

Carolyn Shaak (September 2006) was born in Jacksonville, Florida and moved to Ashville, North Carolina when she was very young. Her family lived in a furnished house that included a piano. Shaak showed musical talent through imitating by ear in the same key the songs her neighbor played. She started piano lessons when she was 6 years old. Her first teacher was excellent and ensured that she not only played pieces by ear but learned to read music as well. When she was 7, Shaak's family moved to Charleston, South Carolina, which she described as a "very musically oriented town" (p. 15). While there, she studied with many excellent teachers and had many opportunities for solo, ensemble, and orchestral performances.

After high school, Shaak (September 2006) attended the University of South Carolina, where she studied with a teacher who had studied with Josef Lhevinne and Edwin Hughes. Therefore, Shaak's influences came from both the Russian School and Leschetizky. After 3 years at the University of South Carolina, Shaak studied in Rome at the Conservatorio di St. Cecilia for a year on a Fulbright Scholarship. Having finished her BA in music, Shaak moved to New York City and studied piano with Edwin Hughes and pedagogy at Columbia University Teacher's College with Robert Pace (www.shaakpianomusic.com). She then obtained a teaching position at the University of Illinois at Urbana-Champaign. After marrying Bernard Shaak and moving to Carbondale, Illinois, where he was teaching, the couple moved to Denver, Colorado. During the time that Bernard Shaak held a position at the University of Denver, he and Mrs. Shaak performed two piano concerts. However, Mr. Shaak wanted more time to try new teaching ideas and to compose. He resigned his position at the University of Denver, and the Shaaks founded the Shaak Music Studio in their home (September 2006).

Mrs. Shaak's students are well known for winning competitions around the country. Shaak (October 31, 2006) has retired several times, but after a few months starts taking new students again. Currently she team teaches private and group lessons with June Haun.

Students Interviewed

Three students were interviewed for this study. Shaak chose these students to allow the principal investigator to see students at three different levels of development.

Jessica (60 minutes) is 6 years old and began taking lessons at the Shaak Music Studio at the end of June, 2006. She had had some music instruction at the Children's Music Academy in Denver before beginning study with Shaak (October 31, 2006). Jessica is in the middle of the 2nd book of the Shaak's *Piano Partners* method. Her mother attended her lesson and participated by playing duets with Jessica.

Kevin (60 minutes) is 9 years old and has played for several years. He is playing at the early intermediate level. His pieces included Haydn's Concerto in C Major and pieces from Bernard Shaak's *Events* books. He is a transfer student and studies with both Shaak and Mrs. Haun.

Leah (60 minutes) is 10 years old and has played for several years. The repertoire at her lesson included Bach's F Minor Concerto and Haydn's F Major Sonata, Hob. XVI/23.

Informed Consent forms were signed by Shaak, the parents, and the students. The lessons and interviews were videotaped.

II. Studio Information

Student Acceptance

Shaak (September 2006) team teaches with June Haun. Therefore, student selection is a joint process, and student acceptance is limited by scheduling concerns. Shaak and Haun have their own students as well as students they teach jointly. Shaak said she accepts students as young as 5 years old.

Parents

The mothers of Jessica (2006) and Leah (2006) attended their daughter's lessons. In the past, the Shaaks (www.shaakpianomusic.com) offered weekly parents' classes that met at the same time as the children's group classes. The parents' classes were taught by Mr. Shaak. This provided

a time for parents to discuss their children's progress and for Mr. Shaak to explain to the parents what was being taught in the children's group classes, to discuss the philosophy of the Shaak method, to explore the psychology of teaching children, and to teach the parents to play the accompaniments to their children's pieces from the Shaak *Piano Partners* books. Shaak (September 2006) said, "The parents would stay in those groups for years. They just didn't want to leave, because they were…like support groups. They could come and talk about their kids or their problems. So the parents got to be a unit" (p. 13).

Practicing

Practicing is expected but not always checked. Practice sheets that are checked off are used about half the time (October 31, 2006). The parents and children are expected to take responsibility for being prepared for lessons. Shaak (September 2006) said that when parents ask her how much the children should practice at the beginning of study, she tells them they need to practice long enough to cover the assignment, however long that takes. She expands the practice time by having them review many pieces, saying, "I find that if they do a lot of review, then that tends to add to the time, and that's better for their hands and better for their technique. And so the longer you can keep them there the better. But if they don't review, then they're done in no time flat" (p. 8). In fact, it was observed in Jessica's (2006) lesson that although she is in the second *Piano Partners* book, she still was reviewing Book 1 in its entirety and could play all the pieces by memory.

Teaching Format

The children have one private lesson and one group class each week. Each lasts 1 hour. During the group classes students perform for each other, play games to learn about theory, and play exercises and ensembles with each other at the pianos (Shaak, September 2006). Private lessons are taught by either Shaak or Mrs. Haun.

Lesson and Assignment Content

The private lessons observed were a combination of technical exercises and working on repertoire pieces, with activities away from the piano between each segment at the piano. Usually there is also a reading component to lessons, but Shaak tailored the lessons for the principal investigator's visit to include more technical work.

Materials

- Main series: *Piano Partners* (1979-1981) by Bernard and Carolyn Shaak, in three levels. *Reading, Writing, and Rhythm* (1982-1985) books by Bernard and Carolyn Shaak, in four levels, are used for learning to read and write music.
- The *Shaak Technique Book* (2006) by Carolyn and Jamie Shaak (Carolyn's daughter) contains technical exercises for use from the 2nd year of study on (October 31, 2006).
- Supplemental reading books observed in the lessons included Jon George's (1973) *Kaleidoscope Solos* and Bernard Shaak's (1977) *Events* books. Also, Shaak (October 31, 2006) said that she also consistently uses *Celebrations* Books 1-4 by Carolyn Shaak (1979/1991) and *Pageants* by Donald Waxman (1958).
- Standard piano literature.

Curriculum for Technique

Technique plays a large part of the beginning stages of Shaak's (September 2006) program of piano training. Shaak's curriculum for technique is centered on the *Piano Partners* books, which contain pieces that, in the first book at least, are centered on the development of technique. Concepts and some modified exercises from the *Shaak Technique Book* are also used. Touch, tone, five-finger patterns, scales, chords, arpeggios, and other techniques are covered in these books.

III. Philosophy

Philosophy of Technique

Stated

Shaak (September 2006) often mentioned the necessity of relating technique to the musical meaning of a piece. Careful listening was advocated as an important part of success in technical development.

One interesting component of Shaak's (September 2006) philosophy of technique is the emphasis on review pieces as a means to lengthen the time spent at the piano in practice. Extra time spent at the piano strengthens technique and allows students to become completely fluent with their pieces.

Another form of review is built into the curriculum of the *Piano Partners* books, because one song is used to develop many ideas. For instance, Shaak (September 2006) noted that in Book 1, "Frere Jacques" is learned with the right hand, then with the left hand. Then melody of this song is played in one hand with a simple accompaniment in the left hand. Later the student learns to play chords in one hand and the melody in the other hand. The song is also played as a round with a partner. Finally, in Book 3, the student plays the song as a round between two hands. In this way, more complex playing is built through working with one familiar piece.

Observed

Based on the observed lessons, Shaak's (September 2006) technical system can be summarized as focusing on four components:

1. Listening for the correct sound for each passage based on the mood of the piece.
2. Rhythmic impulse as an important factor in early technical development. Rhythm was an integral part of the lessons, especially at the beginning, as exemplified in Jessica's (2006) lesson, where the first 15 minutes of the lesson were spent in playing rhythmic patterns and exercises on rhythm instruments and at the piano. Shaak (October 31, 2006) noted that this amount of time is not always devoted to technique, but that she wanted the

principal investigator to see as many possibilities in terms of rhythm and technique is possible.

3. Exercises. The *Piano Partners* series of three books contains 15 technical exercises. However, all the titled pieces in these books were also written to develop some aspect of the student's technical mechanism. Because of the titles, the children think they are just learning "a fun piece to play" (Shaak, October 31, 2006), but the pieces were designed pedagogically to foster the student's learning of technical skills.
4. A relaxed approach to the keyboard and proper gestures. Shaak's students played with great energy, rhythmic impulse, effortless speed, loose arms, and full sound.

Philosophy of Teaching

Stated

Four influences have informed Shaak's teaching and the development of the piano method books, *Piano Partners*, written by the Shaaks (www.shaakpianomusic.com).

First, when the Shaaks were studying in New York in the 1950s, they were "smitten by the Group Teaching approach as expounded by Robert Pace. They observed how effective it was in stimulating healthy competition and real joy in the learning process" (www.shaakpianomusic.com). One influence of the Pace method observed in the lessons was the widespread usage of transposition of pieces and of playing exercises around the circle of fifths.

Second, the importance of the ear, as exemplified in the Suzuki method, showed the Shaaks "what phenomenal results can be achieved through listening to even very complex music" (www.shaakpianomusic.com). Listening was stressed throughout the observed lessons.

Third, the rhythmic component of the Shaak system of piano training came from the Carl Orff method (www.shaakpianomusic.com). This was evidenced in the Jessica's (2006) lesson with improvisation and the use of instruments of different timbre, such as the temple blocks, marimba, and drum.

Fourth, the Shaaks were influenced by the Montessori Method, which "developed children's sensorial awareness and sensitivity in many areas of knowledge"…and studied "how the children's mind absorbs knowledge and skills" (www.shaakpianomusic.com). In the lessons, this was manifested by letting the child take the lead in many aspects of the lesson and by allowing time for exploration of the props and of ideas.

Observed

The characteristics in Shaak's teaching personality that can be said to exemplify an excellent teacher of children include the following.

Props. Perhaps the most noticeable aspect of Shaak's teaching style is her use of props. Before each observed lesson, Shaak placed several objects around the room. The students worked at the piano for a time and then were allowed to shine a flashlight on the object of their choice. Shaak and the student talked about the object and figured out how it related to music. Shaak (September 2006; October 31, 2006) said she uses props to get the student off the bench, because "If you have a kid sitting there doing the drudge lesson…that's why you can only teach half an hour. Because they just sit there, and then their mind starts traveling. So if they get up, and they do a few off the bench physical activities, and they work with some technically related objects, they're able to go back and really listen again."

For example, during Kevin's (2006) lesson, he chose a topographical map of Colorado. Shaak asked him to run his hands over the mountains and the bumps. She then compared the topography to what Kansas would feel like. She encouraged Kevin to make his music sound like Colorado instead of Kansas in terms of phrasing and dynamics, saying, "So as much as I think that there are a lot of nice people in Kansas, I wouldn't want your music to sound like Kansas, right?" (p. 11).

Other props included a small stone donkey, which was used to talk about the shape of a piece (Leah, 2006); a ping pong ball for discussing staccato (Kevin, 2006); a toy that spins when a spring-loaded lever is pushed for practicing strong nail joints (Jessica, 2006); keys for learning

about rotation (Jessica); a pearl necklace to understand playing evenly in scales (Leah); playing on a cotton ball to feel playing slowly into the keys (Kevin); and a jump rope for a physical exercise break between pieces (Kevin).

Exploratory Learning. One of the influences of Montessori observed in the lessons is that Shaak let the children explore and discover things on their own. This was seen most often in the use of props. Since the lessons were an hour long, there was plenty of time to allow this exploration to unfold. For example, in Jessica's (2006) lesson, Shaak had Jessica put Russian *matrushka* dolls, a series of wooden dolls that stack inside each other, in order from smallest to largest. She then asked Jessica how these dolls could help them learn about music. Jessica quickly came to the conclusion that smallest to largest was like dynamics, going from softest to loudest. Because of this experience with the dolls, the piece Jessica played afterwards was beautifully shaped, and she experimented with the dynamics.

Off-subject Learning. In addition to exploratory learning, Shaak let the students wander off the subject of piano if something caught their attention. For instance, when discussing how turning keys in a lock is like the motion for rotation, Jessica (2006) wanted to look through all the keys to find her favorites. Shaak let her take this time. This made the use of the prop memorable.

Rote Learning. Shaak (September 2006) said that many of the beginning pieces in *Piano Partners* Book 1 are taught by rote, but attention is also given to patterns in the music so that students can begin to understand the reading process and that music is a language. This allows the student to focus on the sound alone and to play pieces that are harder than can be read at the beginning. Reading is begun a few weeks later by way of Shaak's *Reading, Writing, Rhythm* books (Shaak, October 31, 2006).

Student Choice and Ownership. Although most of the time the lesson order was determined by Shaak, the students did have some choice within the lesson. For instance, they could decide which prop to shine the flashlight on. And in Jessica's (2006) lesson, when Shaak asked her what

major or minor five-finger pattern she wanted to play, Jessica said, "Diminished" (p. 6). So Shaak figured out the accompaniment and let her play the exercise in a diminished five-finger pattern.

Another type of choice was exhibited in that Shaak asked simple, direct, interpretive questions of the student, like "So do you think that this phrase is exactly the same, or is it less intense or more intense" (Leah, 2006, p. 17)? In this way, Leah had to think about the sound she wanted and make an interpretive choice that made musical sense. Allowing such choices as well as time to explore on their own gave the students a sense of ownership of their piano studies that was very evident. All the students that were observed clearly thought of themselves as pianists.

Analogy and Imagery. Shaak took time to give involved analogies that would be remembered by the student. For example, in Leah's (2006) lesson, to remedy phrase endings that were clipped, Shaak said, "In this house it is nice because these windows, even if it's raining really hard, the water doesn't come in from the outside, because there's a really wide overhang outside. So…the rain goes on the outside. But in some houses there's no overhang at all. Here's your window, and if you don't close your window…the whole world is wet." Leah answered, "Like my brother's room. When he opened the window, the rain blew in. It gets all wet." Shaak replied, "So there you go. So in this piece you have to have a wide overhang so that you don't get wet" (p. 14). Shaak then demonstrated a soft but full phrase ending. Leah played the piece again with much improved phrase endings. It may be that Shaak realized that the length of her analogy added importance to its meaning. There was always time in the lessons to do things with excellence. The pace was slow enough for students to absorb new thoughts and ideas, yet fast enough to hold the students' interest.

Imagination. Besides the use of props and imagery, Shaak also helped her students develop their musical imaginations by making plays on words and on music in the lessons. For instance, when Jessica (2006) was improvising on the black keys with Shaak accompanying her, Shaak echoed Jessica's melody, playing off what she had created. Improvisation was encouraged in the

lessons. Word play, whether related to music or not, kept the students' minds constantly stimulated and sparked their imaginations.

Gesture. Shaak often coached the student through a piece by playing along on the second piano and by conducting. This made the lessons efficient by lessening the time needed to explain musical ideas in words. Instead, the coaching inspired the student with a proper feeling for the phrasing and rhythm of a piece.

Spot Checking. After the student played through a piece, Shaak worked specifically on several places rather than working through the piece from the beginning. This allowed the student to keep from feeling overwhelmed and to concentrate on polishing a few places each week.

Praise. Shaak was not effusive in her praise, but she did give verbal praise when it was due. The praise was specific and genuine. Some examples of verbal praise include: "I love the way you held that note right out to the rest. That was just perfect" (Jessica, 2006, p. 10). "That's a big accomplishment. I'm proud of you for that. I didn't think you'd be able to get that in a few days" (Leah, 2006, p. 10). And, "You know the last time I heard you play, we were working on accents. It's gotten so good. That was really, really nice" (Kevin, 2006, p. 3).

High Expectations. Shaak expected excellence. No excuses were tolerated, and the students respected Shaak and lived up to her expectations. Although childlike in her use of analogies, props, and fun in the lessons, Shaak talked to the students as adults musically. Musical terms were not watered down for the children. In response, it was observed that the students took piano seriously, saw themselves as professional pianists, and held music in high regard.

Kindness. There was never an unkind or antagonistic word spoken towards any of the students. Although Shaak had high expectations of her students, she always treated each student with great kindness and evidenced joy at their arrival for the lesson. One example of kindness was observed in Jessica's (2006) lesson. Jessica and her mother played a duet, and Jessica made several mistakes. Instead of drawing attention to the mistakes, Shaak moved to the other piano and said, "All right. Let's see if it works on this piano. We hardly ever give this piano a chance. I think we

ought to use this piano too" (p. 16). They played the duet on the other piano, and Jessica played flawlessly.

Demonstration. Shaak used demonstration frequently. Shaak played a motive, and the students copied her immediately several times in a row.

Repetition. Passages were repeated until mastered. Students seemed eager to play a passage in just the right way because of their great love for playing. This enjoyment of playing seemed to come from the technical groundwork that was laid in the first book of *Piano Partners*. The students all evidenced a free and easy technique. They looked physically comfortable when they played. They entered into a passage or motive with a physical impulse, energy, and coordination that made playing look effortless and feel good.

Lessons Full of Playing. In the lessons, the students were constantly engaged. When they were at the piano, the students spent most of the time playing. Shaak provided corrections, explanations, and analogies, but the student was kept playing as much as possible. Unnecessary talk was minimized. Jessica (2006) played many review pieces, some as duets with her mother, between working on technique and discovering the props with the flashlight. Review pieces were seen as an important component to the lesson, which turned the lesson into a forum for performance.

Thrilling Pieces. Shaak (September 2006) said that the *Events* pieces by Bernard Shaak were written to sound harder than they are to play. Speaking about these pieces, Shaak said, "We wanted something to just thrill a child. Music should be thrilling above all" (p. 14). The students definitely exhibited joy in the music they were playing.

IV. Basic Components

Posture

One of the main things Shaak (September 2006) said she focuses on in terms of posture is having a tall sitting position. She helps students find the proper position by finding "the little button" (p. 3) on the child's back and pushing it gently so the student will sit up straight.

The height of the bench should be such that the forearm is level with the keyboard. A footstool is used for children whose feet cannot reach the floor. The children use footstools or phone books at home to elevate their feet (Shaak, September 2006).

Shaak (September 2006) said she uses a mirror or takes a picture of the child's posture so the student can see what the posture looks like.

Hand Position

The arm is hung at the side of the body, so that the arm is loose and the hand falls in a naturally curved shape. Fingers should not be too curved, because this position causes tension (Shaak, September 2006). The thumb rests on its corner, not on its side, although it was observed that Jessica (2006) played with her thumb on its side on occasion. In the *Shaak Technique Book* (2006), the joints of the arm and hand are numbered one to six, from the shoulder down. "Joints 1, 2, 3 [shoulder, elbow, and wrist] feel flexible and free. Joints 4, 5, 6 [finger joints] stay firm and fixed" (p. 3).

Hand position is developed on the floor away from the piano. In Jessica's (2006) lesson, she and Shaak put their forearms on the floor and made dog houses with their hands. The thumb was the dog that went in and out of the dog house. In addition, Shaak let Jessica experiment when she decided to try to make two dog houses together with her hands. In this way, Jessica became more aware of her hands. Other ideas for forming a hand position included placing the hand on the head or knee or making the hand like a muffin rather than flat like a pancake.

Finger nail joints should be firm rather than collapsed, which Shaak (September 2006) said is an ongoing process to master. Collapsing finger nail joints are remedied by flicking each finger with the thumb, as if flicking a bug. One creative idea Shaak developed for helping students develop strong nail joints is to use a toy with a spring-loaded lever. Students press the lever, and a wheel spins and makes sparks. Students practice pressing the lever with each finger without letting the nail joint collapse. Jessica (2006) loved this toy and was fascinated by the sparks.

Alignment of the hand and arm is important to Shaak (September 2006). Students should never twist their wrists laterally. The arm stays behind the finger that plays. Shaak compared alignment to a person standing with the feet aligned under the body rather than with one foot out from the body.

Tone Production

Tone production in Shaak's (September 2006) technical system begins with an understanding of arm weight. In Jessica's (2006) lesson, Shaak used a sock to demonstrate arm weight. She made a sling with the sock and put Jessica's arm in it and told Jessica a story about her arm being a baby in a hammock. Shaak then rocked Jessica's arm in the sock back and forth while singing "Rock a bye baby, on the tree top..." When the wind blew the baby, Shaak rocked the arm more. At the end, when the cradle fell, Shaak released the sock so that Jessica's arm fell. Jessica loved this.
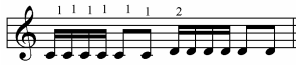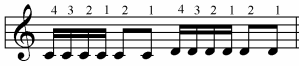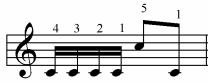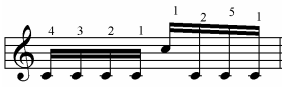
Non-legato

The first pieces in the *Piano Partners* books are non-legato, and Shaak (September 2006) said students are to play with a whole arm movement on each note. She prepares students for this motion through several activities:

- Students play drums with mallets with whole arm motions.
- With arms bent at the elbow, students move their arms in one piece forward and backwards while saying, "Chugga, chugga chugga" (Shaak, September 2006 p. 2) like a train and then vertically, saying "Choo, choo" (p. 2) as if pulling a train whistle.
- With the one hand on the same shoulder, students write their name in the air with their elbow (Shaak, September 2006).
- With the hand in a fist with the thumb side up, students make downward motions of the forearm while saying, "I want my dinner" (Shaak, 2006, p. 2).
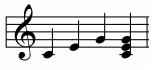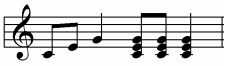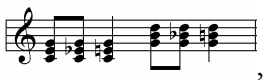
- Students hold a pencil vertically in their fist and play the piano with the eraser end of the pencil. This forces them to play with an arm motion on each note and also gives them a visual reminder that just as the pencil does not collapse, the finger joints should not collapse either (Shaak, September 2006).
- Students play their first pieces in *Piano Partners* Book 1 with the 2nd finger only. The rest of the fingers are held in a closed hand position (Shaak, September 2006).
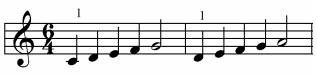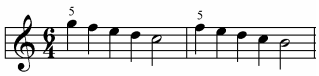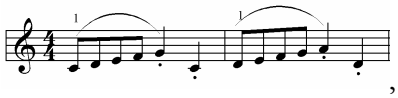
Forearm Stroke and Throw
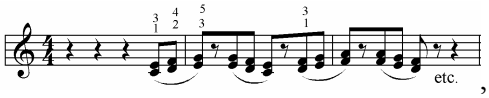
With a downward motion of the forearm on each note, students play repeated notes on five-finger patterns in different rhythms, such as . Shaak (September 2006) said this helps set the hand in position. In Jessica's (2006) lesson, this motion was as big as the tempo of the exercise would permit and was played with a free motion of the arm. After this is learned, the fingering is changed to , which is introduced within the first few months of lessons. Jessica (2006), who had studied piano for only 3 months, played it very successfully, not only with hands separately, but with hands together. Later this exercise expands to  hands together in contrary motion, moving up by step on white keys. The last permutation of this exercise is  hands together in contrary motion, moving up by step on white keys.

In these exercises, Shaak (September 2006) focuses on shaking the tension out as if shaking energy out of the hand. She uses the words "Throw it out the window" with the  rhythm, and students also practice throwing darts to understand this throwing motion. With this exercise, students play at a fast tempo very early in their study and develop looseness and abandon through the throwing motion.

Wrist Rock and Roll

Wrist rolls come in two types. In the first type, an exaggerated down, up, and forward motion of the forearm and wrist is made on each note or chord, such as in  played slowly (Shaak, September 2006). When played faster, such as in  and , both of which are played around the circle of fifths, the motion is smaller and more like a bounce of the forearm.
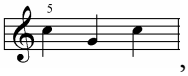
In the second type of wrist roll is found in a legato five-finger pattern exercise found in Piano Partners Book 1. This exercise is played hands separately in its first iteration,  moving up by step and  moving down by step. Shaak (September 2006) pretends there is a garden within the piano beyond the fallboard. The hand walks in toward the garden (fallboard) at a slight diagonal angle with one forward and upward motion of the wrist and forerarm per motive. Eventually, this exercise becomes the first half of an exercise entitled "Down the Garden Path," found in the *Shaak Technique Book* , which is played hands together in parallel motion.

A more advanced technique that uses a similar motion at a faster tempo is , which is played with one gesture for each rhythm that moves laterally and then up. This, like many other exercises, is played moving up by step on the white keys, hands together in parallel motion, legato and staccato. In his lesson, Kevin (2006) played this exercise at a very fast tempo with great flair and confidence.
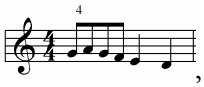
Rebound Action

The principle of rebound, epitomized by the bouncing of a ping pong ball from a hard surface, is prominent in Shaak's (October 31, 2006) thinking. It prevents the student form keybedding, or pushing on the key after the sound is heard. During Kevin's (2006) lesson, Shaak and Kevin took time to bounce ping pong balls and watch the rebound of the ball from the floor.

Rotation

Rotation plays a large part in Shaak's (October 31, 2006) technical system. She uses a rocking motion not only on passages where the notes move back and forth, such as , but also on passages that move in one direction, such as five-finger patterns, where the arm weight shifts behind each finger and the end of the group is rounded off with a slight follow through motion. Shaak also mentioned and demonstrated the Taubman type of rotation, which she advocates in some cases and noted that Taubman also advocated walking in toward the fallboard on five-finger patterns.

Circular Motion

Circular motions are used on passages such as , which would employ a counterclockwise movement of the right hand. An example of circular motion was observed in Kevin's (2006) lesson, where Shaak used a protractor to demonstrate a circular motion in a passage by having Kevin trace his hand around the rounded top of a protractor.

In general, at the beginning of study Shaak's goal seemed to be to set up a loose arm with free and fast forearm strokes. Once students master this, she concentrates on making the gestures fit specific passages.

Playing Apparatus

Ear

The ear is a very important component of Shaak's (September 2006) technical system. In the observed lessons students were constantly being asked to listen to the sound they had produced. Shaak said that when the students have an idea of a sound in their mind or hear Shaak demonstrate a particular sound, they become motivated to produce that sound and find a way to produce it technically.

Elbow and Forearm

The forearm is the main playing unit utilized in the beginning of study in Shaak's (September 2006) system.

Wrist

The wrist is used to shape gestures, but moves mostly in a vertical direction rather than in a lateral direction in order to preserve the alignment of the hand and arm (Shaak, September 2006).

Fingers

Although the students that were observed all evidenced terrific finger technique, most of the focus at the beginning is on the forearm stroke. All finger movements are tied to arm motions.

Contraction and Relaxation

A free and loose arm is one of the main goals in Shaak's (September 2006) system of technical training. Contraction was never discussed in the lessons.

Mind/Body Relationship

Although Shaak (September 2006) constantly stimulated the student's minds through questions, props, and activities, she did not discuss the role of the mind directly other than to say that one of the main reason she uses props is to make gestures memorable for students. A side

benefit is that getting off the bench allows the student to renew the mind for more concentrated work at the piano (October 31, 2006).

V. Exercises

Gymnastic Exercises

Students did gymnastic exercises in the group and private lessons to prepare for technical concepts and to build strength and body awareness (Shaak, September 2006)

Exercises

Exercises comprise a large part of Shaak's system of training students, especially in the early years of training. In Jessica's (2006) lesson, a good portion of the lesson was spent in playing different types of five-finger patterns and chords, which are played either moving up by step on white keys or around the circle of fifths in all keys. These were review exercises, but Shaak felt it worthwhile to play through them in the lesson, which added import to technique as an essential part of playing. This emphasis on many technical exercises at the beginning of study is one of the most notable features of Shaak's curriculum and leads to the children having a very solid technique when they are quite young. In fact, in Leah's (2006) lesson, her technical training had been so ingrained in the early years that Shaak and Leah were able to concentrate on interpretation for most of the lesson, even though Leah is only 10 years old.

VI. Movement at the Keyboard

Physical Movement

The students played with free movements and exaggerated motions in the beginning of study. As the students advanced, the movements became more subtle. Shaak seemed most concerned with a good quality of movement at the beginning of the study, and although Jessica (2006) demonstrated fairly good hand position, it was not perfect at all times. Shaak did not correct small breaches in technique but focused instead on effortless motions, which gave Jessica great confidence in her ability to execute movements easily at the piano.

Hand Expansion

It was observed in the lessons that Shaak found ways for students to play passages without stretching the hand. Most of the time, the students played with a closed, rather than expanded, hand shape.

Keyboard Topography
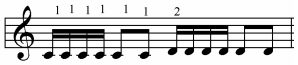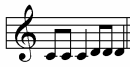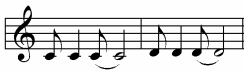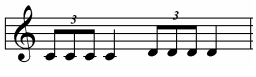
Keyboard topography was not a main topic of discussion, but Shaak (September 2006) did note that five-finger patterns and other passages should be played moving in toward the fallboard with a wrist roll. Therefore, there was some import given to placement of the fingers on various parts of the keys.
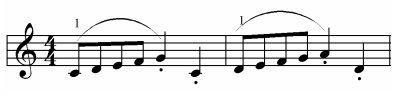
VII. Fundamental Forms
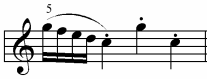
Five-Finger Patterns

The influence of Robert Pace's (1961/1983) method is seen in that the Shaak method, *Piano Partners*, is essentially a multi-key method. Students play pieces in all keys to develop an aural and tactile awareness for different keys.

Five-finger patterns are played around the circle of fifths starting near the beginning of study (Shaak, September 2006). The students play these patterns with a non-legato articulation with repeated notes on each finger in different rhythms, including:

- "Colorado Mountain"  (See alternate fingerings under "Tone Production.")
- "Jingle Bells" 
- "Jericho" 
- "Hippity Hop" 
- These patterns are practiced hands separately and hands together in parallel motion.
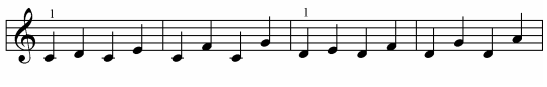
Five-finger patterns are also practiced legato in major, minor, and diminished modes in parallel motion with the hands together. The five-finger exercise, "Down the Garden Path," has two parts. The first,  moves up by step on the white keys. Students play with a wrist roll and forearm motion diagonally in toward the fallboard, as if walking into a garden that is found beyond the fallboard. Shaak had Jessica (2006) use a forward motion of her body in combination with the forward motion of the forearm and wrist roll to produce more sound.

The second section of the "Down the Garden Path" exercise is faster, , and moves down by step on the white keys. Shaak (September 2006) said that this part of the exercise grew out of the opening motive of the Haydn C Major Concerto, which Kevin (2006) played in his lesson, and from Kabalevsky's "A Little Prank," Op. 27, No. 13. The 16th notes are played with a circular motion of the wrist and forearm and a distinct, crisp sound for each note. The exercise is also practiced with reversed articulation, where the 16th notes are played staccato and the quarter notes legato. The ear provides the clarity for the fast notes.

Rotation

Shaak (September 2006) does teach the kind of rotation advocated by Matthay (1962), Bernstein (1991), and Taubman and Golandsky (1995). Rotation is taught away from the piano through exercises and props, which include a mock door with a doorknob that turns and keys to practice the motion of turning a key in the lock. One unique way of talking about rotation was demonstrated in Kevin's (2006) lesson, where Shaak took both Kevin's hands and rotated them from side to side, calling it the "pianist's handshake" (p. 4). Shaak (October 31, 2006) said she first saw this demonstrated at a Dorothy Taubman workshop. She contrasted this with a dog handshake, which is a vertical motion. She joked with Kevin that she does not take dogs as students, because they cannot do the pianist's handshake.

Rotation is not the main technique used but is combined with wrist rolls, circular motions, rebound action, and the follow through to provide many technical motions for the pianist to use (Shaak, October 31, 2006). Large rotation motions are practiced both in scale passages and in passages that rotate, like this exercise called the "Inchworm"



, from the *Technique Book,* which moves up by step on white keys. When Jessica (2006) played this, Shaak held her elbow away from her body to make sure her arm was aligned with her hand while rotating so that the fingers could work well.

Scales

The *Shaak Technique Book* (2006) contains a check list of 34 different ways to practice scales, which include the categories of metronome, dynamics, different touches, and different rhythms. Shaak (September 2006) demonstrated practicing scales in the following ways during the lessons and interview:

Measured Scales

Students practice what Shaak (September 2006) called "measured scales" (p. 11). In this type of scales, students play one octave of quarter notes, lifting the fingers two inches above the keys, with a *forte* sound and some rotation. Then they play two octaves with the fingers an inch and a half above the keys, three octaves with the fingers an inch above the keys, and four octaves with the fingers half an inch above the keys. Shaak clarified that this is just for practice and that the students are not going to play this way. However, she believes this is necessary for students to develop their sound, because legato five-finger patterns, such as those found in the "Down the Garden Path" exercise, are not enough to allow students to master the production of a full sound.
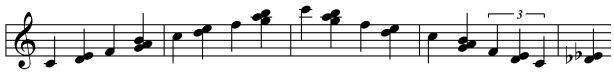
Legato Bounce

"Legato bounce" (Shaak, September 2006, p. 10), a term Shaak's husband coined, is a non-legato sound that carries well in a large concert hall. Shaak observed that Alicia de Larrocha hardly ever used a true overlapping legato, but rather used a slightly detached articulation. This
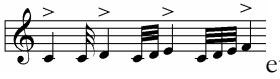
strong, slightly non-legato sound was observed in Leah's (2006) playing of a Bach Concerto. Her sound had clarity, brilliance, and energy on every note.

Clusters

Scale fingerings are taught in clusters,

 etc. through all the keys chromatically. Shaak had Leah (2006) play these scale clusters with a slight push forward with the body to produce a louder sound on the clusters as a "solid approach" (p. 10) to scales.

Add-a-Note Scales

These additive scales, which Leah (2006) demonstrated in her lesson, are played with an accent on the last note of a group:  etc. with standard scale fingerings. The accent is created by a slight supination of the hand. Many other rhythmic variations of scales are included in Shaak's system of scale practice, such as long-short-long rhythm and holding different notes of a four-note group and then playing quickly to the next held note.

Glissando Scales
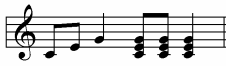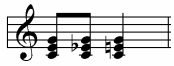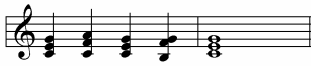
Shaak had Leah (2006) play a one-octave *glissando* on the white keys followed by a fast scale with one hand that imitated the clear, articulate sound of the *glissando*. This exercise was repeated moving up by step on the white keys. The *glissando* allowed Leah to have a smooth sound in her ear before playing it with regular scale fingering in order to avoid the bump found at the thumb crossing in these very fast scales.

Shaak (September 2006) said that the passage of the thumb under in scales moving out from center develops from the wrist roll into the fallboard. As the hand moves diagonally when walking in toward the fallboard, rotation is added, and the thumb has room to move over to its next position. Shaak said that the student's hand must be high enough to allow room for the

thumb to pass under. As the tempo increases, Shaak said thinking about the scales in clusters rather than as individual notes helps to develop speed.

Chords

Chords are begun quite early. Jessica (2006), in her 3rd month of lessons, was playing repeated triads quite easily. Shaak (September 2006) gives several chord exercises that are played around the circle of fifths and are practiced until they can be played at a very fast tempo. Shaak is adamant about the importance of playing exercises around the circle of fifths, saying that the children are capable of this exercise and that it is extremely beneficial technically and in terms of learning keys. The chord exercises include:

-  in major and minor, hands separately and together in parallel motion.
-  with the middle finger of the right hand fingered 3 3 3 or 3 2 3. Left hand middle note is fingered either 3 3 3 or 2 3 2. These are played hands separately and together.
-  in major and minor, hands separately and together.

<u>VIII. Basic Musical Inflection</u>

Articulation: Legato

Legato is introduced through five-finger patterns but is extended to pieces with a wider note-range within a few weeks. The arm makes one motion through the groups of notes, and the fingers connect to produce a legato sound (Shaak, September 2006).

Articulation: Non-Legato

Non-legato is the first touch learned by students and is used extensively at the beginning of study and beyond, because many of the beginning pieces in *Piano Partners* use non-legato, and students review these pieces for a long time (Shaak, September 2006).

Shaak (October 31, 2006) provided the following purposes for beginning with a non-legato articulation.

- To allow the student to feel the arm, hand, and finger as a unit.
- To concentrate on firm finger joints.
- To encourage keeping a small hand.
- To avoid imposing the legato touch on the student before the student can handle it.
- To improve the sound projection and focus.
- To promote an even sound.
- To eliminate the issue of fingering while working on memorization of patterns and phrases.
- To start *from the beginning* to feel and know that the arm must be behind the finger when playing.

Articulation: Staccato

Forearm staccato is the main staccato touch used in Shaak's (September 2006) system.

Although Shaak (September 2006) said she does not teach hand staccato as a movement from the wrist, there is some wrist involved in fast forearm staccato. Shaak noted that this is not a wrist motion, because the hand starts above the key, bounces toward the note, and comes back to the position. There is no preliminary lifting of the wrist, which Shaak said is dangerous. However, a light, gentle motion such as is used when patting a dog's head can be used (Shaak, October 31, 2006). She demonstrated the proper feeling of a bouncing staccato in Kevin's (2006) lesson by having him bounce a ping pong ball on the floor. She compared the sound it made on the floor

with the sound a soccer ball would make, encouraging Kevin to aim for the lighter ping pong ball sound when playing his Haydn Concerto in C Major.

Shaak (September 2006) said she does teach finger staccato, which is executed by a very slight and quick pulling back of the finger.

Articulation: Mixed

Shaak advised Leah (2006) to reverse articulations in her pieces to make sure she is was listening to every note and to develop control.

Rhythm

Rhythm is considered fundamental in playing technical exercises as well as in the interpretation of repertoire pieces. Shaak (October 31, 2006) said, "The insistence on rhythm in every single piece…is common [to *Piano Partners*]….Everything sounds better when played rhythmically." This rhythmic training begins with playing on drums, xylophones, and Chinese temple blocks as well as on keyboard instruments. Shaak (September 2006) said playing on the rhythm instruments helps students "isolate the rhythmic factor and realize how important it is" (p. 1).

In Jessica's (2006) lesson, Shaak played a rhythm on the drum, which Jessica echoed. To help Jessica establish a large beat, Shaak played a waltz and had Jessica find the beat and play it on the temple blocks. These and other rhythmic activities laid the foundation for rhythmic movements at the keyboard. Jessica played with control, ease, and energy in her movements.

The rhythms listed under "Five-Finger Patterns" are the basis for these rhythmic games and are used in the exercises and in improvisation in *Piano Partners* Book 1. This emphasis on rhythm at the beginning of study lays the foundation not only for a rhythmic understanding of music, but for a physical response to the rhythm at the keyboard, which produces a confident, relaxed, and natural approach to playing the piano.

Shaak (October 31, 2006) said that rhythmic steadiness and the ability to play in ensembles are of prime importance. She often uses rhythmic motifs and the metronome to help students develop a rhythmic sense.

Dynamics and Tonal Control

Dynamics are taught mostly through mood, props, listening, and analogy.

Mood

Shaak (October 31, 2006) noted that dynamic markings must make sense musically and said, "So the dynamics come from the harmonies of the pieces. I don't think that you just have to say, 'Okay, this says play *forte* and you do it.' Because [if] the music doesn't seem to require it, then it's really artificial." Shaak discussed the mood of pieces with students to try to find reasons for the dynamic indications.

Props

Props used in the lessons included a topographic map of Colorado, which symbolized dynamic contour in Kevin's (2006) lesson; and *matrushka* dolls, which represented levels of volume in Jessica's (2006) lesson.

Listening

Shaak worked with Kevin (2006) to improve his listening skills by asking him what he heard when he played. She had him try passages several times until he understood how to listen. The ear controls the dynamics.

Analogy

Shaak wanted Kevin (2006) to shape some scalar runs better and used the analogy of a hilly road, saying, "Sometimes…in the road you have a little hilly spot…that makes your stomach feel kind of funny…See if you can get that feeling of that little bump on the road like this. [Demonstrates with *crescendo* and *diminuendo.*] It…gives you a funny little feeling in there, right? Otherwise the piece is so much of the same thing" (p. 5).

Shaak (September 2006) said that if students cannot play with good balance, "it's mainly because they don't have enough coordination" (p. 7). To increase coordinative skills, Shaak had Leah (2006) practice with reverse articulations and had Kevin (2006) play one hand on the piano while the other hand played on the wood of the piano above the keyboard.

Shaak also uses props to teach balance. In Kevin's (2006) lesson, Shaak had him feel a heavy metal fork in the melody hand and a light plastic spoon in the accompanying hand. This helped him understand the differences in weight and gave him a kinesthetic and visual image to remind him about balance in his practice.

Table 31.

Elementary Level Technical Concepts According to Shaak

Elementary Level Technical Concepts	**Carolyn Shaak**
I. Interview	See descriptions above.
II. Studio Information	See descriptions above.
III. Philosophy	
Philosophy of Technique	- Technique must be linked to musical meaning. - Time spent at the piano is important. Increase practice time through assigning review pieces. - Listening. - Rhythmic impulse. - Exercises are important. - Relaxed approach to the keyboard with proper gestures relating to the music.
Philosophy of Teaching	- Four influences: Pace, Suzuki, Orff, Montessori. - Props and off the bench physical activities. - Exploratory learning. - Off-subject learning. - Rote learning. - Student choice and ownership. - Analogy and imagery. - Imagination. - Gesture. - Spot checking. - Praise. - High expectations.

	- Kindness. - Demonstration. - Repetition. - Lessons full of playing. - Thrilling pieces.
IV. Basic Components	
Posture	- Tall sitting position. - Height of the bench should be such that the forearm is parallel to the floor. - Footstool. - Mirror or photo to judge posture.
Hand Position	- Shoulder, elbow, and wrist are flexible and free. - The three finger joints are firm and fixed. - Hand hangs at the side of the body to make a proper position. Also can be found by making a dog house with the hands, placing the hand on the head or knee, or making a muffin rather than a pancake with the hand. - Fingers are not too curved. - Thumb is on its corner. - Strong nail joints. - Alignment of the hand and arm is important. No lateral twisting of the wrist.
Tone Production	- Gymnastic exercises for forearm motion. - Non-legato first with one finger. - Forearm stroke and throw through repeated notes. - Wrist rock and roll. - Rebound action. - Rotation. - Circular motions.
Playing Apparatus	- Listening is important. - The forearm is used at the beginning. - The wrist shapes gestures in a vertical rather than a lateral direction. - Fingers work with the arm.
Contraction and Relaxation	- Freedom of movement and looseness in the arm are the goals, with firmness in the hand and wrist when appropriate.
Mind/Body Relationship	- Stimulate the student's mind through piano and non-piano related activities and discussions. - Props are used to get the student off the bench to make gestures memorable.

V. Exercises	
Gymnastic Exercises	- Used in group classes and lessons for strength, explaining concepts, and body awareness.
Exercises	- Many exercises are used, often titled descriptively.
VI. Movement at the Keyboard	
Hand Expansion	- Stretching the hand is avoided when possible.
Keyboard Topography	- Important for playing five-finger patterns.
VII. Fundamental Forms	
Five-Finger Patterns	- Five-finger patterns around the circle of fifths are practiced in non-legato rhythms with repeated fingers. - Legato patterns move in at a slight diagonal toward the fallboard with a wrist motion as well as laterally from side to side.
Rotation	- Rotation is taught using props and exercises.

Scales	- Chromatic and tetrachord scales are taught.
	- Scales are practiced in the following ways:
	  - Rotation.
	  - Measured scales.
	  - Legato bounce.
	  - Clusters.
	  - Add-a-note scales.
	  - *Glissando* scales.
	- Pass the thumb using a high hand, rotation, and movement toward the fallboard diagonally.

Chords	- Chords are played early. - Chord exercises are played around the circle of fifths to strengthen theoretical understanding.
VIII. Basic Musical Inflection	
Articulation: Legato	- Legato is introduced through five-finger patterns, with one arm motion per group.
Articulation: Non-legato	- The first touch used by students.
Articulation: Staccato	- Forearm staccato is the main staccato touch. - Hand staccato where the hand is lifted or raised off the keys is harmful, though a light, gentle motion such as is used when patting a dog's head can be used. - Finger staccato is a slight pulling motion.

Articulation: Mixed	- Reverse articulations in a piece to gain coordination.
Rhythm	- Rhythmic steadiness and playing in ensemble are of prime importance. - Playing exercises and repertoire sounds better in rhythm. - Rhythm instruments, improvisation, and set rhythmic patterns. - Rhythmic motifs and use of the metronome are encouraged.
Dynamics and Tonal Control	- Mood. - Props. - Listening. - Verbal analogies. - Balance through props and listening.

Ted Cooper

Sources

Cooper (October 2006): Interview with the principal investigator, October 7, 2006

Cooper (October 16, 2006): Mr. Cooper's comments after reading this section.

Max (2006): Lesson Observation, October 7, 2006

Naomi (2006): Lesson Observation, October 7, 2006

Oliver (2006): Lesson Observation, October 7, 2006

Statements not cited are the principal investigator's opinions based on her observations.

I. Interview

Setting for the Interview

The interview and observations took place on Saturday, October 7, 2006 in Ted Cooper's studio at the Northwest Campus of the Levine School of Music in Washington DC This community music school has four campuses in the Washington DC area and enrolls 3500 students a year in lessons and classes in all instruments and music related studies. Mr. Cooper is one of approximately 50 piano teachers at the school.

Teacher Background

Cooper (October 2006) began his piano training in junior high and had what he described as "fairly typical" (p. 1) training. He said, "I came from a really very small town, so there wasn't anything really incredibly structured…I went through the *Michael Aaron Course* just sort of page by page. My teacher just sort of flipped through it. And then when I got to college, I started as a piano major, which was a bit of a rude awakening" (p. 1). Cooper attended Western Illinois University in Macomb, Illinois and began his bachelor's degree as both a trumpet and piano major. He studied piano with Michael Campbell, who had studied with Leon Fleisher, and pedagogy with Ann Collins. Eventually, "piano won out" (p. 1) over trumpet, and Cooper completed bachelor's and master's degrees from Western Illinois University in piano.

After college, Cooper (October 2006) taught group piano at the Baldwin Music Education Center in Cincinnati. After 2 years he enrolled at the New School for Music Study in Princeton, New Jersey and studied pedagogy in the Certificate program with Frances Clark and Louise Goss. During his 13 years at the New School for Music Study, Cooper took on more and more responsibility both as a teacher and as an administrator, eventually becoming the director of the school. In 2003, Cooper left New Jersey to start his current job at the Levine School of Music, where he teaches group and private piano lessons to pre-college students.

Students Interviewed

- Three students were interviewed for this study.

Max (30 minutes) is 7 years old and has been playing the piano for 4 weeks. He is enrolled in Cooper's Music Maker program, which combines group and private instruction. Max's father observed his lesson.

Naomi (30 minutes) is 9 years old and is in her 2nd year of lessons. She attended group and private lessons last year, but this year studies privately only. Naomi's mother observed her lesson.

Oliver (30 minutes) is 7 years old and is in the same class as Max, having started piano 4 weeks ago in the Music Maker program. Oliver's mother observed his lesson.

Informed Consent forms were signed by Cooper, the parents, and the students. The lessons and interviews were videotaped.

II. Studio Information

Student Acceptance

To be accepted into Cooper's studio at the Levine School, students and parents are interviewed first by the head of the piano department and then by Cooper (October 2006). Beginning students are accepted if they are willing to make the time commitment to attend twice a week for group and private lessons. Cooper also tries to make sure the personalities of students in his group classes are compatible.

Parents

Parents observe the lessons but not the group classes, because "Sometimes children really have difficulties having their parents in the room" (Cooper, October 2006, p. 3). However, Cooper does believe it is important for parents to sit in on the private lessons so they can understand what the student is to practice at home. The parents monitor practice by sitting with the student during the practice session for four or five days out of the practice week parents make sure the student follows the practice steps that are given for learning the new pieces and for practicing the warm-ups. The students are then left on their own to play their review pieces to "give them some independence" (p. 3) in practicing on their own.

Practicing

Cooper (October 2006) does not specify a set amount of practice time but instead asks students to complete the assignment each day. The assignment consists of "four or five new pieces and four or five review pieces, a warm-up or two, composing, and a writing assignment" (p. 18). For the youngest students, like Max (2006) and Oliver (2006), Cooper estimated that their assignment would take 20 minutes to complete each day, probably divided into two practice sessions. From Naomi (2006), Cooper said he expects half an hour of practice each day.

Teaching Format

Cooper (October 2006) brought the Music Maker program, which integrates group and private instruction for beginning students, to the Levine School because of its success at the New School for Music Study in Princeton. In the 1-hour weekly group class, Cooper introduces the assignment for the week, which is the same for all students in the class (there are four students in Max and Oliver's class). The students are "following a specific curriculum that is tailor made for those particular students" (p. 10). Cooper said the group class is "primarily a way to get time with students to introduce activities and concepts that are coming up in the future…And it's a way to get them to work on rhythm as a group, which is really effective, and a way to work on technique

as a group. So it's basically an excuse for that. And then we work out one new piece together…" (p. 10).

The students practice for a few days after the group class and then have a 30-minute private lesson on the assignment to focus on the individual student's "specific technique and musical issues" (Cooper, October 2006, p. 3).

Lesson and Assignment Content

The observed lessons focused on technique, warm-up exercises, listening exercises, repertoire pieces, and rote pieces. Students were also assigned writing assignments and composition exercises that are part of the *Music Tree Time to Begin* book.

Materials

- Main method: Clark et al. (1955/2000). *Music Tree.*
- *Side by Side* duets by Ted Cooper and Amy Glennon (1994).
- Simple rote pieces from *Solo Flight*, by Elvina Truman Pearce, Frances Clark, and Louise Goss (1986).
- Rote exercises written on the assignment sheet as finger numbers.

All materials at the beginning of study correlate with the *Music Tree* method. As the students enter their 2nd year, supplemental books are added to "branch out into other repertoire and see what other music looks like" (Cooper, October 2006, p. 3), since the *Music Tree* pieces have a unique look and feel that grows out of the reading approach. Students generally finish *Time to Begin*, the first book in the *Music Tree* method, in 9 weeks, and *Part 1*, which follows *Time to Begin*, by the end of the 1st year.

Curriculum for Technique

Cooper (October 2006) has a very systematic approach to technical development that correlates with *Time to Begin*. He said that his main goals at the very beginning of study are:

- Posture.

- Piano hand (Hand position).
- Working with single middle fingers (2, 3, 4) to prevent "bends" (p. 6), or collapsing nail joints. This is started after the first 3 weeks of study.
- Working with "connected and not connected" (p. 6) sounds (legato and non-legato).
- Using fingers 1 and 5 in broken and then blocked intervals.
- Gradually integrating all five fingers.
- Matching tones in five-finger patterns.
- Increasing the tempo.
- Staccato.
- Scales and chords.

III. Philosophy

Philosophy of Technique

Stated

Evolving Philosophy. Cooper (October 2006) said that his philosophy of teaching technique evolves, saying, "What I do right now is very different than what I did last year" (p. 3). Cooper is constantly experimenting to find new ways to teach concepts. The description presented in this section shows his thoughts current as of October 2006.

Introduction of Technique. One of the most innovative ideas about technique presented by Cooper (October 2006) was to "introduce technique as an area of study in the interview" (p. 3). Cooper works with the students seriously on forming a good piano hand in the interview so that the student and parent both understand what to expect from lessons with Cooper. This is to avoid the following problem described.

> I mean, the first pieces [can be] play[ed] without any sort of major technical instruction. They're just to be played and experienced. But then you start talking about technique…at the end of the first lesson or in week two…I think it really catches people off guard…They don't really think that's coming. They think 'What is this? Why are we doing this?' So I think to do it in the interview is very important. And that really sets everything up. This is my expectation. We're

> going to have some very concentrated work on these sorts of things, and it makes it just so much [easier], I find. (pp. 3-4)

Part to Whole. Cooper (October 2006) constantly provided small steps for acquiring specific techniques, starting with individual parts and gradually combining them into a whole. One example of this philosophy is the idea of having beginning students start playing with the inner fingers of the hand, (2, 3, 4). These fingers are isolated from fingers 1 and 5, which are introduced later. Then all fingers of the hand are integrated. Cooper said that this approach, which was created by Frances Clark, "is really genius" (p. 7) and "works really, really well" (p. 7).

Technical Preparation. Regarding preparation of students for techniques that are about to appear in repertoire pieces, Cooper (October 2006) said, "That's probably at the heart of…what I do, [make] sure that they have these technical things in their arsenal before they have it in the music. …[When] you see these things coming up, you can really plan for them and make sure that they have…technical things in order before they get to them [in the music], so they can come with a bit of knowledge" (p. 8). In addition, Cooper said that if students are prepared ahead of time for a concept, they "really treat it with respect" (p. 8) when it appears in the music.

Remedial Work. Cooper (October 2006) said that concepts must be taught repeatedly as the student progresses. For example, he noted that some remedial work is nearly always necessary in the 2nd year of study, because as the pieces increase in difficulty, it is important to make sure that the basics are still automatic. Remedial work is given in the form of exercises.

Students Need to Understand Reasons behind Concepts. Cooper (October 2006) said it is important for students to know why a certain technique is necessary. If the students know the reasons for something, they will have a deeper understanding of the concept. This also leads to more independence of learning, since Cooper teaches students how to reason for themselves with regard to both technical and musical ideas.

Observed

Precision in Teaching. Cooper's (October 2006) system of technical training can be described as being one of incredible precision and care at the beginning of study. The observed lessons were filled with constant checking of the student's posture and piano hand. This provides a firm technical foundation for the students to build on as they progress.

Hierarchy. Cooper (October 2006) spoke often of his hierarchy of the importance of certain technical skills at different levels of his students' development. He always tempered his ideal descriptions with realistic expectations of what normal students can accomplish. For example, although Cooper's ideal would be that the arm and finger work in coordination, Cooper said he chooses to focus on something the student can master quickly, firm nail joints, and to postpone work on the arm, which takes longer to master. He said, "If we can do something they can really achieve, and achieve with security and fluency, I'm going to go for that, and then [focus on other concepts] later" (p. 5).

Therefore, although Cooper does isolate certain components of technique for specific work, his system of technique can be described as one that focuses on a tactile and intellectual automatism of posture and hand position, an incorporation of the arms with the fingers for shaping phrases and for moving the arms around the keyboard, and a singing tone that comes "out of the piano" (Max, 2006, p. 3) at every dynamic level.

Philosophy of Teaching

Stated

Seriousness. Cooper (October 2006) said that he tries to teach technique in such a way that there is "some seriousness attached" (p. 4) to the concept in order to show the student that technique is important, to make the concept meaningful to the student, and to "capture their imagination" (p. 5) with a technical idea. He accomplishes this by having the students identify the right and wrong ways of doing things. In the observed lessons, Cooper spoke carefully and clearly and made sure the student understood each concept before going on to the next one. The time he

spent in explanation and the constant review of concepts helped the student understand the necessity of acquiring technical skills with excellence and precision.

Observed

Independence. Cooper spent much of the observed lessons having the students listen to two different ways of playing a passage, contrasting and comparing the look and sound of different ways of playing, and explaining in words how a certain sound was achieved. In Naomi's (2006) lesson, Cooper often asked her what words he should write on her assignment sheet to remind her of a concept. Cooper even expected Max (2006) and Oliver (2006), in their 4th week of lessons, not only be able to play an exercise correctly, but to understand the reasoning behind a certain way of using the body. With these teaching strategies, Cooper prepared the students not only for their practice time at home, but for independent learning in the future.

High Expectations. Cooper expected the techniques he taught students to be executed with excellence. For instance, he expected a correct piano hand at all times from Max (2006) and Oliver (2006), even though they had just begun studying piano. Perfection was also expected in the pieces. If the student made a mistake, Cooper did not just allow the student to try again. Instead, he dissected the cause and solution to the problem spot in order to thoroughly fix a problem and to teach the student how to go about solving problems independently.

Kindness. Cooper was extremely kind and gentle with his students, even with slightly rambunctious ones. Great patience was in evidence during every lesson and in each detail of playing. Students were never made to feel ashamed about their mistakes.

Questions. Cooper constantly asked direct, simple questions to test the students' understanding, to check their listening skills, and to train them to think before playing. These questions also allowed students to take ownership of their playing and practicing by verbally expressing the correct way of playing as well as the reasons behind it.

Comparison. Comparison was constantly used in the lessons. Cooper (October 2006) said, "Especially in technique…contrasts are really helpful. Doing things badly is really instructive to

kids. Doing it purposely, so they can really feel the difference" (pp. 8-9). Many times during each observed lesson, Cooper played the wrong way and the right way and had students tell him which way was right. He then reversed the process and had the student play the wrong way and the right way to feel the difference in the body. For example, Cooper had Naomi (2006) play several times with both a tilted hand and a level hand to allow her to feel the difference between the two positions.

Demonstration. Cooper often demonstrated for the student to show the proper way of playing. The student would then copy Cooper.

Thorough Explanations. Cooper took the time to explain concepts and movements in such clear language that the student knew exactly what was expected at all times, both in the lesson and in the practice steps for use at home. This, combined with Cooper's step-by-step approach, led to meticulous technical results from the student.

Preemptive Strategies. The step-by-step approach Cooper employed helped the student prepare mentally before playing and decreased the chance of making a mistake. Cooper always endeavored to make sure the student would be successful on the first try by providing preparation steps before allowing the student to play. In Oliver's (2006) lesson, for example, Cooper asked him questions about the form of the piece, had him block the position changes in clusters, asked him to raise the hand that starts the piece and wiggle the finger that starts each group, and checked his hand position before allowing him to play. This prevented any technical breaches or missed notes.

Repetition. Pieces were played several times in the lessons, and if there was a mistake, it was worked out repetitively until corrected, with clear explanations from Cooper as to what to focus on in each repetition. For example, in Naomi's (2006) lesson, Cooper had her repeat a trouble spot with her eyes closed, standing up, standing up with eyes closed, and on one foot, then joked, "Well, if you can do that, then you can play it sitting down" (p. 12)!

Teacher Control vs. Student Choice. Cooper had a plan for the sequence of each lesson and kept students on task. Yet he did allow some student choice by asking the students what piece they wanted to play next. He also allowed some off-topic talking to build rapport with the student, like talking with Oliver (2006) about his scary Halloween costume.

Praise. Cooper gave specific verbal praise when students did well. For instance, Naomi (2006) played the a piece with excellent rhythm but with mistakes in articulation. When she was done playing, Cooper complimented her on her rhythm, saying "Excellent rhythm! Absolutely excellent all the way through" (p. 6) before he helped her fix her articulation problems.

IV. Basic Components

Posture

Cooper (October 2006) said that posture is important, because "if the body is not in a good position, there's nothing that can really remedy that. It's hard to make a good sound [without being] poised at the keyboard" (p. 4). Much lesson time was spent helping the child find the proper posture at the piano and checking the posture throughout the lesson. This constant reiteration of posture emphasized its importance to the student and parent. Cooper asked students questions about their posture to be sure they were aware of the proper sitting position and to encourage them to take responsibility for establishing good postural habits.

Cooper (October 2006) said that his goal with posture is to guide students to understand how to make the "body fit the piano" (p. 4). This consists of three components:

- The student is to "sit tall" (Cooper, 2006, p. 4). In the lessons, Cooper touched the students' backs to remind them to sit tall while they played and manipulated their position to be sure their shoulders were relaxed while sitting tall.
- Feet are flat on the floor. Cooper (October 2006) has unusually tall 7-year-old students. Therefore, he said that all his current students are tall enough to reach the floor. When he has students who cannot reach the floor, he recommends using a footstool. However, in class, because of the logistics of adjusting the footstool constantly, he allows students to

sit back on the bench and cross their ankles if they cannot reach the floor. However, Cooper said that the ideal is to have the feet on a firm surface.

- The height of the bench is such that the forearm is level with the keys. Cooper (October 2006) has different thicknesses of Styrofoam pads to raise the student to the correct height, and gives the student the responsibility for selecting the proper pad.

Hand Position

Cooper (October 2006) was extremely detailed and exacting in the observed lessons concerning the development of what he calls the "piano hand" (p. 4). To introduce a good piano hand, Cooper said he tells the student, "Our hand can be in many shapes [Demonstrates flat, fist, sideways, all different shapes.]…and that one shape really fits the piano. And not every shape fits the piano" (p. 4).

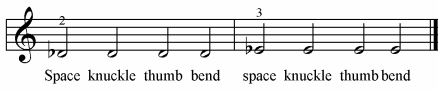
To find the shape that fits the piano best, the student hangs the arm at the side of the body. This puts the hand in a natural shape, and most students feel relaxed with their arms hanging at their sides. The student and Cooper examine the arm to make sure it is aligned with the hand and then move the hand to the keyboard cover. Cooper (October 2006) said he likes to make use of the keyboard cover to isolate a technique from the act of key depression. He said, "I just think the only way to work on it is to remove the piano…because it's so hard to control one thing and think about something else. So I find this way they can really control all the elements that make a good piano hand" (p. 4). Cooper helped Naomi (2006) automatize the feeling of a proper piano hand by putting her arm to the side and bringing it up to the keyboard cover, first with her eyes open and then with her eyes closed. Making the piano hand and posture become automatic was an important part of training in the observed lessons.

The elements of a good piano hand, according to Cooper (October 2006) are:

1. The forearm, wrist, and hand are level and aligned (Cooper, October 2006).
2. The fingers are curved but relaxed (Cooper, October 2006).
3. The hand is level and is not allowed to tilt down toward the 5th finger (Naomi, 2006).

4. There is space underneath the hand. Cooper (October 2006) said he passes a pencil under the hand to check for this space.
5. A knuckle bridge is evident on the top of the hand (Cooper, October 2006).
6. The thumb is loose and rests on its corner. To check for looseness, Cooper (October 2006) or the student jiggle the thumb from underneath with the non-playing hand. To explain how the thumb rests on its corner rather than on its side, Cooper talks about the triangle below the thumb that is formed between the thumb and the keyboard cover and the space above the thumb that is formed when the bridge is high.
7. Nail joints are strong, not collapsed. Work on firm nail joints is started after about the 3rd week of lessons, because Cooper (October 2006) said that if started at the very beginning, focus on strong knuckles can cause tension. On the other hand, starting work on firm nail joints too late is "a huge disaster" (p. 7). Cooper discussed firm nail joints with Max (2006) and Oliver (2006) by asking them to notice the difference between a "bend" (Oliver, p. 2) in the joint and "no bend" (Oliver, p. 2) in the joint as Cooper played. He then had them play and feel the difference in their own hands. Gymnastic exercises such as making O's between each finger and the thumb are also used to check the firmness of the nail joints.

To practice awareness of elements 4-7 above, students play and say the following exercise, checking each element of the good piano hand:



One innovative idea Cooper (October 2006) has used for the past 2 years to make the notion of a good piano hand "valuable… [and] to show [students] that this is really important" (p. 18) is to take a Polaroid photo of each student's piano hand in class. This is done in the 2nd or 3rd week of study. The students then analyze the piano hands of their classmates and also refer to them during lessons. Cooper has found that the students really enjoy this and that it is helpful for keeping the importance of a good piano hand at the forefront of student's minds.

Tone Production

Introduction

Cooper (October 2006) said he tries to follow the student's lead at the very beginning of study to learn how best to approach tone production for each student. When asked about his basic stroke for tone production, Cooper answered, "At the beginning it's hard to know what they're going to do. [I've] found that if I can get a piano hand, [then] whatever the other apparatus does is okay" (p. 5). Making sure students are in control of the piano hand is Cooper's first priority. Cooper believes the arm will come if control over the hand is in place but that it is difficult to control the arm if students have not achieved some control over their fingers.

Whole Arm Stroke

Cooper (October 2006) described his ideal for beginning students as a stroke with a "relaxed finger on the key with a little bit of help from [the arm]" (p. 5) and demonstrated a slight movement of the whole arm down while playing slow, repeated notes. This whole arm stroke is found in the first pieces in *Time to Begin*, which alternate hands on each note and use only fingers 2 and 3. This alternation of hands combined with the movement between different octaves is characteristic of the *Music* Tree and seems to naturally call for gentle movements of the whole arm. Cooper said the hands should be held relatively close to the keyboard in these pieces.

After students master these beginning pieces, Cooper isolates work on the piano hand from work with the arm by having students first play an exercise while focusing on keeping firm nail joints and then bring some arm movement from the shoulder into action. In the observed lessons, these exercises were played slowly and in the dynamic range of *mezzo piano* to *mezzo forte*.

Finger Action

After students have mastered the alternating hand pieces at the beginning of *Time to Begin*, Cooper (October 2006) begins working on perfecting the piano hand in isolation from the arm. The students were observed playing gently with a slight finger action and with the fingers on the keys. This pure finger action, which is too subtle to be called a finger stroke, is only used when
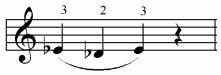
working specifically on the piano hand. Cooper's (October 16, 2006) goal is to integrate the fingers with the use of the arm. Later, when students begin to practice matching tones on five-finger patterns, more finger action is used.
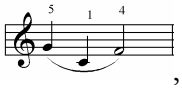
Forearm Stroke

Cooper (October 2006) does not teach the forearm stroke as a main stroke of tone production but instead prefers to focus on the use of the whole arm. Cooper said that too often a forearm stroke can disintegrate into forearm "jogging" (p. 17). Cooper said that this habit of allowing the forearm to move up and down on every note of a legato passage is a "bad, bad, bad habit" (p. 9) and "insidious" (p. 9), calling it "the biggest problem I see with transfer students" (p. 9). This forearm jogging prevents students from achieving a smooth legato phrase. Cooper hypothesizes that this problem is the result of the student trying to feel the pulse with the arm instead of feeling the rhythm internally.

However, Cooper (October 2006) said he does differentiate between detrimental forearm jogging, which destroys a legato phrase, and an acceptable forearm motion that is made on each note of a non-legato or staccato piece. In fact, Cooper said that the arm does need to participate in staccato with young students, because their fingers are so small. To achieve the same tonal result, children, because of their smaller size, must play differently than adults would. Therefore, Cooper does allow for forearm stroke in these instances.

Circular Motions and Arm Gestures

Cooper (October 2006) introduces the idea of one arm gesture per phrase very early in a student's study. For instance, when students play 

(repeated in different octaves), which is one of their first warm-ups, they use one motion of the arm for the whole phrase. The arm descends slightly on the first note, moves laterally during the phrase, and ascends on the last note of the phrase. Another example is the warm-up 

, which students

practice as they begin to integrate the outer fingers (1, 5) with the inner fingers of the hand (2, 3, 4). This is played with a subtle clockwise circular motion of the arm (right hand).

Cooper spent quite a bit of time helping Naomi (2006) feel and hear the difference between using an arm motion for every note and using one long arm gesture for each phrase. He used imagery to help Naomi understand the mood of her piece and the smooth sound that required one arm movement per phrase.

Playing Apparatus

The ear is one of the most important parts of the playing apparatus in Cooper's (October 2006) system. Listening played a major role in each observed lesson. The sound goal was the reason behind each technical skill presented.

Cooper (October 2006) said he talks to students about the six major joints of the arm: shoulder, elbow, wrist, bridge, middle joint, and nail joint. He groups these joints together, because this "puts [the playing units] in context with the body" (p. 6). In the lessons, Cooper asked Max (2006) and Oliver (2006) to find the biggest joint (the shoulder) and the smallest joint (the nail joint). The students understood that it is important that each joint fulfills its individual purpose in order to help the whole arm function correctly.

Contraction and Relaxation

Looseness is the basis of Cooper's (October 2006) approach to teaching technique. He said he checks for looseness when the arm is at the side of the body by jiggling the arm slightly. Although most students feel relaxed when their arm is at their side, Cooper said that some students do not have any idea what a loose arm feels like. This awareness must be taught.

Cooper (October 2006) said that after work has begun on firm nail joints, it is important to make sure that only the nail joints are firm while everything else is loose.

According to Cooper (October 2006), the thumb is "the boss" (p. 13) of the hand. "Whatever the thumb does, everything else does. So if it is tight, then your other fingers…are going to be tight too" (p. 13). Therefore, thumb looseness and a proper thumb position is

extremely important. Cooper constantly checked the thumb for looseness during the observed lessons by jiggling the thumb up and down slightly.

When asked whether Cooper (October 2006) teaches braced fingers (where the thumb is placed at the base of the nail joint of the 2nd finger so that these two fingers play as a unit) for the beginning pieces, he said he does not because this position can lead to tension. Cooper strives to avoid excess tension at all times.

Mind/Body Relationship

One of the main features of Cooper's (October 2006) teaching, which was stressed both in the interview and in the lessons, is his emphasis on reasoning abilities, even in young, beginning students. Constant questioning, comparing, contrasting, and formation of practice steps were used so that the student did not imitate Cooper mindlessly but really gained an understanding of the reasons behind Cooper's expectations.

V. Exercises

Gymnastic Exercises

Gymnastic exercises do not make up a large part of Cooper's (October 2006) system of technique. Students do make O's with their fingers to work on firm nail joints, but other than that, the away from the piano exercises are limited to formation and observation of a good playing position on the keyboard cover before the difficulties of key depression are added.

Exercises

Cooper (October 2006) assigns simple warm-ups to isolate various techniques. Cooper said the exercises in *Time to Begin* often use two hands, which he feels is too complicated. Therefore, he modifies the warm-ups to focus on one hand at a time and writes the warm-up for the week on the assignment sheet in finger numbers, such as 3 2 3 on the black keys. The warm-ups are played in multiple octaves on the piano for extra practice.

Cooper (October 2006) said he uses the exercises found in *Part 1*, which consist of blocked and broken interval studies and single finger studies. Naomi (2006) played a blocked

interval study in her lesson, and Cooper worked with her not only to play the correct notes with a good hand position but to make sure the sound of each blocked interval was clear by striking and releasing the notes exactly together. He had her work on this until she was happy with the sound and with the clearness. By the end of this lesson segment, she was listening carefully to her sound and had an opinion about how she was playing. This meticulous attention to detail was evidenced in all the observed lessons.

VI. Movement at the Keyboard

Lateral Movement

Shifting between octaves with repeated patterns is a hallmark of the *Music Tree* method. Cooper (October 2006) said he likes this approach because it keeps students from being fixed in one position on the keyboard. In the lessons, Cooper helped the students learn how to coordinate their arms while moving from octave to octave in rhythm by using a two-step process. First, the students played each position with the notes blocked so they could focus solely on moving to the next position correctly. Then the pieces were played as written.

The *Music Tree* pieces are written to repeat a pattern in three ascending octave positions. However, Cooper (October 2006) said that for small students, starting the octave above middle C, moving up an octave, and then back down works better than moving up for three octaves, because small students can lose balance if they move too far toward the top of the keyboard. Although Cooper does not modify the pieces, the warm-ups he assigns cover only a two-octave span.

Hand Expansion

Hand expansion is handled very carefully in the *Music Tree* method. Naomi (2006) was learning a piece where her 2nd finger moved between a note the black key next to it. Cooper had her feel the movement of her finger on the surface of the keys between these two notes to be aware of how this small shift felt before playing the piece. This is another example of the extremely detailed and methodical approach Cooper applies to teaching piano.
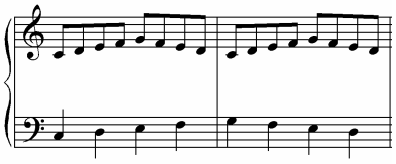
VII. Fundamental Forms

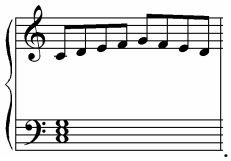
Five-Finger Patterns
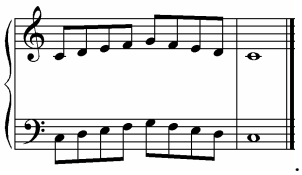
Students at the Levine School of Music play juries each semester, and the curriculum guide the school follows requires five-finger patterns played hands separately in C, G, D, and A major for the youngest students. For Cooper's (October 2006) students, this generally comes at the end of Part 1, or at the end of the 1st year of study.

Five-finger patterns are introduced starting with finger 5 rather than with the thumb, because it is easier to maintain a good piano hand when the 5th finger, rather than the thumb, begins the pattern. Cooper noted (October 2006) that five-finger patterns are difficult because the piano hand has to be excellent, and the five notes must match in tonal intensity. Students play the patterns slowly at a *mezzo forte* or *forte* dynamic level while listening to the matching sounds of the tones. Not only do the tones have to match, but the releases must be such that students avoid blurring of the tones, sounds Cooper called "ghosts" (Naomi, 2006, p. 16) in Naomi's lesson. Rather than advocating a specific movement of the forearm, arm, or fingers, Cooper said that the ear guides the matching of tones.

After students have mastered the matching of tones, they continue their study of five-finger patterns through the following sequence:

- Hands together in contrary motion.
- Playing in other keys.
- Increase of tempo through the following variations: 
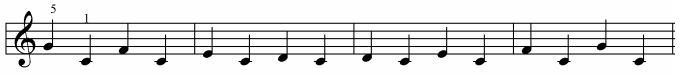
and . Cooper (October 2006) said he prefers these kinds of hands

together five-finger patterns to parallel motion patterns like .

Although he said it is good that students can play the parallel motion patterns, they are not necessary, because they are not found very often in the repertoire. Instead, Cooper prefers an accompanimental pattern with the five-finger pattern that will prepare students for techniques found in their pieces.

Alignment is also an important part of playing five-finger patterns successfully. Cooper (October 2006) said he begins by checking the alignment of the arm and hand when the arm hangs at the side of the body. Then, as the student plays the five-finger pattern, there is a slight lateral movement to allow the arm to stay behind the finger that is playing. However, Cooper notes that there is not a literal correspondence between the arm and the finger. Rather, there is a subtle general motion that is hard to teach. Cooper said that although hierarchically, having the arm stay behind the finger that is playing is not his first priority, it is his goal.

Rotation

Cooper (October 2006) said he does not work with rotation much in the 1st and 2nd year. He demonstrated the exercise  slowly with circular motions between the tones rather than a strict side to side rotating motion. When the tempo increases, Cooper said he uses more rotation.

Scales
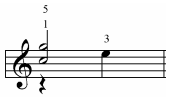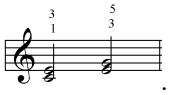
Scales are not taught in the first few years of study but are introduced through the *Music Tree* books, first appearing in *Part 2B*. First, crossing the 2nd and 3rd fingers over the thumb is introduced. Then the thumb moves under the hand and behind the 4th finger. When asked whether he advocates the approach of moving the thumb under gradually or suddenly, Cooper (October 2006) answered that it depends on the tempo but that generally the arm brings the
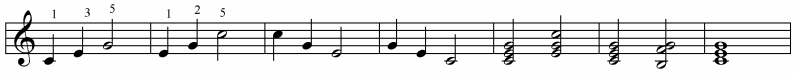
thumb over. Cooper demonstrated this movement using a slight outward swing of the arm to help the thumb under.

After these movements of the hand over the thumb and thumb under the hand are mastered, scales beginning on the 5th finger and moving in toward the center of the keyboard are introduced. Cooper (October 2006) said he only works with one-octave scales for a week or two and then moves to two-octave scales. Students play these scales in contrary motion with the hands together after learning them hands separately and gradually add new keys around the circle of fifths.

Chords

Chords are introduced quite late, in *Part 2B*. Cooper (October 2006) said that generally he feels that introducing chords later rather than earlier is beneficial, because the "rock hard wrist" (p. 15) that may result from introducing chords too soon can be avoided. However, he noted that the *Music Tree* was written for the average child and said that it can be adapted for other children by skipping pieces and moving faster. He said he does not have a strict agenda regarding the timing of the introduction of chords. "As long as it feels good, there's a certain level of mastery, and they have the technique to play the pieces…that they're studying. That's most important" (p. 15).

Chords are introduced through exercises such as  and . In addition, the curriculum guide used at the Levine School of Music has students play

 as an introduction to chords. Cooper (October 2006) said that he likes the idea of playing the chords broken and then blocked. The children observed had not reached the point of playing chords or scales.

VIII. Basic Musical Inflection

Articulation: Legato

Cooper (October 2006) introduces articulation through the words "connected" and "not connected" (p. 17) in the first few weeks of lessons. He said he has tried other words such as "bumpy" and "smooth" (p. 17) but has found that the words "connected" and "not connected" work best, because it is a "name that is meaningful to them…because it translates [into] the actual motion. The sound and the motion come together…which is exactly what we want" (p. 17). Cooper begins by having the student listen to the difference between the two articulations while he plays and then by looking at the motion that makes these sounds. For legato, he talks about having the fingers stay close to the keys, because if the fingers are "relaxed toward the keys" (p. 17), legato is more likely to happen. "It all comes from the idea that if you want to make a connected sound, it would make sense to stay connected to the keys" (p. 17).

From the beginning, Cooper (October 2006) makes a distinction between an arm movement on each note of a group of "not connected" sounds and one arm motion per group of "connected" sounds. Students are not to play with a forearm motion on each note of a legato piece. Instead, from the beginning of study, Cooper strives to help his students produce a more "artistic" (p. 9) sound through longer arm movements for legato phrases.

Articulation: Non-legato

Non-legato is Cooper's (October 2006) "not connected" (p. 17) sound that is used throughout the beginning of study as a contrast to legato.

Articulation: Staccato

Cooper (October 2006) prefers non-legato to staccato as a detached articulation at the beginning of study, because staccato is "so difficult to do well" (p. 17). His goal with beginners is to help his students integrate the finger, hand, and arm and "feel freedom throughout the arm and hand" (Cooper, October, 16, 2006). He said, "Playing staccato can easily make youngsters tight, and if a teacher isolates a joint, it can become even more tense…Every part moves together and

not in isolation" (October, 16, 2006). Because of this, Cooper teachers students a combination of hand and arm staccato and does not teach finger staccato to beginners.

Rhythm

Counting aloud while playing was constantly in evidence in the observed lessons. Technically, this may help counter the common habit of putting the pulse in the forearm, which results in a jogging motion of the arm on each note.

Dynamics and Tonal Control

Cooper (October 2006) said that when introducing dynamics, he focuses on whatever the child does opposite naturally. For instance, if a student has the tendency to always play *forte,* Cooper changes the dynamic markings in pieces to *piano.* This helps students "refine the movements" (p. 16) and helps them "feel it a different way" (p. 16).
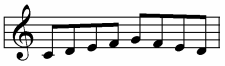
Cooper (October 2006) said that *mezzo forte* is the softest dynamic level he wants students to play warm-ups. "I think a full tone is much, much healthier and will take them much farther. If they can get a full tone, they can really probably get a softer sound. But that's not necessarily true the other way around" (p. 16).

Tone Quality
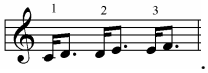
Cooper urged his students to play with a full tone, whatever the dynamic level. In Max's (2006) lesson, for example, Cooper explained, "So let's see you get a nice soft sound, but one that really comes out of the piano. You can play a soft sound. [Demonstrates a very soft sound.] And it just stays inside the piano. Or we can play a soft sound that really comes out. [Demonstrates a sound with more tone]" (p. 3). He then had Max play sounds that stayed in the piano and sounds that came out of the piano to understand the difference between the two tone qualities. In this way, Cooper demonstrated that he works on tone projection from the beginning of study.

Tempo

For the 1st year to year and a half, Cooper (October 2006) said that playing

 at ♩= 100 is a sufficient tempo. Anything faster is good but is not necessary. The important point is to maintain high standards in terms of maintaining control over the tone and preserving a proper piano hand. Cooper offered two ideas for increasing speed.

First, Cooper (October 2006) said that playing quieter alleviates tension that may result from playing fast.

Second, for achieving evenness when playing fast five-finger patterns, Cooper suggested playing with a detached, rather than a legato, articulation and matching the tones using "long short practice" (p. 12) 

. However, he cautioned that the teacher should be cautious about sending this exercise home for practice so that students do not use wrong technical means to play the notes.

Table 32

Elementary Level Technical Concepts According to Cooper

Elementary Level Technical Concepts	Ted Cooper
I. Interview	See descriptions above.
II. Studio Information	See descriptions above.
III. Philosophy	
Philosophy of Technique	- Evolving philosophy of teaching. - Introduce technique at the interview. - Part to whole approach to technique. - Technical preparation. - Remedial work necessary in the 2nd year of study. - Students need to understand reasons behind concepts. - Precision in teaching. - Hierarchy of concepts.
Philosophy of Teaching	- Seriousness.

	- Independence. - High expectations. - Kindness. - Simple and direct questions. - Comparison. - Demonstration. - Thorough explanations. - Preemptive strategies. - Repetition. - Teacher control vs. student choice. - Praise.
IV. Basic Components	
Posture	- Very important for making a good sound. - Make the body fit the piano. - Sit tall. - Feet flat on the floor or on a footstool. - Height such that the forearm is level with the keys.
Hand Position	- Called "piano hand" (Cooper, October 2006, p. 4). - Make the hand into a shape that fits the piano. - Find the position through hanging the arms at the sides. - Automatize posture and piano hand. - Forearm, wrist, and arm are level and aligned. - Fingers are curved but relaxed. - Hand is level, not tilted toward the 5th finger. - Space under the hand. - Knuckle bridge is evident. - Thumb is loose and resting on its corner. - Strong nail joints. - Photos of piano hands.
Tone Production	- Follow the student's lead at the very beginning. - Whole arm stroke. - Finger action. - Forearm stroke used in non-legato passages only. - Circular motions and arm gestures. - Isolate aspects to master them.
Playing Apparatus	- Listening is important. - Six major joints of the arm are integrated.
Contraction and Relaxation	- Looseness is the goal. - Thumb must be loose for the rest of the hand to be loose.
Mind/Body Relationship	- Reasoning skills are developed from the beginning.
V. Exercises	

Gymnastic Exercises	- Finger O's - Preparation on the keyboard cover.
Exercises	- Many simple exercises.
VI. Movement at the Keyboard	
Lateral Movement	- Shifting between octaves from the beginning. - Small students may lose their balance when playing in the extreme ranges of the keyboard.
Hand Expansion	- Hand expansion gradually and prepared carefully.
VII. Fundamental Forms	
Five-Finger Patterns	- Introduced by the end of the 1st year. - Matching *forte* tones slowly. - No blurred notes, or ghosts. - Contrary motion. - Increase the tempo and add accompaniment patterns rather than playing in parallel motion. - Align the arm behind the finger that plays.
Rotation	- Not introduced in the 1st and 2nd year. - Circular motion preferred. - Rotation added as tempo increases.
Scales	- Introduced in *Part 2B*. - Preparation exercises of fingers moving over the thumb and the thumb moving under the hand. - One-octave scales beginning with the 5th finger. - Two-octave scales are introduced soon after one-octave scales. - Thumb moves under through an outward swing of the arm.
Chords	- Introduced in *Part 2B*. - Playing parts of the chord first, then the whole chord. - Broken and blocked.
VIII. Basic Musical Inflection	
Articulation: Legato	- Connected sounds. - Introduced through listening at the beginning of study. - One arm movement per phrase.
Articulation: Non-legato	- Not connected sounds. - Introduced with legato at the beginning of study. - Can be played with fingers or with arm motion. Arm motion is ideal.

Articulation: Staccato	- Introduced later. - A combination of arm and hand staccato to avoid tension. - Finger staccato is not taught to beginners.
Rhythm	- Counting aloud. - Avoid forearm jogging to keep the pulse.
Dynamics and Tonal Control	- Focus on whichever dynamic the child does the opposite of naturally. - Warm-ups are played no softer than *mezzo forte*.
Tone Quality	- Full, projecting sound at all dynamic levels.
Tempo	- Moderate speed is sufficient in the 1st year or year and a half. - Playing quietly alleviates tension when playing quickly. - Practice with long short rhythms to make notes even.

Discussion: Exemplary Teachers

This Discussion section focuses on the similarities among the four Exemplary Teachers who were interviewed and observed for this study: Marvin Blickenstaff, Ted Cooper, Mary Craig Powell, and Carolyn Shaak. Commonalities among the teachers, rather than differences, are stressed in this section in order to present a clear picture of components of excellent teaching. All data presented in this Discussion is accurate to the best of the principal investigator's knowledge. However, it should be noted that this is a general summary of commonalities, and therefore it is probable that the teachers would make exceptions to the generalities listed in this Discussion based on the individual needs of a particular student and musical factors such as tempo, character of a piece, etc. Citations dates are not included except for direction quotations, since the material in this section is a summary of the previous sections of this chapter.

I. Interview

Setting for the Interview

The interviews and lesson observations took place as shown in Table 33.

Table 33

Interview and Observation Sites

Teacher	Date	Place
Marvin Blickenstaff	June 21, 2006	Collegeville, PA
Mary Craig Powell	September 19, 2006	Columbus, OH
Carolyn Shaak	September 22, 2006	Denver, CO
Ted Cooper	October 7, 2006	Washington DC

Visits to Blickenstaff, Powell, and Shaak took place in those teachers' homes. Cooper's visit took place in his studio at the Levine School of Music. The instruments and other teaching aids ranged from one grand piano (Blickenstaff, Powell, Cooper) to two grand pianos, a drum, marimba, temple blocks and electric harpsichord (Shaak). Notably, all pianos were Steinways

except Cooper's studio piano, which was a Boston (a subsidiary of Steinway). Other main teaching aids included supplemental books (all teachers), footstools (all teachers), colored pencils (Cooper), colored tape (Powell), stuffed animals (Powell), various non-musical props (Shaak), and a flashlight (Shaak). In the observed lessons, a metronome was used in all studios except Cooper's.

Cooper and Blickenstaff evidenced simpler approaches to teaching in terms of extra teaching aids, while Powell and Shaak used many more visual aids. However, all gave excellent lessons to their students. This shows that although extra teaching aids and extra pianos do aid in teaching, excellent teaching can also exist in more minimally equipped studios. Great teaching results from the ability of the teacher to communicate with the student effectively. Teaching aids are only an extra component.

Teacher Background

As children, two of the teachers, Blickenstaff and Shaak, had outstanding training, while the other two teachers, Cooper and Powell, had less solid training, which they described as "not good at all" (Powell, September 2006, p. 5) or "fairly typical" (Cooper, October 2006, p. 1).

All the teachers had excellent training in college. A summary of their training is shown in Table 34. Blanks in the School or Place column show that the Exemplary Teacher studied with a teacher privately, not while working on a degree. Blanks in the College Teacher columns are left where names were not mentioned by the Exemplary Teachers.

Table 34

Exemplary Teachers' Piano Training

Exemplary Teacher	**School or Place**	**College Teacher**
Blickenstaff	- College of Idaho - Oberlin College - Germany - Indiana University	- Fern Nolte Davidson - Emil Dannenberg - - Béla Böszormenyi-Nagy
Cooper	- Western Illinois University	- Michael Campbell

Powell	- East Carolina University - Wichita State University - Peabody Conservatory - University of Iowa - - - -	- Elizabeth Drake - Robert Steinbauer - - - William Doppman - Loren Withers - Earl Wilde - Seymour Fink
Shaak	- University of South Carolina - - - Conservatorio di St. Cecilia, Rome	- - - - - Edwin Hughes

From Table 34, it can be seen that the Exemplary Teachers showed a wide range of training, from conservatories (Blickenstaff, Powell) to state schools (all teachers) to studies abroad (Blickenstaff, Shaak). Powell and Shaak completed studies with teachers outside of school after they finished their academic training.

All the teachers earned master's degrees in piano, and three held college teaching positions (Blickenstaff, Powell, Shaak). In addition to their piano studies, all Exemplary Teachers received training in piano pedagogy or were associated with pedagogy training centers, as shown in Table 35.

Table 35

Exemplary Teachers' Pedagogy Training

Teacher	**Pedagogy Training**	**Pedagogy Teachers**
Blickenstaff	- New School for Music Study	
Cooper	- Western Illinois University - Baldwin Music Education Center - New School for Music Study	- Ann Collins - Frances Clark and Louise Goss
Powell	- Suzuki Training Course	
Shaak	- Columbia Teacher's College	- Robert Pace

All the teachers are well known in the piano pedagogy community in the United States. They actively participate in national music associations through attending conferences (all teachers), giving workshops and teaching demonstrations (all teachers), and even running conferences (Blickenstaff). In addition, all the teachers have published materials. Blickenstaff coauthored the *Music Pathways* piano method and has written numerous articles for pedagogy periodicals. Cooper has published a series of duet books that correlate with the *Music Tree* method as well as other works. Powell has published a book of articles she wrote for *Suzuki World* magazine. The Shaaks have published their method, *Piano Partners,* along with a *Technique Book* and other supplemental materials.

To summarize, all the teachers are well educated both in piano performance and in piano pedagogy. They are leaders in their profession and take their careers seriously. The teachers are involved not only in training their own students but in expanding the profession of piano teaching through participation in national associations and through the creation of new materials for piano teaching.

Students Interviewed

The lessons of 13 students were videotaped for this study, as shown in Table 36. All student names are pseudonyms.

Table 36

Students Observed

Level	Student Name	Teacher Name	Student Age	Length of Study
Early Elementary	Cassie	Blickenstaff	7	5 weeks (transfer with 1 year of poor training)
	Grace	Powell	6	1 month (transfer with some Suzuki training)
	Jessica	Shaak	6	3 months
	Max	Cooper	7	4 weeks
	Oliver	Cooper	7	4 weeks

Mid-Elementary	Ben	Blickenstaff	8	1 year
	Hannah	Powell	7	1 ½ years
	Naomi	Cooper	9	1 year
Late Elementary	Avery	Blickenstaff	8	2 years
	Diana	Blickenstaff	9	3 years
	Felicia	Powell	7	2 years
Intermediate	Kevin	Shaak	9	Several (transfer)
	Leah	Shaak	10	Several

All students evidenced excellent technical skills and a great love for the piano. Although all the children were bright, none could be termed "prodigies." Their terrific skills come from the careful teaching of the Exemplary Teachers, the dedication of their parents, and their own desire to succeed in piano study.

II. Studio Information

Student Acceptance

The students and parents are interviewed before being accepted into the studios of the Exemplary Teachers. In addition, Cooper works on technique in the interview, and Powell requires parents to observe lessons and classes before she accepts students. These teachers feel that this allows the parents and children to understand what piano lessons will be like before they decide whether or not to commit to lessons.

Powell said she likes to teach the preschool child beginning at age 4, and Shaak accepts 5-year-olds. Blickenstaff and Cooper, on the other hand, prefer to start students when they are 6 or 7 years old, after they have learned to read English.

Parents

Parents play a role in their children's piano study in the studios of all four teachers. Table 37 shows the role of the parent in the lesson, group class, and at home

Table 37

Parental Responsibility in the Private Lesson, Group Class, and at Home

Teacher	Private Lesson	Group Class	Home
Blickenstaff	- Observe. - Take notes. - Audio tape.	N/A	- Monitor.
Cooper	- Observe.	- Parents not allowed.	- Sit with the student for most of the practice sessions.
Powell	- Observe. - Sit near the student. - Take notes. - Play duets. - Interact with Powell. - Learn how to teach the student.	- Observe.	- Teach the student at every practice session. - Monitor as the student gets older.
Shaak	- Observe. - Take notes.	- Parents classes used to be offered. - Observe.	- Monitor.

Practicing

Consistent practice is expected in the Exemplary Teacher's studios, and all the students were well-prepared for their lessons. The seriousness and professionalism exhibited by the teachers toward piano playing, the commitment of the parents, and the students' love for music seemed to be enough to keep the students practicing regularly. Assignment sheets with check-off lists for the days practiced are printed beforehand for the students by Blickenstaff and Cooper. In Powell and Shaak's studios practice is not checked, as parents and students are expected to be responsible for practice on their own. In general, extra incentives such as prizes and candy are not necessary, because the teachers set up clear expectations of the parents and children regarding practice. Stickers were conspicuously missing from the lessons, except for Powell, who allowed the students stickers at the end of lessons. These stickers were a fun treat and were not used to reward specific practicing, since in Powell's studio the burden of practicing consistently rested on

the parent more than on the child in the elementary years. Table 38 details the teachers' practice expectations.

Table 38

Practice Expectations of Exemplary Teachers

Teacher	Level	Expectation
Blickenstaff	- 1st year - 2nd year and above	- Assignment completed 5 days per week. - Five hours per week.
Cooper	- Early elementary - Elementary	- Complete the assignment, approximately 20 minutes per day. - Complete the assignment, approximately 30 minutes a day.
Powell	- Beginners - Most students	- Several short 10-minute sessions per day. - 1 hour per day minimum.
Shaak	- All	- Complete the assignment.

Teaching Format

Teaching formats are summarized in Table 39.

Table 39

Teaching Formats of Exemplary Teachers

Teacher	Weekly Private Lesson	Group Class
Blickenstaff	- 45 minutes - 60 minutes for advanced	- Used to have weekly group classes and would like to schedule them in the future.
Cooper	- 30 minutes	- 60 minutes weekly
Powell	- 45 minutes - 30 minutes for the very young - 60 minutes for advanced	- 45 minutes monthly
Shaak	- 60 minutes	- 60 minutes weekly

It is significant that all the teachers require a substantial time commitment as compared to the standard 30-minute lesson per week that is so common in the United States. None of the teachers offer 30-minute lessons exclusively. This would suggest that for students to achieve excellent results from their piano study, 45 minutes to 2 hours of time spent with the teacher weekly is necessary. Also, all the teachers provide (or have provided) group classes. These classes allow opportunities for students to perform frequently for an audience and to develop friendships with peers who study piano. The classes also afford the teacher extra time to teach aspects of musicianship that are more efficiently taught in a group setting. This leaves more time in the lesson to focus on the individual student's specific technical and musical issues.

Lesson and Assignment Content

Technique played a large part in the lessons and included finding a proper body position, playing exercises, and working on technique through the repertoire. The elementary lessons of the Exemplary Teachers included these common elements:

- Posture and hand position considerations.
- Technical exercises and warm-ups.
- Music reading.
- Rhythmic study.
- Rote learning.
- Repertoire study and interpretive work.
- The weekly assignment also often included a theory or composition assignment.

Materials

One of the most striking conclusions from the observations of the Exemplary Teachers is their dedication to a particular method of piano training both in terms of a method books series and a method of technical training. Because three of the teachers (Blickenstaff, Powell, Shaak) are older and have taught for many years, it is expected that they would have a well-formed system of

training by this point in their careers. However, Cooper, who is younger, also showed great allegiance to his chosen method. Although the method series chosen by the teachers are all vastly different, the teachers clearly had thought through their chosen method of training students and were able to give specific reasons for their choices. Nothing was left to chance in the students' training. Therefore, it can be stated that one component of excellent teaching is having a well-thought out method of training and being devoted to that method. The method series represented are listed in Table 40.

Table 40

Methods Represented

Teacher	**Method Series**	**Authors of Method Series**
Blickenstaff	*Music Pathways*	Olson, Bianchi, & Blickenstaff
Cooper	*Music Tree*	Clark, Goss, & Holland
Powell	*Suzuki Method*	Suzuki
	Piano Adventures	Faber & Faber
Shaak	*Piano Partners*	B. & C. Shaak

Note that Table 40 shows that two of the Exemplary Teachers (Blickenstaff, Shaak) were involved in the development of the method series they used. This shows these teachers' great dedication to finding a system of training that works well for them.

Besides the main method series, the authors also used supplemental books for reading, rhythm, theory, and repertoire.

Curriculum for Technique

With some variation, the following progression of technical concepts for elementary study was generally common to all the teachers.

- Posture and hand position.
- Tone production through basic strokes.

- Singing tone.
- Five-finger patterns.
- Scales and chords.

III. Philosophy

Philosophy of Technique

Technique is Important

All the teachers believe that laying a solid technical foundation is extremely important for elementary students. It might even be said that technical formation is the most important task of the elementary teacher, even more important than teaching music reading. This is evidenced by the fact that all the teachers teach by rote to some degree in the beginning. Blickenstaff teaches by rote for several weeks in the beginning of study. Cooper integrates rote pieces into the *Music Tree*. Shaak teaches many pieces in the *Piano Partners* books by rote. Powell teaches by rote for several years from of the Suzuki books, while teaching students to read music students beginning near the end of the 1st year. Although reading is delayed, technique is begun at the first lesson, or in Cooper's case, in the interview before the first lesson. This focus on technique form the beginning of study shows that it is considered more important for beginning students than learning to read music.

Technique is the Servant of Music

The teachers all relate the technical motions to the sound of the music. Technique is the means to a musical end.

Technical Preparation

All the teachers consciously prepare the students for techniques they would need for future repertoire pieces through preparatory technical exercises. These technical skills are mastered well in advance of when the student plays a piece containing that skill.

Meticulous Work

All the teachers are meticulous in their work with beginning students regarding technique. They had high expectations for the students' posture, hand position, and tone production, and are extremely careful not to allow wrong motions to persist. The most extreme teacher in this regard was Powell, who managed to keep her students from making mistakes most of the time in the observed lessons through preemptive strategies like the Stop-Prepare technique. The teachers make every effort to set up good technical habits from the beginning of study and to avoid technical flaws.

Relaxed Approach

The goal in all elementary piano technique for the teachers is to set up a freedom of motion that is achieved through a loose arm.

Philosophy of Teaching

Long-Range Plan

The teachers have a long-range plan in terms of technical development. It was evident in the lessons and interviews that they had thought out the process, broken it into manageable steps, and had mapped out a sequence that would lead their students from the beginning of study to the technical security needed to play increasingly difficult repertoire.

Kindness

All the teachers were kind to their students in the observed lessons. There was never a moment of disappointment or anger directed toward the students.

Patience

The teachers exhibited unlimited patience in working with the students on a sound or technique until the teacher was satisfied with the results.

Enthusiasm

The teachers were happy to see their students and made each student feel welcome. In addition, the teachers were interested in the students' lives and took the time to talk with the

students and their parents. The teachers had a great enthusiasm for music and a love for the piano that was transferred to the students, who all seemed happy to be playing the piano.

Seriousness

All the teachers evidenced a seriousness of purpose when it came to piano teaching and to their students' musical development. They taught each student with the same intensity as if all students were being trained to be professional pianists. This seriousness of intent came from the teacher's identity as a professional piano teacher, and this translated to the students, who clearly identified themselves as pianists as well.

Creativity

All the teachers evidenced extreme creativity in their approaches. Blickenstaff and Cooper stated that they change procedures in their studios from year to year. Powell and Shaak evidenced their creativity through their use of stuffed animals, props, and a never ending supply of analogies that were used to explain new technical and musical concepts to their students.

Details

The teachers sought not only to help their students understand the overarching character and form of the pieces they were studying but also spent time on the details, both technical and musical, that lead to an excellent performance.

Excellence

The teachers had high expectations for all students. Students were expected put forth their best effort at all times, just as the teachers expected themselves to teach their best in each lesson. The teachers expected not only effort but results. If a student played something that was less than perfect, the teacher found a way to correct the flaw, whether technical or musical, and worked with the student until the problem was solved.

Children are Capable

The teachers took it for granted that all children are capable of doing what the teachers requested and fulfilling their expectations. This confidence in the children's ability seemed to

come from years of teaching that showed the teachers how to realistically judge each child's capabilities at any given moment. After much experience with children, the teachers seemed to have come to the conclusion that children are capable of more than many adults would think.

Formality and Respect

There was a formality to the lessons that seemed to grow out of the serious intent of the teacher regarding piano teaching. This led to a respect for the teacher by the parents and students, who obviously felt privileged to study with these Exemplary Teachers.

Praise

Verbal praise was given when deserved. The praise was always specific and detailed to provide students with an understanding of what they had done well. This helped the students know exactly when they were playing well and when they needed to correct an aspect of their playing.

Questions

All the teachers asked direct, easy to answer questions of the student. Most were concrete, analytical questions rather than abstract, interpretative questions. For instance, the teachers would often ask the student which way sounded better in a passage or ask for an answer about the form of a piece.

Analogy

All the teachers made use of analogies to help their students understand concepts.

Demonstration and Coaching

The teachers made constant use of demonstration by playing for the students. This gave the students an understanding of the sound of a passage. The students would then copy the teachers. While the students played, the teachers would often coach them through pieces by gesturing with their bodies or hands, giving verbal directions and reminders, guiding the students' arm movements through touch, and playing along with the student.

Commands

The teachers were clearly in control of the lessons, and although they allowed the students some freedom of choice, such as what piece to play next, the teachers guided the students through the lesson. Direct instructions were given, and the students were expected to obey. In this way, the students knew exactly what was required of them, which gave them a sense of security.

Hands-on Approach

The teachers all manipulated the students' hands, arms, and fingers to make sure the students were relaxed and to correct faulty posture or positions.

Interpretation

Generally, the teachers provided the musical interpretation of the pieces for the students. This is understandable for the elementary level, because the students have not learned the traditions and rules for phrasing and musicality that are passed down from teacher to teacher. These conventions must be taught. The teachers were especially dogmatic regarding rules for technique. The teachers each taught a specific system of technique to their students. This provided students with a solid approach to technique and prevented them from acquiring bad technical habits.

Spot Checking

After a student played through a piece in the lesson, the teacher determined what needed to be fixed and in what order. The teacher then pointed out only a few places to correct. Because the teachers prepared the students so well technically before learning a piece, often there were only a few problem places. This spot checking strategy, as opposed to a detailed overhaul of the whole piece, kept the student from feeling overwhelmed with corrections.

Repetition

Repetition of exercises and pieces was used constantly in the lessons. Often the student would be asked to play a piece four or more times, pausing between each repetition to discuss

improvements. The teachers did not feel rushed in the lessons but took the time to make sure the playing was excellent.

Lessons Full of Playing

All lessons were well paced so that teacher talk was minimized to what was necessary, and students were playing as much as possible during the lessons.

Practice Directions

Much of the lesson time was spent in teaching students how to practice correctly in order to avoid mistakes and wrong movements during home practice.

IV. Basic Components

Posture

The first component of technical training is the development of a proper posture at the piano. All the teachers believed that posture is extremely important. The following elements of posture are common to all teachers:

- Sitting with a tall back.
- Shoulders are relaxed.
- Sitting at a height that allows the forearms to be level with the keys. Firm pads are added to the bench for extra height when necessary.
- Sitting on the front half of the piano bench.
- Not sitting too close to the keyboard.
- Feet are flat on the floor or on a footstool.

Hand Position

Hand position was called "hand shape" by Blickenstaff (June 2006, p. 27) and "piano hand" by Cooper (October 2006, p. 4) and Powell (September 2006, p. 7). These teachers preferred these terms to "hand position," because they are more descriptive and do not imply a "fixed, rigid shape" (Powell, p. 7). The teachers all felt that development of a good hand position

is crucial in the beginning stages of study, since a poor hand shape does not "fit the piano" (Cooper, p. 4) well. Elements of a good piano hand common to all Exemplary Teachers include the following.

- Arm and hand are loose.
- Arm, wrist, and hand are aligned and level.
- Firm nail joints, although Powell and Cooper both said that the hand must be loose before work on firm joints can begin. Collapsed joints are preferable to stiff hands and fingers. All the teachers noted that student awareness of how their joints feel is necessary for preventing the collapse of the joints. They also agreed that it takes time to develop the ability to keep the nail joints from collapsing, and that simple gymnastic exercises can aid in developing firm joints.
- Fingers are naturally curved, not overly curved.
- A prominent bridge that leaves space under the hand.
- A loose thumb that rests on its corner.
- A tall 5th finger.

The most common method of forming a proper hand position found among the teachers was to drop the arm to the side. This puts the arm and hand in a loose position, aligns the arm with the wrist and hand, and allows the hand to fall naturally into a position where the fingers are not too curved. The hand is then brought up to the keyboard cover or piano.

Tone Production

Tone production is introduced by the teachers through the strokes and finger order listed in Table 41.

Table 41

Introduction of Tone Production

Teacher	First Stroke Introduced	First Fingers Introduced
Blickenstaff	Forearm	- 2nd finger plays the first pieces.
Cooper	Whole arm	- Fingers 2, 3, 4. - Fingers 1 and 5 are delayed.
Powell	Forearm	- All fingers, beginning with the thumb.
Shaak	Forearm	- 2nd finger plays the first pieces.

It is important to note in Table 41 that none of the teachers begin with finger stroke. Although Cooper does focus on small finger movements in isolation concurrently with whole arm movement, the arm is the main lever used in the beginning of study in all the teachers' systems of technical training. Also of note is that three of teachers (Blickenstaff, Cooper, Shaak) begin with the longer middle fingers rather than with the thumb. The pieces that are played with the 2nd finger alone allow the student to delay finger individualization for a short time and to become comfortable with the forearm motion.

The strokes of tone production listed in Table 42 were advocated by the Exemplary Teachers. The weight of the loose arm and gravity, rather than muscular contraction, was described by all the teachers as being the source of power for tone production.

Table 42

Tone Production Strokes According to the Exemplary Teachers

Name of Stroke	Teachers who Advocated the Stroke	Description	Usage
Finger Stroke	- All.	- Fingers are held close to the keys and move in conjunction with the	- Passages. - Steps (Blickenstaff). - Five-finger patterns

		arm. The arm stays aligned behind the playing finger. - High lifting movement of the fingers (Blickenstaff, Shaak).	(Blickenstaff, Cooper).
Circular Motions	- All.	- Circular gestures are made with the arm and choreographed with specific motives or phrases.	- Passages.
Forearm Stroke	- All. - Main stroke for Blickenstaff, Powell, and Shaak. - Used by Cooper less frequently.	- A downward movement of the forearm from the elbow.	- Most common beginning stroke, used for repeated notes and for non-legato or staccato passages.
Wrist Roll	- All. - Used rarely by Cooper.	- An upward movement of the wrist and forearm that moves toward the fallboard.	- Slow, legato notes. - Phrase endings. - Slow chords (Shaak). - Long notes (Powell).
Rotation	- All. - Used less frequently by Cooper and Powell.	- A side to side rocking motion. - Taubman rotation (Shaak).	- Alternating passages and scales (Shaak). - thirds and other alternating passages (Blickenstaff). - Fast tempos (Cooper).
Finger Staccato	- Blickenstaff, Powell, Shaak.	- A slight pulling back of the finger toward the hand.	Fast staccato passages.
Hand Stroke	- Blickenstaff. - Used with modification by Shaak. - Used at times by Powell.	- A lift of the wrist followed by a downward movement of the hand from the wrist joint. A knocking motion. (Blickenstaff). - Downward motion of the wrist without an upward preparation (Shaak).	- Fast non-legato or staccato passages.
Whole Arm Stroke	- Blickenstaff, Cooper.	- A push of the arm (Blickenstaff).	- Loud sounds (Blickenstaff).

		- A downward stroke of the whole arm (Cooper).	- Non-legato passages and alternating hand passages. Main stroke (Cooper).
Lateral Arm Movements	- Cooper.	- A lateral gesture of the arm over one phrase.	- Legato phrases.

One of the most surprising discoveries from the observations and interviews is that in the case of three of the teachers (Blickenstaff, Powell, Shaak), one of the first things they teach their students is to play fast repeated notes in a  rhythm. Blickenstaff uses this rhythm in the song "Ebenezer Sneezer," playing repeated notes moving up by step with one finger. This is the rhythm of the first Twinkle Variation in Powell's Suzuki method. And Shaak introduces this rhythm at the beginning of study on a five-finger pattern to the words "Colorado Mountain." The teachers noted that the repeated notes help to "set the hand" (Shaak, September 2006, p. 3) and aid in strengthening the hand so that the nail joints do not collapse. Powell said that the ability to play this rhythm quickly is only possible if the students have loose arms. Therefore, a student's ability to play repeated notes on the  rhythm is an indication to the teacher that the student is playing in a relaxed manner.

Table 42 shows that finger stroke, circular motion, forearm stroke, wrist roll, and rotation are common to all the teachers. Although finger stroke is used by all teachers, three of the teachers (Blickenstaff, Powell, Shaak) said that they begin students with the forearm stroke, making this perhaps the most important stroke in the very beginning of piano study.

For finger stroke, all the teachers agreed that the fingers are an extension of the arm and must always work in coordination with the arm aligned behind the finger that plays. Therefore, pure finger stroke is comparatively rare in the technical systems of the teachers at the beginning of study.

Playing Apparatus

The most important playing unit in the Exemplary Teachers' technical systems is the arm, which is regarded as the main playing unit by all the teachers. The fingers are also important, but in the interviews and lessons, more attention was given to the arm than to the fingers, with the fingers working in conjunction with the arm.

In addition, the ear plays an important role in the technical and musical training of students in the teachers' studios. Listening was constantly used to evaluate sounds in the observed lessons, and the proper technical mechanics for executing sounds were then taught by the teachers.

Contraction and Relaxation

All the teachers approached technique from the standpoint of looseness of the arm. The teachers discussed tension as something to be avoided and never mentioned the word "contraction." Instead they used works like "firm" or "strong." The teachers agreed that this relaxed approach begins with good posture.

Mind/Body Relationship

The Exemplary Teachers each had a different approach to thinking about relationship between the mind and technique in the observed lessons.

Blickenstaff specifically told his students that the mind controls the fingers.

Cooper stressed reasoning abilities as important for developing independent learning skills at the piano.

Powell used a colorful approach in order to engage the creativity in the students that would help them learn.

Shaak was concerned that students' minds should not become tired, and therefore she provided frequent activities away from the piano to renew the mind for more work at the piano.

V. Exercises

Gymnastic Exercises

Work away from the piano is used by all the teachers as preparation for techniques at the piano. For instance, a forearm stroke or a rotating motion is practiced away from the piano before applying the motion to the keyboard.

In addition, Blickenstaff regularly uses gymnastic exercises as warm-ups at the beginning of the lesson. Shaak uses gymnastic exercises in group classes and focuses on other aspects of training in the lessons. The most common type of gymnastic exercises observed in the lessons were exercises to increase the ability to maintain firm nail joints. This was done by making O's between the thumb and each finger (Blickenstaff, Cooper), by making a flicking motion between the thumb and each finger (Shaak), or by pressing gently on the joints to test their strength (Cooper, Shaak).

Exercises

Technical exercises play a large role in all of the Exemplary Teachers' systems of technical training. Exercises are used mainly to prepare students for technical skills that they will need for repertoire pieces in the future. The students seemed to enjoy playing these exercises, because children love to play things they can do well, and the teachers all made sure the students were successful at playing the assigned exercises through a step-by-step approach to technical training.

Notably, Blickenstaff was the only Exemplary Teacher to advocate finger independence exercises where one finger is held down while other fingers play. None of the other teachers mentioned these types of exercises.

Etudes

Blickenstaff was the only teacher who said he assigns standard etudes.

VI. Movement at the Keyboard

Physical Movement and Lateral Movement

The Exemplary Teachers all believe in the importance of movement at the piano, but this was manifested two different ways. Blickenstaff and Cooper emphasize lateral movement between octaves from the beginning of study. However, when the hands are in one playing position, the playing apparatus itself does not exhibit extra movement. On the other hand, the pieces Powell and Shaak teach remain in a more constant position on the piano (although they are not completely stationary). But these teachers emphasize exaggerated motions in the movements of tone production, believing that young children are more comfortable using large motions. The size of the motions is reduced as the child advances.

Hand Expansion

The Exemplary Teachers, whether through the lessons they taught or in the interviews, all stressed the importance of keeping a closed hand position as often as possible and treating hand expansion carefully to prevent injury and unwanted tension. Legato was sacrificed in order to replace a large stretch with a movement of the arm that brings the hand over the notes to be played.

Keyboard Topography

Powell, Shaak, and Blickenstaff teach their students about the placement of the fingers on certain parts of the keys. This was evidenced by the use of colored tape on the keys in accompaniment patterns in Powell's teaching, walking in toward the fallboard on five-finger patterns in Powell and Shaak's teaching, and finger placement on the black keys in Blickenstaff's teaching of scales. Cooper did not emphasize this component to as great an extent.

VII. Fundamental Forms

Five-Finger Patterns

Five-finger patterns are taught in all the studios, and students learn them in all keys. Although there is some variation among the teachers concerning when five-finger patterns are

introduced, all the teachers deemed them important both in the interview and in the observed lessons. Table 43 provides a summary of the teachers' thoughts on five-finger patterns.

Table 43

Five-Finger Patterns

	Blickenstaff	**Cooper**	**Powell**	**Shaak**
Importance	- Very important.	- Important.	- Important.	- Very important.
Time Introduced	- Near the beginning of study.	- End of 1st year.	- When legato is introduced, near the beginning of study.	- Very beginning of study.
Non-legato	- No.	- Yes, for evenness.	- Yes. Forearm stroke. 	- Yes. Forearm stroke.  and many other rhythms.
Legato	- Yes. With finger action.	- Yes, slowly with finger action and slight arm movement for matching tones. - Start on the 5th finger.	- Yes, slowly with a wrist roll on each note for matching tones. - Yes, moderate tempo moving in toward the fallboard from thumb to 5th finger with one wrist roll per phrase.	- Yes, slowly with a wrist roll and rotation on each note. - Yes, moderate tempo moving in toward the fallboard from thumb to 5th finger with one wrist roll per phrase.
First Five-finger Pattern Touch Introduced	- Slow legato.	- Slow legato.	- Slow legato.	- Fast repeated notes.
Parallel or Contrary Motion	- Parallel.	- Contrary. - Parallel motion is not taught.	- Hands separately at first, then parallel.	- Parallel.
Keys	- All major and minor around the circle of fifths.	- All keys around the circle of fifths gradually.	- Selected keys.	- All major, minor, and diminished

				around the circle of fifths.
Other Variations	- One hand twice as fast as the other. - Chordal accompaniment.	- One hand twice as fast as the other. - Chordal accompaniment.	- None mentioned.	- Descending fast with circular motion of the forearm.

In Table 43 it can be seen that the most common five-finger patterns introduced in the elementary years are non-legato patterns with a forearm stroke and slow legato patterns with either finger action (Blickenstaff, Cooper) or a wrist roll on each note (Powell, Shaak).

Also noteworthy is that three of the teachers (Blickenstaff, Cooper, Powell) introduced the five-finger patterns as a slow, legato pattern first. It was observed in the lessons that these slow, legato patterns were mainly used for listening to matching tonal intensity between the notes. Also, three of the teachers (Blickenstaff, Cooper, Shaak) teach five-finger patterns in all keys around the circle of fifths. This provides students with an understanding of key and prepares them for learning scales in all keys.

Rotation

Although all four teachers use rotation to some degree, there was wide variance in how much this technique was used. Cooper and Powell teach rotation the least, preferring a circular motion to a rotating side to side motion. Blickenstaff introduces rotation at the beginning of study with broken thirds. Shaak occasionally teaches the type of rotation that Matthay, Taubman, and Bernstein advocated.

It is interesting to note that although rotation is used only infrequently by some of the teachers, circular or lateral arm motions that are choreographed with a pattern of notes are used by all the teachers. The fingers usually do not work in isolation, but are aided by motions of the arm that groups notes into one easy gesture.

Scales

Scale study is very important to all the teachers. The teachers all evidenced a clearly worked out progression of variations for scale study and indicated the belief that scale development is a journey that continues for years. Table 44 summarizes the Exemplary Teachers' thoughts on scale development.

Table 44

Scale Development

	Blickenstaff	**Cooper**	**Powell**	**Shaak**
Prerequisites	- Good hand shape and firm fingertips.	- Crossing the hand over the thumb and the thumb under the fingers is mastered.	- None mentioned.	- None mentioned.
Time Introduced	- After five-finger patterns have been learned.	- In the 3rd year.	- Near the beginning of study.	- Not mentioned.
Preparatory Exercises	- Derived from five-finger patterns by adding *la* and *ti*. - Thumb passage.	- Hand over the thumb first. - Thumb under the hand.	- Thumb passage.	- Chromatic scale. - Tetrachord scales.
Thumb Passing Philosophy	- Thumb passes under the hand gradually and stays under the finger that is playing.	- Lateral movement of the arm helps the thumb move under the hand. - Depends on the tempo.	- Thumb passes under the hand gradually and stays close to the edge of the white keys.	- Hand moves diagonally with a wrist roll toward the fallboard, with rotation added to provide the thumb with room to move. - In fast scales, groups of fingers are the focus rather than a passage of the thumb.

Technique Used	- High finger action.	- Finger action.	- Wrist roll on each note in one-octave scales, finger action on two-octave faster scales.	- Rotation. - Finger action with high fingers.
Sound Requirement	- Full sound	- Full sound	- Full sound	- Full sound
Important Points	- Arm leads the scale by keeping the wrist level. - Placement of the fingers in the proper location on the key is important.	- Begin with 5th finger, not thumb.	- The bridge of the hand does not move. Only the thumb moves. - Placement of the fingers in the proper location on the key is important. - Body moves diagonally.	- Practicing with accents is important for developing a *forte* sound.
Hands Separately or Together	- Separately for a long time.	- Contrary motion early.	- Separately for a long time.	- Separately for a long time.
Keys	- All keys around circle of fifths.	- All keys around circle of fifths.	- All keys around circle of fifths.	- All keys around circle of fifths.
Variations	- Many variations. - Metronome used for speed development.	- None mentioned.	- Metronome used for speed development.	- Many variations. - Metronome used for speed development.

The Exemplary Teachers all emphasized finger action more in scales than in other techniques discussed. The students observed all played their scales with a full sound and active fingers. Shaak and Blickenstaff were the most extreme in their emphasis on finger action, advocating high fingers in scale practice.

One of the most interesting findings is that three of the teachers (Blickenstaff, Powell, Shaak) have their students practice hands separate scales for a long time before hands together scales are introduced. In fact, in the observed lessons, only Blickenstaff's students played scales

hands together. The teachers were much more interested in the sound of the scales and in the proper technique of scale playing than they were in rushing the students to play hands together scales or to play at a fast tempo.

Regarding the passage of the thumb, the teachers were divided in their opinion. Blickenstaff and Powell advocated a gradual passing of the thumb under the hand, while Cooper and Shaak recommended a lateral motion of the arm to provide room for the thumb to move to its new position.

Chords

There was wide variation among the Exemplary Teachers regarding the introduction of chord playing, as shown in Table 45.

Table 45

Chord Introduction

	Blickenstaff	**Cooper**	**Powell**	**Shaak**
Time Introduced	Near the beginning of study.	In the 3rd year.	Within the first 6 months of playing.	Near the beginning of study.
Preparatory Exercises	None mentioned.	- Playing two notes of the chord and adding the third. - Broken and then blocked.	- Playing two notes of the chord and adding the third.	- None mentioned.
Exercises	- I-IV6/4-I-V6/5-I in all keys. - Chords moving around the keyboard by octave.	- Chord inversions broken and blocked.	- In pieces.	- Repeated chords around the circle of fifths. - I-IV6/4-I-V6/5-I in all keys.

Table 45 shows that three of the teachers (Blickenstaff, Powell, Shaak) introduce chords in the 1st year of study. In the observations, the teachers appeared most interested in maintaining

a relaxed technique when playing chords and were less concerned about a specific timetable for the introduction of chords.

VIII. Basic Musical Inflection

Articulation: Legato, Non-legato, Staccato

Table 46 provides a comparison of the Exemplary Teachers' thoughts regarding articulation.

Table 46

Articulation Introduction

	Blickenstaff	Cooper	Powell	Shaak
Non-legato Introduced	1st. At the beginning of study.	1st. At the beginning of study.	1st. At the beginning of study.	1st. At the beginning of study.
Legato Introduced	2nd. Near the beginning of study.	1st. At the beginning of study.	2nd. Within the first 3 months.	2nd. Near the beginning of study.
Non-legato	- Forearm motion with the arm in one piece on moderately fast repeated notes. - Hand motion from the wrist on fast repeated notes.	- Slight whole arm motion from the shoulder with fingers on the keys on slow tones.	- Forearm motion with the arm in one piece on fast repeated notes.	- Forearm motion with the arm in one piece on fast repeated notes.
Legato	- Taught through rotation of broken thirds. - Listen to the connection.	- Finger legato. Arm motion for groups of notes to make a legato phrase. - Listen to the connection.	- Wrist roll for each note, played slowly. - Listen to the connection.	- Finger legato. - Arm motion for groups of notes to make a legato phrase. - Listen to the connection.
Hand staccato	- Knocking motion.	Not mentioned.	- Occasionally when needed in the repertoire.	- Does not teach raising the wrist for hand staccato.

Finger staccato	- Scratching motion.	Slight vertical motion of the finger.	- Scratching motion.	- Scratching motion.

One of the most interesting findings in the interviews and observations of the Exemplary Teachers was that non-legato is the first touch employed and legato is the second touch introduced, as shown in Table 46. Cooper is the exception, as he introduces non-legato and legato concurrently.

Legato is taught by all teachers through listening to the connection between tones. It is the ear that guides this technique rather than complicated explanations about the connection between fingers.

The distinction between staccato and non-legato playing was not clear. However, it may be stated that whether a detached articulation is called non-legato or staccato, the use of the forearm stroke for a detached articulation is introduced before more subtle forms of staccato like hand staccato and finger staccato are introduced. Therefore, the progression of introduction of the articulations is a detached forearm motion, then legato playing, then hand and finger staccato, with the exception of Blickenstaff, who introduces hand staccato in conjunction with forearm staccato.

Rhythm

Work on rhythm was constant in the observed lessons. The teachers had the students count aloud, tap the rhythm, point to the notes while counting, and use the metronome. However, Shaak was the only teacher who described rhythm and technique as being completely integrated and dependent on each other. In her technical system, technique grows out of rhythmic movement.

Dynamics and Tonal Control

Dynamics

Dynamics are introduced through listening rather than through any explanations of the mechanics of key speed. Blickenstaff and Cooper introduce *forte* and *piano* from the beginning of study, while Powell and Shaak focus mainly on developing a full, solid tone. All four teachers teach refinements of dynamic levels through listening.

Hand Balance

Blickenstaff, Powell, and Shaak teach hand balance through listening and by teaching their students to put more weight into the hand that has the melody and to think of the accompanying hand as playing with less weight. Cooper did not discuss hand balance.

Tone Quality

Although the teachers did not specifically discuss tone quality in the interviews, all are interested in helping their students produce a full, singing tone at the beginning of study. This could later be refined and modified to fit the dynamics of the music. Surface-sounding tones are to be avoided.

The Exemplary Teachers described the mood of the pieces to their students in order to produce the right tone qualities for each specific piece. Technical discussion of mechanics of tone quality was not evident in the observed lessons.

Tempo

Three of the teachers (Blickenstaff, Powell, Shaak) taught their students to play in a fast tempo from the beginning of study through the repeated note exercises on the  rhythm, while Cooper had his students being by playing slowly in order to make sure all components of technique were exact.

Conclusion to Chapter VI

This chapter presented the technical systems of the four Exemplary Teachers who were interviewed and observed for this study. Including this source group was essential for an understanding of the best way to teach piano technique to elementary students, because visiting the teachers and seeing the students in a regular lesson setting provided a layer of information that cannot be found in books. The Exemplary Teachers combine with the Technique Authors and Pedagogical Authors to provide several perspectives with which to develop a grounded theory of elementary level piano technique, which is presented in Chapter VII.

CHAPTER VII

DISCUSSION AND CONCLUSIONS

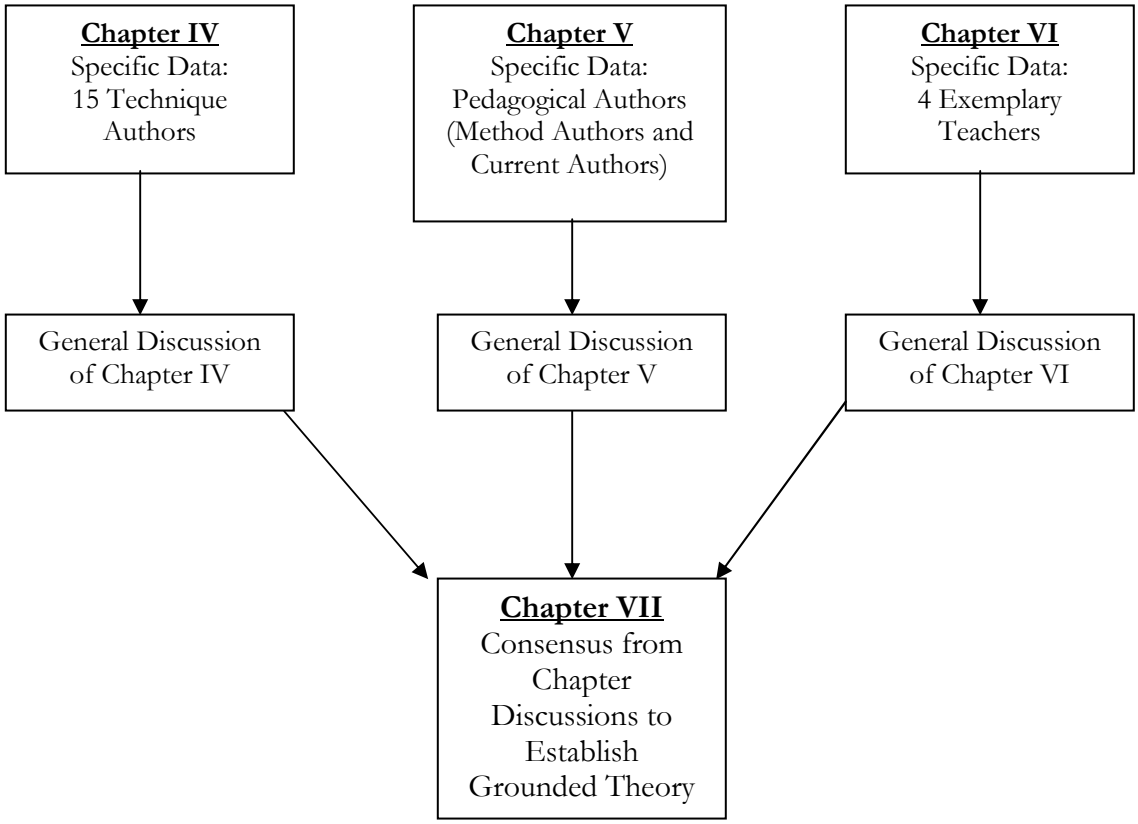
The purpose of this qualitative research study was to analyze what influential writers of the past and present wrote regarding the teaching of basic technical concepts and to discover what strategies, methods, and materials excellent teachers of 5 to 11-year-old elementary level piano students use to develop a solid technical foundation that will prepare their young students to be capable of playing advanced works from the piano literature once they reach the high school and college levels. Data from three source groups: Technique Authors (Chapter IV), Pedagogical Authors (Chapter V), and Exemplary Teachers (Chapter VI), was used to recognize common trends among all sources in order to formulate a grounded theory regarding the most effective methods for teaching technique to elementary level piano students. These common trends are presented as 107 Technical Principles in the Chapter VII Discussion.

In order to achieve a consensus on factors relating to the topic of elementary piano technique, this study was organized in such a way that Chapters IV, V, and VI provided specific descriptions of the technical systems of individual sources, which were followed by Discussion sections that presented comparisons of similarities and differences among the sources. These The Discussion of Chapter VII establishes a general consensus based on the specifics presented in Chapters IV, V, and VI, as show in Illustration 8.

The Discussion section of Chapter VII has been designed in the form of comparison charts to represent common themes among all the sources described in Chapters IV, V, and VI. The 107 Technical Principles, which form a grounded theory related to this topic, present a consensus on the most common beliefs related to teaching elementary level technique. Individual sources described in Chapters IV, V, and VI should be consulted to provide subtleties, specifics, and exceptions to the general theories presented in the Chapter VII Discussion.

Illustration 8

Specific to General Flow of Information toward a Grounded Theory of Elementary Piano Technique



After the Discussion presented below, Chapter VII concludes with Practical Advice for Teachers and Recommendations for Further Research.

Discussion: Grounded Theory, 107 Technical Principles

In the following tables, 107 Technical Principles (**TP**) common to all groups of sources from Chapters IV, V, and VI are listed in the categories corresponding to the Elementary Level Technical Concepts that have been used as an organizational structure throughout this study. The source groups are abbreviated as follows:

- **TA** = Technique Authors (Chapter IV)
- **PA** = Pedagogical Authors (Method Authors and Current Authors, Chapter V)
- **ET** = Exemplary Teachers (Chapter VI)

Although the statements of Technical Principles were chosen based on their commonalities among all the source groups, the following opinion labels were added for accuracy, along with comments when necessary. The opinion labels regarding each Technical Principle are listed as follows:

- **Agree**. 90-100% of the authors or teachers in the source group agree with the statement.
- **Most Agree.** 60-89% of the authors or teachers in the source group agree with the statement.
- **Half Agree**. 40-59% of the authors or teachers in the source group agree with the statement.
- **Some Agree**. 11-39% of the authors or teachers in the source group agree with the statement.
- **None Agree**. 0-10% of the authors or teachers in the source group agree with the statement.
- **NIA**. No Information Available.

For exact citations of authors and teachers mentioned by name, see the section related to that author or teacher in Chapters IV, V, and VI.

I. Philosophy

Table 47

Philosophy of Technique

Technical Principle	TA	PA	ET
1. Technique is a means to a musical end.	Agree	Agree	Agree
2. Technical training is important for elementary level students.	Agree	Agree	Agree
3. Natural laws of body mechanics apply to piano playing.	Agree	Agree	Agree
4. A logical, long-range plan of study is important for technical development.	Agree	Most Agree	Agree

5. Rigid principles should be employed when teaching technique, rather than trial and error learning.	Half Agree	Agree	Agree
6. Children learn technique best through a part to whole approach that builds from simple concepts to more complex techniques.	Most Agree	Agree	Agree
7. Musical results and physical comfort are equally important.	Most Agree	Agree	Agree
8. Meticulous work on technique at the beginning is necessary to provide students with a solid foundation for piano playing.	Agree	Half Agree	Agree

Comments:

TP 3. The Technique Authors in Chapter IV discussed body mechanics more frequently than the Pedagogical Authors did in Chapter V, who discussed this topic more directly than the Exemplary Teachers did in Chapter VI. The source groups addressed the idea of body mechanics differently.

- Technique Authors explained mechanical and leverage laws and how these applied to the playing units of the body.
- The Pedagogical Authors discussed coordination among the various parts of the playing apparatus.
- The Exemplary Teachers focused on comfort in playing, taking a more practical approach because of their work with children.

TP 4. Although the Pedagogical Authors, particularly the Method Authors, were not detailed in their explanation of a logical plan of development for technique in spite of the thorough treatment of other topics such as reading and rhythm, they would probably agree that a long-range plan is necessary for proper technical development.

TP 5. Only half of the Technique Authors believed that students should avoid trial and error learning and follow a set course of study. This is probably because while writing their books, these authors learned so much through experimentation that although they would encourage

students to master and use the principles they set forth in their books, they found the process of trial and error to be a profitable learning experience.

TP 6. Although some of the Technique Authors presented interesting theories regarding whole to part learning, and though it may be true that in terms of general musicality, children may benefit from a holistic approach, in terms of technique, nearly all the sources agreed that breaking technical learning into parts and building them up into a whole is the best approach for teaching technique.

TP 7. Several of the Technique Authors believed that musical results are more important than comfort in piano playing. However, as shown in Table 73 at the end of this Discussion, this is partly related to general trends in technical thought that have existed throughout the 20th century.

TP 8. Pedagogical Authors received a rating of Half Agree because the Method Authors generally provided so little explanation of technical concepts in their books (with a few notable exceptions), that although they probably would agree with this Technical Principle if asked, their writings do not give the impression that meticulous work is necessary at the beginning of study.

Table 48

Philosophy of Teaching

Technical Principle	**TA**	**PA**	**ET**
9. Gifted pianists are not always gifted teachers. The best teachers know how to analyze and explain processes of technique.	Agree	Agree	Agree
10. Piano teacher training is imperative for success as a teacher.	Most Agree	Agree	Agree
11. Knowledge and piano skills are not the only prerequisites of a good teacher. Personality traits are also important.	Agree	Most Agree	Agree
12. A method of study is indispensable for success in technique and music learning in the elementary years.	Agree	Most Agree	Agree

13. Using some rote teaching at the beginning of study is the best way for children to begin learning piano, because it engages their listening skills.	Agree	Some Agree	Agree
14. Technique should be taught through demonstration, explanation, imitation, and analogy.	Agree	Agree	Agree
15. The ear and the eye participate in diagnosing problems in technique. Tactile diagnosis is also useful.	Half Agree	Agree	Agree

Comments:

TP 10 and 11. For the sources listed Most Agree, not all sources provided information about these Technical Principles. However, those that did discuss this subject did agree with these Technical Principles.

TP 12. Some Current Authors emphasized the necessity of tailoring the method to fit the needs of the individual student. However, this is not a complete negation of using a method. In context, these authors were referring to matters of pacing and teaching style more than to content.

TP 13. Although several Technique Authors advocated rote teaching in beginning study, many of the Technique Authors did not express an opinion on this subject. However, none recommended the approach commonly expressed in the books by the Method Authors, which focus on reading first and foremost. Rote teaching is one Technical Principle that should be reevaluated for future Method Authors based on the strong opinions of the other source groups.

TP 15. The Technique Authors said that the ear, rather than the eye, should diagnose technical problems, and a few of these authors recommended tactile diagnosis as well. The Pedagogical Authors, particularly the Method Authors, discussed not only the sound but the look of proper playing, diagnosing by eye and ear. The Exemplary Teachers constantly diagnosed student's problems by sight, sound, and touch. It is possible that concerning this Technical Principle, the Technique Authors could have been discussing advanced technique. It is likely that if they had specifically been discussing beginning students, they would have agreed with the

Pedagogical Authors and Exemplary Teachers that the visual aspect is as important as the sound in terms of the formation of proper hand position, posture, and movement.

II. Basic Components

Table 49

Posture

Technical Principle	TA	PA	ET
16. Correct posture is important.	Agree	Agree	Agree
17. The back is tall and the pianist sits at the piano in a poised manner.	Agree	Agree	Agree
18. The weight of the body rests on the bench and feet. The student sits on the front part of the bench.	Agree	Agree	Agree
19. Shoulders are relaxed.	Agree	Agree	Agree
20. The distance from the piano is one that allows mobility of the arm. Sitting too close is detrimental.	Agree	Agree	Agree
21. The height of the pianist allows the forearm to be level with the keys.	Most Agree	Agree	Agree
22. The arms are not held close to the body, but neither are they held far away from the body.	Agree	Agree	Agree
23. A footstool is indispensable for short students to allow the feet to rest solidly.	Agree	Agree	Agree

Comment:

TP 21. Most agreed with this statement. However, some Technical Authors noted that sitting height is determined by body proportions of the individual pianist and therefore can not be absolutely mandated.

Table 50

Hand Position

Technical Principle	TA	PA	ET
24. Certain aspects of hand position must be accurate. However, the hand should not be set in one position, but should remain flexible.	Agree	Half Agree	Agree
25. Dropping the arm and hand to the side is the easiest method of finding a naturally curved hand position.	Most Agree	Half Agree	Agree
26. Although the wrist may move vertically when playing, generally the arm, wrist, and hand form a level line.	Agree	Agree	Agree
27. The hand is rounded so that the bridge is prominent.	Agree	Agree	Agree
28. Fingers are gently curved, not overly curved.	Most Agree	Most Agree	Agree
29. The hand is level and does not slope down to the 5th finger. The 5th finger, like the other fingers, stands tall when it plays.	Agree	Agree	Agree
30. The thumb plays on its corner rather than on its side. It is either straight or slightly curved inward but is never curved outward.	Agree	Agree	Agree
31. The nail joints of the fingers are firm and are not allowed to collapse, at least after the first few weeks of playing.	Most Agree	Agree	Agree

Comments:

TP 24. The Pedagogical Authors seemed to emphasize a set hand position the most out of all the source groups, particularly through pictures in the method books. In contrast, the Technique Authors said that hand position is to be determined by the passage and that many hand position variations should be in the pianist's arsenal. The Exemplary Teachers occupied a middle ground. They did set specific criteria for their students' hand positions, and yet they always advocated a gentle, flexible hand. In addition, the Exemplary Teachers preferred terms such as

"piano hand" and "hand shape" rather than "hand position," because the former terms provided a more flexible connotation than "hand position," which they felt implied a set position.

TP 25. Although this was the most recommended method for finding a good hand position, other methods were advocated. Notably, the traditional instruction to make hand into a ball shape was advocated only by the Method Authors. The other authors and teachers recommended a less rounded position than a ball shape would indicate.

TP 28. The Technique Authors believed that many different degrees of curvature, from flat to curved, were useful for different types of passages. However, none recommended very curved fingers as the normal manner of playing. The Method Authors advocated more curved fingers than Current Authors and Exemplary Teachers.

TP 31. Although most of the Technique Authors agreed with this statement, there were some exceptions. Some of the Technique Authors believed collapsing joints are not detrimental and even that they are advantageous in some touches. The Pedagogical Authors and Exemplary Teachers discouraged collapsing nail joints. However, the Exemplary Teachers said that caution must be used to ensure that unnecessary tension does not result from correcting collapsing nail joints.

Table 51

Tone Production

Technical Principle	**TA**	**PA**	**ET**
32. Transferring the weight of the arm to the keys through leverage principles was the most often recommended power source for tone production. To this was added muscular energy.	Half Agree	Most Agree	Most Agree
33. Whole arm stroke has limited usage. It is generally paired with the freefall of the whole arm and is used for passages that are slow and *forte*.	Agree	Agree	Most Agree
34. Forearm stroke is one of the most commonly discussed strokes for beginning students. This is a downward movement from the elbow and is used for	Most Agree	Half Agree	Most Agree

detached notes at a moderate tempo.			
35. The forearm stroke should be the first stroke introduced to young students.	Most Agree	Half Agree	Most Agree
36. Hand stroke has limited uses. It is used for non-legato or staccato passages that are faster than forearm stroke can achieve.	Most Agree	Half Agree	Half Agree
37. Finger stroke is essential for pianists. However, extreme lifting of the fingers, if used at all, should be reserved for special exercises.	Agree	Agree	Agree
38. Fingers are held close to the keys but may lift slightly before striking in general playing. Non-playing fingers should be held close to the keys but are not restricted to the key surface. They are allowed small movements sympathetic to the working fingers, because restricting movement causes tension.	Agree	Agree	Agree
39. One of the main roles of the arm is to aid the fingers. The arm and fingers work in coordination. The fingers do not work independently.	Agree	Most Agree	Most Agree
40. The arm makes slight lateral adjustments in order to stay behind the finger that is playing and to transfer weight or energy from the arm to the fingers.	Agree	Most Agree	Agree
41. Keeping pressure on the keybeds after a key has been struck, called "keybedding," is unnecessary and damaging except in rare instances.	Agree	Agree	Agree
42. Circular motions choreographed with the patterns of the music are an important adjunct to whichever stroke is employed.	Most Agree	Half Agree	Agree

Comments:

TP 32. In general, the Technique Authors discussed the use of muscular energy much more than the use of weight and emphasized that weight alone does not cause movement but needs to be combined with muscular energy. The Pedagogical Authors and Exemplary Teachers, on the other hand, focused much more on the weight of the loose arm and on gravity as the source of tone production. However, this is combined with firm fingers so that playing is not clumsy. This emphasis on relaxation could be due to the fact that in the later part of the 20th

century there was more of a focus on choreographing the body with keyboard passages in a way that was as comfortable as possible, as shown in Tables 73 and 74.

TP 33. Ted Cooper, an Exemplary Teacher, differs, in that for beginning students he requires a whole arm movement with the finger on the key.

TP 34. There are many kinds of strokes mentioned among the authors and teachers. However, forearm stroke is the most consistently utilized one among the sources. Only half of the Pedagogical Authors agreed with this Technical Principal, because many methods focus on finger movement at the beginning of study. This contrasts with the Technique Authors, Current Authors, and Exemplary Teachers, who generally agreed that some type of arm stroke is the best stroke for students to use when beginning to play the piano.

TP 35. There were many variations on strokes used for tone production, so it cannot be stated categorically that forearm stroke should be the first touch introduced. However, this was the majority opinion of the authors and teachers. Pedagogical Authors received a rating of only Half Agree, because many Method Authors wrote methods that begin with individual fingers and do not state which stroke is to be used. It should also be noted that many types of strokes are used in the elementary years. Just because forearm stroke is introduced first does not mean that the sources advocated only using forearm stroke in the elementary level of study.

TP 36. This statement received low ratings because some authors and teachers either did not mention hand stroke or did not recommend it.

TP 39. Many Method Authors implied that the fingers work in isolation. This is an omission of the role of the arm rather than a detrimental opinion about arm and finger cooperation. Cooper, an Exemplary Teacher, would agree with this Technical Principle, although in his teaching he isolates finger action before combining it with the arm.

TP 40. Lack of information by some of the Method Authors on this subject lead to a Most Agree rating for the Pedagogical Authors.

TP. 41. Although the Exemplary Teachers did not state their opinion on this topic specifically, none of their students were observed keybedding.

TP 42. Ortmann did not believe that motions have a great impact on the tone produced, but he did say that they may have psychological or musical benefits. The Pedagogical Authors neglected to mention choreography in many cases, particularly in the piano methods. However, the idea of circular or other choreographed motions was mentioned frequently by enough authors and teachers to warrant inclusion as a Technical Principle.

Table 52

Playing Apparatus

Technical Principle	**TA**	**PA**	**ET**
43. The playing units of the body work in coordination in piano playing.	Agree	Most Agree	Agree
44. Ears are one of the most important playing units. Listening to the tone produced is imperative from the beginning of study.	Agree	Agree	Agree
45. Each playing unit has a role in piano playing, including the feet, torso, back, ears, eyes, shoulders, arms, wrists, hands, and fingers.	Agree	Agree	Agree

Comments:

TP. 43. Some Method Authors' dependence on finger work required a rating of only Most Agree.

Table 53

Contraction and Relaxation

Technical Principle	**TA**	**PA**	**ET**
46. Only as much contraction as is needed for a movement should be used. Complete relaxation is impractical, because it does not aid in movement. Excess tension should be eliminated.	Agree	Most Agree	Most Agree
47. Terms such as "balanced coordination," "elasticity,"	Agree	Half	Half

"freedom," "springiness," and "looseness" may better describe the idea of relaxation, because they do not imply a complete relaxation of the muscles.		Agree	Agree
48. Terms such as "firm," "taut," "active," and "strong" may be more helpful in avoiding unnecessary tension than terms like "contraction" and "tension."	Most Agree	Agree	Agree

Comments:

TP 46. The Technique Authors all discussed the role of contraction in piano playing to a much greater degree than did the Pedagogical Authors and Exemplary Teachers, who stressed relaxation. However, all agreed that excess tension is detrimental to playing.

TP 47. Many Method Authors and Exemplary Teachers used the word "relaxation," while some, along with the Technique Authors and Current Authors, preferred the other terms.

TP 48. Some Technique Authors, particularly those writing earlier in the 20th century, used the words "tension" and "contraction" freely. As the 20th century progressed, writers and teachers came to prefer the less extreme terms.

Table 54

Mind/Body Relationship

Technical Principle	**TA**	**PA**	**ET**
49. A musical purpose behind every movement is extremely important.	Agree	Agree	Agree
50. Students need to think before playing, because the mind controls the body.	Agree	Agree	Agree
51. Repetition is important, because it imprints the music on the mind and in the muscles.	Agree	Agree	Agree
52. Intelligent practice with a goal and a reason for each repetition is essential for efficient progress. Mindless repetition is to be avoided.	Agree	Agree	Agree

III. Exercises.

Table 55

Gymnastic Exercises

Technical Principle	TA	PA	ET
53. Movements should be taught away from the piano in preparation for being practiced at the piano. This separates the movements from the complexities of key depression and note accuracy.	Agree	Agree	Agree
54. If gently practiced, gymnastic exercises can be used for strengthening the muscles, for limb differentiation, and for stretching.	Some Agree	Half Agree	Most Agree

Comment:

TP 54. Some authors and teachers endorsed the use of gymnastic exercises in this way. However, many did not mention them. All agreed that if they are used, care should be taken that they are practiced gently and accurately so as not to cause injury to the pianist.

Table 56

Exercises

Technical Principle	TA	PA	ET
55. Mindless finger exercises are a waste of time. Practice must always be purposeful.	Agree	Agree	Agree
56. A well-planned sequence of exercises that introduces students to techniques they will need for repertoire pieces is indispensable in the early levels of study. The elementary level should be filled with exercises.	Most Agree	Most Agree	Agree
57. Exercises derived from the music are useful for solving technical problems in specific pieces.	Agree	Agree	Agree
58. Fundamental forms such as five-finger patterns, scales, chords, and arpeggios should be learned and practiced by all students. These are a non-negotiable foundation for every pianist.	Agree	Agree	Agree
59. Traditional finger independence exercises where fingers are held down while other fingers play are	Most Agree	Most Agree	Most Agree

detrimental.

Comments:

TP 56. Several Technique Authors and Current Authors did not advocate exercises. This may be due to two reasons:

- These authors may have been talking about advanced technique and not speaking about the needs of children studying the basics of piano playing.
- These authors could have been referring to mindless finger exercises, which were universally decried as a waste of time.

Most authors and all the Exemplary Teachers believed that at least at the early levels of study, exercises are indispensable for developing a sound technique.

TP 57. This is especially true as students advance. The general sense was that the more advanced the student, the more exercises derived from specific problems in the repertoire should replace regular rote exercises. This attitude assumes that a solid technical foundation has been laid in the early years.

TP 59. A few teachers in each of the source categories believed that this type of exercise is useful. However, the majority believed that these exercises are dangerous and can cause injury. Those authors and teachers who did advocate their use cautioned that they should be practiced gently and carefully.

Table 57

Etudes

Technical Principle	**TA**	**PA**	**ET**
60. Etudes, which use a specific technique repeatedly in a piece, are not necessary in elementary study. Technique can be acquired through exercises and repertoire study alone.	Agree	Most Agree	Agree

Comment:

TP 60. Most authors and teachers did not even mention using etudes, although some of the older piano methods include standard etudes.

IV. Movement at the Keyboard

Table 58

Physical Movement

Technical Principle	TA	PA	ET
61. Physical movement at the piano should be of a refined quality so that it is graceful and corresponds to the musical purpose of a passage.	Agree	Agree	Agree
62. Extraneous motions for the purpose of showmanship and those motions not related to the music should be avoided.	Agree	Agree	Agree
63. Extreme or exaggerated movements may be helpful for children, who do not make subtle motions well.	Some Agree	Some Agree	Half Agree

Comment:

TP 63. This statement received low ratings because most of the authors did not provide information on this topic. However, because two of the Exemplary Teachers and several sources in the other categories believed resolutely in this Technical Principle, it was included.

Table 59

Lateral Movement

Technical Principle	TA	PA	ET
64. Playing over the whole range of the keyboard is important for beginners, because it keeps them from being locked into one position and allows them to practice large arm movements.	Agree	Most Agree	Agree
65. When making a large, lateral leap on the keyboard, the eyes look at the new location, and then the arms lead the hand to the new position.	Agree	Agree	Agree

Comment:

TP 64. The Method Authors of Middle C methods focused on one position in the middle of the keyboard, which lowered the rating for Pedagogical Authors from Agree to Most Agree. However, the newer methods do incorporate movement around the keyboard. Although not all the sources agreed that this is essential, none of the sources stated that moving around the keyboard is detrimental to beginning students.

Table 60

Hand Expansion

Technical Principle	TA	PA	ET
66. Caution should be exercised when introducing hand expansion to students so that injury will be avoided.	Agree	Agree	Agree
67. Stretching of young students' hands is to be avoided when possible. Instead, students should sacrifice legato and use the arm to move the hand to the new position in a closed hand shape. A closed hand position is the norm.	Agree	Agree	Agree
68. The first hand expansions to be studied should be between the thumb and 2nd finger.	Agree	Agree	Agree

Table 61

Keyboard Topography

Technical Principle	TA	PA	ET
69. An awareness of the different hand positions and hand heights necessary for various combinations of black and white keys is important.	Most Agree	Most Agree	Most Agree

Comment:

TP 69. Although not all the authors and teachers mentioned Keyboard Topography, those that did believed strongly in its importance.

V. Fundamental Forms

Table 62

Five-Finger Patterns

Technical Principle	TA	PA	ET
70. Learning five-finger patterns is essential for elementary level pianists.	Agree	Agree	Agree
71. When playing five-finger patterns, the arm aids the fingers by making slight lateral shifts in order to stay behind the finger that is playing.	Agree	Agree	Agree
72. Five-finger patterns can be practiced for a variety of reasons, including forming the hand shape, acquiring a sense of key, matching tones for an even dynamic intensity, and developing finger action.	Agree	Agree	Agree
73. Five-finger patterns can be practiced with variations of articulation, tempo, dynamics, and accompaniment patterns to develop skill at the piano.	Agree	Agree	Agree

Table 63

Rotation

Technical Principle	TA	PA	ET
74. Rotation is useful for:			
- *Tremolo*	Agree	Agree	Agree
- Zigzagging patterns of notes	Most Agree	Agree	Half Agree
- On every note in a passage	Some Agree	Some Agree	Some Agree
- Assisting the passage of the thumb in scales	Some Agree	None Agree	Half Agree
75. Rotation is primarily a movement of the forearm rather than the upper arm and is not a movement of the wrist or hand alone.	Agree	Most Agree	Agree

Comment:

TP 74. Rotation is a controversial topic. Many of the authors and teachers recommended rotation for various types of passages, but the only complete agreement on the use of rotation was in the case of *tremolo*. Many of the authors and teachers preferred circular movements choreographed to specific passages instead of rotation. However, rotation remains an important technique that was recommended in certain instances by most authors and teachers and has remained a central technical principle over the span of the century, as shown by the technical systems of Matthay, Bernstein, and Shaak.

TP 75. Some of the Method Authors said that rotation is a hand movement. However, all other sources said it is primarily a movement of the forearm.

Table 64

Scales

Technical Principle	**TA**	**PA**	**ET**
76. Scale study is imperative for all students.	Agree	Agree	Agree
77. Scale study should not commence until students have control over their hand position and have mastered the basics of finger and arm coordination.	Agree	Agree	Agree
78. Preparation exercises for the passage of the thumb under the hand and the hand over the thumb are useful before regular scale playing is practiced.	Some Agree	Half Agree	Agree
79. In scales moving out from center, the thumb passes under the hand gradually. A small lateral motion of the wrist and forearm may aid passage.	Most Agree	Half Agree	Most Agree
80. Movements of the hand and wrist in scale playing cannot be avoided but should be kept to a minimum.	Agree	Agree	Agree
81. The arm leads the hand along the keyboard in a smooth line, as in a *glissando*.	Agree	Agree	Agree
82. In slow scales, the passage of the thumb under the hand is gradual and more pronounced. In fast scales, the notes are played in the groups outlined by the positions on the keyboard, since there is not time for an actual	Agree	NIA	Agree

movement of the thumb under the hand.			
83. Scales should first be practiced hands separately. When practiced hands separately, there are pros and cons to playing the scales in parallel or contrary motion. Both are acceptable.	NIA	Agree	Agree
84. Playing scales hands together should not be rushed. In fact, it may be helpful to have students practice scales hands separately over an extended period in order to perfect their technique and tone.	Agree	Most Agree	Agree

Comments:

TP 76. Scale playing was described in detail by all the sources, even the Method Authors, showing its great importance.

TP 78. Many sources did not present preparation exercises. However, no source said preparation sources are detrimental.

TP 79. Although many sources did not mention using the wrist and forearm to aid in the passage of the thumb under the hand, this may have been assumed by some sources. There were variations among the sources regarding the passage of the thumb. However, this Technical Principle presents the norm.

TP 84. Some Method Authors introduced hands together scales early. However, none of the sources, except Tan, a Method Author who believed that scales should be introduced hands together, believed it was detrimental to practice scales hands separately for an extended period.

Table 65

Chords

Technical Principle	**TA**	**PA**	**ET**
85. Chords should not be introduced too early, because they can strain the hand and cause tension.	Agree	Most Agree	Agree
86. The shape of the chord should be set in the mind and hand before playing as long as no excess tension results.	Agree	Most Agree	Agree

Comments:

TP 85. A few Method Authors introduced chords early in their methods. However, for the most part, the sources agreed that a solid basic technique should be in place, with control over looseness of the arm with firmness of the hand shape, before chords are practiced.

TP 86. Because of the dangers of excessive tension, a few notable exceptions among the Current Authors vehemently disagreed with setting the hand before playing.

VI. Basic Musical Inflection

Table 66

Articulation: Legato

Technical Principle	TA	PA	ET
87. Legato should be the second articulation introduced, after non-legato and before staccato.	Some Agree	Most Agree	Most Agree
88. Legato should be the first articulation introduced, before staccato.	Most Agree	Some Agree	None Agree
89. The ear is the most important playing unit in legato.	Agree	Agree	Agree
90. Legato is executed through a connection between the fingers and aided by the arm, which smoothly transfers its weight from one finger to the next. This is like the action of the legs in walking.	Agree	Agree	Agree

Comments:

TP 87 and 88. Various opinions existed regarding which articulation should be introduced first. Generally, the older sources recommended beginning with legato while the newer sources advised beginning with non-legato in order to solidify the coordination between the arm and fingers. Notably, three of the four Exemplary Teachers recommend delaying legato, while the other Exemplary Teacher (Cooper) introduces legato and non-legato simultaneously. To add to the confusion, many Method Authors did not provide direction as to which articulation they required in the first method book pieces. However, because legato is often introduced by

name later in the first book, it can be implied that non-legato is the first touch expected. No source said that non-legato should not be introduced at the beginning of study, although many believed in the delay of staccato, which is a more difficult articulation due to the timing involved in key depression.

TP 88. One interesting point is that three sources in the beginning, middle, and end of the time frame of this study (Matthay, Last, and Blickenstaff) advocated teaching legato through a rotating motion between intervals of a third or a fifth.

Table 67

Articulation: Non-legato

Technical Principle	TA	PA	ET
91. Non-legato is the easiest articulation for beginning students to produce and should be the first touch introduced.	Some Agree	Most Agree	Agree
92. Non-legato is produced by a vertical movement of the forearm.	Agree	Agree	Agree

Comment:

TP 91. See Comments for Technical Principles 87 and 88.

Table 68

Articulation: Staccato

Technical Principle	TA	PA	ET
93. Staccato should be introduced after legato.	Agree	Agree	Agree
94. Arm staccato of the forearm or whole arm is executed by a downward movement of the arm that is followed by a rebound. It is used for loud passages that are relatively slow.	Agree	Agree	Agree
95. Hand staccato is executed by an upward preparation followed by a downward motion of the wrist. It is used for passages that are of moderate speed and tone.	Most Agree	Agree	Half Agree
96. Finger Staccato is executed through a scratching	Agree	Agree	Most

motion of the fingers. It is used for fast passages of quiet intensity.	Agree

Comments:

TP 93. In addition, staccato should be introduced after non-legato according to those sources that discuss non-legato.

TP 95. A few sources did not advocate hand staccato in this strict sense, although some sources, including the Exemplary Teachers, advocated a combination arm and hand staccato.

Table 69

Rhythm

Technical Principle	TA	PA	ET
97. Children should begin with whole body movements in order to establish a rhythm in the body.	Some Agree	Half Agree	Most Agree
98. Using one choreographic gesture to play a group of notes is important for establishing a rhythmic flow.	Agree	Most Agree	Agree

Comments:

TP 97. Information was lacking among the sources regarding this Technical Principle. However, those that did mention it regarded it as indispensable.

TP 98. Many Method Authors, because of their concern for note reading, neglected this rhythmic aspect of playing. In these methods, no rote pieces or exercises are provided for students to develop the ability to choreograph gestures are provided. Instead, these books are limited to reading pieces that encourage a note by note rhythmic response, placing the burden on the knowledgeable teacher to show students how to group notes into musically meaningful, rhythmic gestures.

Table 70

Dynamics and Tonal Control

Technical Principle	TA	PA	ET
99. Speed of key descent is the determining factor in tonal intensity.	Most Agree	Half Agree	NIA
100. Loud playing generally requires a larger playing unit than quiet playing, which can be effectively played by the fingers if necessary.	Most Agree	Most Agree	Most Agree
101. Moderate to quiet tonal intensities should be the first dynamic levels introduced to children to prevent unnecessary tension and to accommodate for small, weak fingers.	Some Agree	Most Agree	Most Agree
102. To achieve a tonal balance between the hands, more weight should be added to the louder hand.	Most Agree	Agree	Agree

Comments:

TP 99. Although Ortmann concluded scientifically that this Technical Principle is true, many authors up to the present time, especially Method Authors, stated their belief that arm weight determines both tonal intensity and tone quality. The Exemplary Teachers did not discuss the mechanics of tonal intensity but preferred to teach this concept through listening to the sound.

TP 100. In addition, a few of the sources stated that the adult teacher should be aware that a child uses a different bodily mechanism than the adult to achieve the same dynamic level. Caution should be used to avoid forcing children to make a sound louder than they are capable of achieving with correct technique.

TP 101. It should be noted that although many Method Authors introduced *forte* and *piano* near the beginning of study, *forte* is a relative term. It was observed in the lessons taught by the Exemplary Teachers that the *forte* the teachers required was not an extremely loud sound. Instead, the teachers' goal was for students to play with a full tone of moderate intensity.

TP 102. Ortmann proved that tonal intensity is related to key speed rather than to arm weight. However, the belief that arm weight is the best method for achieving balance between hands is still the most prevalent recommendation given for acquiring this technical skill.

Table 71

Tone Quality

Technical Principle	TA	PA	ET
103. For a single tone, key speed is the only determining factor of tone quality.	Most Agree	Half Agree	NIA
104. For combinations of tones, tone quality is affected by the relationship between the intensities of those tones, which is influenced by many factors, including noises from finger/key percussiveness, rhythmic and agogic considerations, phrasing inflections, articulation differences, overtones, tone decay, attack and release of tones, pitch, and transfer of sound through the air after leaving the instrument.	Most Agree	Half Agree	NIA
105. A full, rich tone is the object of elementary piano study in terms of tone quality.	Agree	Agree	Agree

Comments:

TP 103. In spite of Ortmann's experiments, with which most of the Technique Authors and Current Authors agreed, the Method Authors persisted in a belief that the manner of depressing the key, including the weight of the playing unit, finger pressure, and the part of the finger that contacts the key, is responsible for tone quality. This shows a lack of study of the pertinent research on the part of the Method Authors.

TP 104. Some of the sources, including many of the Method Authors, also included the idea that the use of the playing mechanism in a certain way affected tone quality. This may be true in a secondary sense, because certain movements of the hand and arms may help the pianist to create these effects that influence tone quality. However, Ortmann proved that a certain movement of the arm or hand does not in itself cause a change in tone quality.

TP 105. The Exemplary Teachers did not mention the mechanics of tone quality, but taught their students to obtain a good tone quality through listening to the sound.

Table 72

Tempo

Technical Principle	TA	PA	ET
106. Children should not play quickly until they can do so while maintaining correct technical processes.	Agree	Agree	Agree
107. There are fundamental differences between slow and fast playing. Therefore, both types of practice are essential. The teacher should note that different muscular requirements exist for different tempos.	Agree	Agree	Agree

These 107 Technical Principles can help teachers develop systems of technique based on the most commonly held beliefs from the sources studied, thereby providing a solid foundation of knowledge regarding teaching technique to elementary level students. These Technical Principles form a grounded theory based on three source groups: Technique Authors, Pedagogical Authors, and Exemplary Teachers. Each source group brings a different perspective to the topic of teaching elementary level piano technique. Technique Authors focused on detailed technical systems of both elementary and advanced levels of piano technique. Pedagogical Authors focused on all aspects of teaching piano to children, and therefore were less detailed than the Technique Authors in their comments regarding technique. The Exemplary Teachers provided an example of how excellent teachers of beginning students apply concepts in a lesson setting. These three source groups thus form a solid foundation on which to build a grounded theory of elementary level piano technique, which was stated in the 107 Technical Principles in this Chapter.

Time Lines of Technique Authors and Method Authors

During the course of this study, the principal investigator noticed certain trends among the writings of the Technique Authors and Method Authors in different periods of the 20th century. Tables 73 and 74 show some of these trends. In Table 73, adjectives describing the author's most prominent characteristics are listed after each author's name and dates of publication.

Table 73

Time Line of Technique Authors

1900	Matthay 1903-1947 (Body Mechanics, Contraction)
1905	
1910	
1915	
1920	Fielden (1924-1949) Body Mechanics, Contraction
1925	Ortmann (1925-1929) Body Mechanics, Contraction Ching (1929-1962) Body Mechanics, Contraction Whiteside (1929-1969) Rhythm
1930	
1935	Schultz (1936) Body Mechanics, Fingers, Contraction
1940	
1945	
1950	Newman (1950-1984) Body Mechanics, Mind Bonpensiere (1953) Mind Last (1954-1980) Body Mechanics, Relaxed Approach
1955	Gát (1958-1980) Choreography, Fingers
1960	
1965	Kochevitsky (1967-1972) Mind
1970	

1975	
1980	Sandor (1981) Relaxed Approach, Choreography Bernstein (1981-1991) Relaxed Approach, Choreography
1985	
1990	Fink (1992-1993) Relaxed Approach, Choreography
1995	
2000	Fraser (2003) Choreography, Strength

In Table 73, three main perspectives on technique are shown during the 20th century.

1. At the beginning of the century, most of the Technique Authors focused on studying how the body works mechanically in relation to the piano. They emphasized the need for contraction as well as for relaxation.
2. In the middle of the century, some of the focus shifted from the mechanics of the body to the role of the mind in piano playing. Gát, with his emphasis on choreography of passages with the body in a comfortable manner, was ahead of his time in his views on technique.
3. At the end of the century, the Technique Authors focused on a relaxed approach to playing and explored choreographing of the body movements with the patterns of the music. This contrasted with the authors of the early part of the century who focused more on contraction. Fraser was the exception. He sought to integrate the important points of the writers of the early part of the century with the new emphasis on choreography in the latter part of the century by advocating hand strength instead of contraction.

In Table 74, the Method Authors are listed with their dates of publication. The starting fingers and reading approaches of their methods are listed after their names.

Note that many of the Eclectic Methods are listed as Eclectic/Middle C. This is because they begin with the long fingers but soon revert to a generally Middle C based approach. However, they are more Eclectic than Middle C.

On the other hand, those marked Middle C/Eclectic are mostly Middle C methods, but they begin with long fingers for a very brief time before reverting to a solid Middle C approach. They are more Middle C than Eclectic.

Table 74

Time Line of Method Authors

1935	Thompson & Kaplan (1934/1997) Starts with Thumb, Middle C
1940	
1945	Fletcher (1947) Starts with Thumb, Middle C
1950	
1955	Clark (1955/2000) Starts with Long Fingers, Intervallic
1960	Pace (1961/1983) Starts with Thumb, Multi-key Schaum (1962/2003) Starts with Thumb, Middle C Duckworth (1963) Starts with Thumb, Multi-key
1965	
1970	Palmer & Lethco (1971) Starts with Long Fingers, Eclectic
1975	Burr & Gillock (1976) Starts with Long Fingers, Innovative Suzuki (1978) Starts with Thumb, Innovative
1980	Chronister & Kraehenbuehl (1980) Starts with Blocked Fingers, Intervallic Olson et al. (1983) Starts with Blocked Fingers, Intervallic
1985	Bastien (1985) Starts with Long Fingers, Multi-key Schultz & Schultz (1986) Starts with Thumb, Middle C Agay (1987) Starts with Long Fingers, Middle C/Eclectic Glover & Stewart (1988) Starts with Long Fingers, Middle C/Eclectic
1990	Tan (1991) Starts with Thumb, Innovative
1995	Faber & Faber (1995) Starts with Long Fingers, Eclectic/Middle C Kreader et al. (1996) Starts with Long Fingers, Eclectic/Middle C Noona & Noona (1997) Starts with Long Fingers, Middle C/Eclectic

	Finn & Morris (1998) Starts with Long Fingers, Eclectic/Middle C
2000	Vogt & Bates (2001) Starts with Long Fingers, Middle C/Eclectic Albergo et al. (2002) Starts with Blocked Fingers, Intervallic Lowe (2004) Starts with Blocked Fingers, Innovative Snell & Hidy (2004) Starts with Long Fingers, Eclectic/Middle C
2005	Alexander et al. (2005) Starts with Long Fingers, Eclectic/Middle C

Table 74 shows three eras in method writing.

1. The earliest methods in the century were Middle C methods that started with the thumb. The Middle C approach is based on finger action. This corresponds to the Technique Authors' emphasis on contraction and body mechanics at the beginning of the century, shown in Table 73.
2. The years from 1960-1985 were experimental years in method writing. A variety of approaches were used. Authors of the Clark et al. method were ahead of their time in that they were experimenting with the intervallic approach years before the Chronister and Kraehenbuehl Intervallic method was published in 1980. These middle years mirror the middle century Technique Authors, who created interesting theories about the mind in relation to piano playing. Also, starting with the longer fingers, which was a more natural and comfortable approach than beginning with the thumb, could have originated in the beginning experiments with body choreography that were beginning in the 1980s in the writings of the Technique Authors.
3. After 1986 there was a return of the Middle C approach to reading with its emphasis on finger action. However, starting with the long fingers persisted, yielding a blend between this comfortable approach to technique and the oldest reading approach. This blended approach came to be called Eclectic. Because of the return to the Middle C approach, the Method Authors actually reverted technically to a finger-based approach rather than embracing the late 20th century trend of the Technique Authors toward larger

choreographed arm movements at the piano. This is unfortunate. Innovative methods are few, and an Innovative method that embraces the most recent thought on technique is needed for piano methods to move into the mainstream of technical thought in the 21st century.

Practical Advice for Piano Teachers

The following maxims for teachers were derived from sections I, II, and III of the Discussion of Chapter VI and from the Discussion section of Chapter VII. These suggestions were meant to offer practical counsel to assist beginning teachers in formulating effective teaching strategies and to help experienced teachers enhance, refine, and clarify their teaching.

Before Beginning to Teach

Training

- Study both piano and piano pedagogy in college and graduate school.
- Do not be discouraged if your pre-college training was poor.
- Clarify your own ideas about technique during your study of piano and piano pedagogy.
- Become involved in national and local associations for music teachers.
- Obtain a piano, a footstool, a metronome, and hard cushions. Consider adding stuffed animals, props, a mirror, colored tape, and colored pencils to your teaching aids.

Curriculum

- Plan a well-rounded music curriculum for your students that includes repertoire study, technique, music reading, rhythm, theory, composition, improvisation, ensemble playing, and music history.
- Select a method series you feel comfortable using, and plan a technical curriculum around it.
- Formulate a long-range plan for technical development for your students, and develop steps to achieve these technical goals.
- Write specific lesson plans for each lesson.
- Analyze repertoire pieces at various levels for the technical skills they contain, and arrange the pieces in order from elementary to advanced levels.

Students and Parents

- Interview students and parents, and state your expectations clearly.
- Only accept committed parents and students.
- Include parents in an active role in the children's piano study, and inform the parents what that role is.
- Hold parents accountable for student practice.
- Expect consistent practice, and explain how much practice you require.
- Include both a group class and a private lesson component to your studio curriculum.
- Teach lessons that are at least 45 minutes in length.

At the Very Beginning

- Establish rhythmic movement in the body and over the entire keyboard.
- Separate music reading from technical work.
- Explain proper posture and hand position, and require students to play with good body positions at all times.
- Teach students to have a loose arm, and be vigilant to avoid unnecessary tension that interferes with free movements.
- Gently manipulate the child's body and hands to check posture and looseness.
- Integrate gymnastic exercises for teaching new concepts, for gently increasing strength, and for body awareness.
- Begin with a non-legato approach with a forearm stroke on repeated notes in rhythmic patterns.
- Or begin with a slow, legato approach, making sure that the arm is still involved in playing.
- Teach technical exercises and beginning pieces by rote.

- Incorporate analytical games into the student's lessons so that the student can hear and see the differences among the uses of various techniques and begin to utilize reasoning skills.
- Instill an awareness for keyboard topography.
- Assign many technical exercises.
- Do not require a sound that is very loud from children with small, weak fingers.

Near the Beginning

- Eradicate collapsing nail joints.
- Require a full but not necessarily loud tone.
- Introduce legato playing through listening, executed with a wrist roll on each note.
- Introduce legato playing with finger action.
- Introduce one movement of the arm for each group of notes with a choreographed motion of the arm.
- Introduce circular motions and rotation.
- Assign review pieces and technical exercises to provide students with many things to play in their practice time.
- Work on coordination between the hands so that students will be able to begin working on balance between hands.

In the Elementary Years

- Use preparation exercises for techniques in future repertoire to help the student master a new technique before applying it to a piece, especially if the student is required to read the piece.
- Introduce five-finger patterns, and have the student play them around the circle of fifths.
- Practice variations of five-finger patterns.
- Introduce triads.

- Teach finger staccato.
- Introduce shades of dynamics through listening.
- Introduce scales through preparatory exercises for passage of the thumb under the hand and the fingers over the thumb.
- Move the thumb under the hand gradually in scales, or move the arm laterally to help the thumb under.
- Introduce hand expansion gently through exercises that move the thumb away from the hand.
- Increase speed gradually. Do not push students to play faster than their technique allows.
- Master balance between the hands.
- Continue to refine choreography with each passage.
- Continue to refine listening, reasoning, and practicing skills.
- Review the basic skills of posture, hand position, and tone production as students advance to ensure the preservation of correct fundamental technical skills.

Teaching Techniques to Cultivate Throughout your Teaching Career

- Be kind to your students.
- Cultivate patience.
- Be enthusiastic.
- Care about your students.
- Increase your creativity.
- When earned, give students verbal praise that is specific and direct.
- Always keep growing as a teacher.
- Use analogies, props, and stuffed animals to make learning fun and meaningful to children.
- Expect great results from every student. Have high expectations.

- Command respect by being well-prepared, knowledgeable, and serious about piano teaching.
- Transfer your professionalism to your students so they begin to identify themselves as serious pianists.
- Be meticulous about technical details of posture, hand position, looseness of the arm, full sound, and freedom of movements.
- Train all your students to be the best they can be.
- Be in control of the student's technical training, and insist that the student follow your plan.
- Take preemptive measures to prevent mistakes.
- If mistakes occur, fix them thoroughly through a step-by-step approach.
- Make sure the student plays during much of the lesson time.
- Cultivate in your students a sense of the great importance of acquiring correct technical habits.
- Demonstrate for the student often, and have the student copy your playing.
- To avoid excess explanation, coach and conduct while the student plays.
- Ask analytical questions that require listening and discernment from the student.
- After a student plays a piece, point out the most important places that need to be improved so that the student is not overwhelmed with corrections.
- Gradually give students some control over interpretative decisions.
- Do not rush students in their technical development, but expect technical perfection at each level of advancement.
- Provide many opportunities for students to play in group classes and with their parents.

Recommendations for Further Research

The following projects are recommended as possible studies to expand the research in the field of elementary level piano technique.

1. Replicate this study and interview a larger number of Exemplary Teachers. Include teachers of various ages.
2. Choose several Exemplary Teachers for a longitudinal study of beginning students in order to chart student progress and teacher strategies for the 1st year of piano study.
3. Design a questionnaire regarding teachers' opinions and beliefs as related to the Elementary Level Technical Concepts used as a structure for this study. Administer the questionnaire to a large number of teachers in the United States.
4. Study the videotapes of Dorothy Taubman and attend the Taubman Institute to study this technical system in-depth. Then, in a similar manner to the present study, interview teachers of the Taubman Technique who teach children such as John Weems and the teachers he has trained.
5. Study Exemplary Teachers in other countries to discover how their beliefs are similar to or different from the conclusions of this study.
6. Study college freshman at a number of universities and colleges to discover rates and areas of technical deficiencies that exist due to poor pre-college teaching.
7. Survey professors of piano to compile a list of strategies and exercises teachers of undergraduate students use to remediate deficient skills in their students.
8. Study how teachers of undergraduate group piano classes for music majors establish correct technique in their students.

The beginning years of study are crucial. Therefore, it is the principal investigator's hope that this study and future studies will aid teachers in the United States in gaining knowledge and in becoming more confident with their teaching skills in the area of elementary level piano technique.

Conclusion

The purpose of this qualitative research study was to analyze what influential writers of the past and present wrote regarding the teaching of technical concepts and to discover what strategies, methods, and materials excellent teachers of elementary level piano students use to develop a solid technical foundation that will prepare their young students to be capable of playing advanced works from the piano literature once they reach the high school and college levels. Based on data from three source groups: Technique Authors from the 1925 to the present, current Pedagogical Authors, and observations and interviews with four Exemplary Teachers, a clear picture emerged regarding the most important factors related to teaching elementary level piano technique. These factors were stated as 107 Technical Principles to form a grounded theory concerning the teaching of elementary level piano technique. It is the principal investigator's hope that the information presented in this study and the 107 Technical Principles will provide piano teachers with the knowledge necessary to successfully teach technique to their beginning students.

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APPENDIX A

Teacher Information and Consent Form

Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present

Julie Knerr, Principal Investigator

Dear Teacher,

I am a doctoral student under the direction of Professor Nancy Barry and Professor Jane Magrath in the School of Music at the University of Oklahoma-Norman Campus. I invite you to participate in a dissertation research study being conducted under the auspices of the University of Oklahoma-Norman Campus entitled "Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present."

This qualitative study is being conducted to discover how successful teachers help their students develop a solid foundation in piano technique during the elementary level period of piano study that will allow students to be capable of playing the advanced works in the piano repertoire when they are older.

Because the teacher participants in this study are selected on the basis of proven excellence in the field of pre-college teaching, participating teachers are asked to allow their names to be used in the study. Results from this study will provide a composite model of excellent teaching of elementary level technical concepts. This model will provide new teaching strategies by which all piano teachers can foster the development of piano technique in their elementary level pre-college students.

Teacher participants of this study must be 18 years of age or older.

Your participation will involve three components:

1. Interview: We will discuss your views on teaching technique to pre-college students, including your philosophy on technical development, materials you use (etude books, etc.), problem solving, and motivation. 1-3 hours.
2. Observations: You will select three elementary level students who you think would be willing to participate in the study. I will videotape you teaching one lesson to each of the three students to learn about how you implement your ideas on technique in lessons. 1½-3 hours (depending on normal lesson length).
3. Member Checking: I will send you what I write about my visit for you to comment on.

Your participation will take approximately 1½ - 4 hours of your time (depending on the length of the interviews), plus lesson time. Every effort will be made to conduct the videotaping of lessons during your normal teaching hours so as not to interfere with your teaching schedule. The interview and videotaping can be scheduled all in one day or can be conducted on separate days as your schedule allows.

Participation in this study is voluntary, and you may discontinue participation at any time without penalty.

There is no foreseeable risk to this study beyond what is experienced in everyday life. Returning this form to me indicates your agreement to participate in the above described research study. Upon receipt of this Consent Form, I will contact you about scheduling and provide Parent/Legal Guardian Permission Forms and Student Assent Forms for the students whose lessons will be videotaped.

(Please initial)
_____ I consent to the use of my name in this research study.

_____ I consent to the use of videotape during lessons.

_____ I consent to the use of videotape during the interview.

(Circle one)
Yes No I give consent for the videotape to be retained by the principal investigator to be used for non-commercial, educational purposes.

I have read and understand the terms and conditions of this study, and I hereby agree to participate in the above-described research study. I understand my participation is voluntary and that I may withdraw at any time without penalty.

_____ _____
Signature of Participant Date

_____ _____
Printed Name of Participant Researcher Signature

Check how you prefer to be contacted about scheduling:
_____ Phone (Phone number _____). Best time to call _____
_____Email (Email address _____)

If you have any questions about this research project, please feel free to call me at **(573) 442-2390 (home), 661-609-0811 (cell),** or **knerr@ou.edu (email).** You may also contact Dr. Nancy Barry at the University of Oklahoma at (405) 325-4146 or at barrynh@ou.edu. Questions about your rights as a research participant or concerns about this project should be directed to the Office of Research Services at the University of Oklahoma-Norman Campus at (405) 325-4757 or irb@ou.edu.

Thank you for your consideration!

Sincerely,
Julie Knerr
PhD Candidate in Music Education and Piano Pedagogy at the University of Oklahoma

APPENDIX B

Initial Teacher Email Script

Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present

Teachers who have returned the Teacher Consent Form and have indicated they prefer to be contacted by email (see Teacher Consent Form) will be sent the following email.

Dear [Teacher Name],

Thank you for agreeing to participate in my research study entitled **"**Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present."

The first step is to schedule an interview time that would be convenient for you. Could you send me a list of possible good dates and times?

Also, would you select three elementary level students who have played the piano for 0-3 years that you think would be willing to let me observe and videotape their lessons? I will contact them and send them the Parent/Legal Guardian Permission Form to see if they would like to participate. Once three students have been selected, I will contact you to finalize the scheduling.

If you have any questions, please let me know. I look forward to meeting you!

Julie Knerr
PhD Candidate in Music Education and Piano Pedagogy at the University of Oklahoma
knerr@ou.edu

APPENDIX C

Parent/Legal Guardian Information and Permission Form

Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present

Julie Knerr, Principal Investigator

Dear Parent,

I am a doctoral student under the direction of Professor Nancy Barry and Professor Jane Magrath in the School of Music at the University of Oklahoma-Norman Campus. I would like to invite your child to participate a dissertation research study being conducted under the auspices of the University of Oklahoma-Norman Campus entitled "Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present."

This qualitative study is being conducted to discover how successful teachers help their students develop a solid foundation in piano technique during the elementary level period of piano study that will allow students to be capable of playing the advanced works in the piano repertoire when they are older.

Participation in this study consists of allowing me to videotape one of your child's regularly scheduled piano lessons with their teacher. Before videotaping, your child will be asked for permission to videotape the lesson.

This study will provide new teaching strategies by which piano teachers can foster the development of piano technique in their elementary level pre-college students.

All information collected will be kept completely confidential. The results of this study may be published, but your child will be given a pseudonym to protect your child's privacy.

There are no foreseeable risks in participating in this study. Participation for you and your child is voluntary, and you or your child may discontinue participation at any time without penalty.

Returning this form to me indicates your agreement to allow your child to participate in the above described research study.

(Please initial)
_____ I consent to the use of videotape during my child's piano lesson.

(Circle one)
Yes No I give consent for the videotape to be retained by the principal investigator to be used for non-commercial, educational purposes.

I have read and understand the terms and conditions of this study, and I hereby agree to participate in the above-described research study. I understand my participation is voluntary and that I may withdraw at any time without penalty.

_____ _____

Signature of Parent Date

_____ _____

Printed Name of Parent Researcher Signature

_____

Name of Child

If you have any questions about this research project, please feel free to call me at (573) 442-2390 or email me at knerr@ou.edu. You may also contact Dr. Nancy Barry at the University of Oklahoma at (405) 325-4146 or at barrynh@ou.edu. Questions about your rights as a research participant or concerns about this project should be directed to the Office of Research Services at the University of Oklahoma-Norman Campus at (405) 325-4757 or irb@ou.edu.

Thank you for your consideration!

Sincerely,

Julie Knerr
PhD Candidate in Music Education and Piano Pedagogy at the University of Oklahoma

APPENDIX D

Student Assent Form

Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present

Julie Knerr, Principal Investigator

_____ (Initial) I agree to allow Miss Knerr to watch and to videotape my lesson, knowing that I can ask her to stop videotaping at any time.

Yes No (Circle One). I will allow Miss Knerr to keep the videotapes to use in educational presentations.

_____ _____

Signature of Student Date

APPENDIX E

Interview Protocol

Strategies in the Formation of Piano Technique in Elementary Level Piano Students: An Exploration of Teaching Elementary Level Technical Concepts According to Authors and Teachers from 1925 to the Present

Julie Knerr, Principal Investigator

Questions to be asked in the interview will relate to the following themes.

General

- Where did you receive your schooling, and what degrees have you earned?
- Who were your piano and piano pedagogy teachers?
- How long have you been teaching?
- What teachers, books, or pianists have been most influential to you in the way you think about your own technical development or in the way you teach technique to your students?
- How do you go about selecting students to be in your studio?
- What do you look for in a student when you interview them?

Materials

- Do you have a curriculum for teaching technique to your students? What does it consist of?
- What books and materials do you use to help your students develop technically?
- Do you use the same materials with all your students in a standard curriculum?

Teaching

- What do you see as the basic premise to the school of technique you advocate?
- How did you formulate these ideas?
- What is your definition of elementary level technique?

When and how do you introduce the following Elementary Level Technical Concepts?

Category	**Technical Concepts**
I. Philosophy	- Philosophy of technique. - Philosophy of teaching.
II. Basic Components	- Posture. - Hand position. - Tone production through key depression. - Use of playing mechanism: Muscles, body, ear, torso, shoulder and upper arm, elbow and forearm, wrist, hand, fingers, thumb, feet, and breathing. - Relaxation. - Mind/Body relationship.
III. Exercises	- Gymnastic exercises.

	- Exercises. - Etudes.
IV. Movement at the Keyboard	- Physical movement. - Lateral movements. - Hand expansion. - Keyboard topography.
V. Fundamental Forms	- Five-finger patterns. - Rotation. - Scales. - Chords (triads and inversions).
VI. Basic Musical Inflection	- Articulation: non-legato, legato, staccato, and mixed articulation. - Rhythm. - Dynamics and tonal control: *pp* to *ff*, *crescendo*, *diminuendo*, accent, tonal control, including balance of voices in one hand and between hands. - Tone quality. - Tempo.

- What other things do you feel are important in the technical development of young students?
- How does your approach change as a student progresses and ages?
- Do you feel there are certain points in a student's technical training that are crucial? What are they?

Motivation

- How much do your students practice every day?
- How often are their lessons, and what is the length of their lessons?
- Do they have group classes? Is technical development included in these classes?
- How do you motivate your students to practice technique?

Problem Solving

- What are some common problems you see in how young people use their hands, arms, and bodies at the piano?
- How do you help them fix these problems?

Conclusion

- Is there anything else you would like to add about how you teach technique to children at the elementary level of piano study?

APPENDIX F

Marvin Blickenstaff Interview
June 21, 2006
Collegeville, PA

JK: I thought we would just start by talking about where you got your training and your schooling, beginning with when you were little.

MB: Oh. When I was little…Um. I had two older brothers who took piano lessons. Oh, I'm from Idaho.

JK: Oh. I didn't know that.

MB: Yeah. I lived in Idaho.

JK: I lived in Washington.

MB: Did you now. I grew up in Nampa, which is outside Boise in the Boise Valley. And my mother played piano a little bit. And she got my two older brothers to take lessons. And I was really very eager to start because they were playing and I wanted to do what they did. And both of them got very involved with athletic activities in junior high and high school. And so they dropped out when they got to the seventh grade. My mom let them do that. And so when I got to the seventh grade I announced that I was going to drop piano lessons, because my older brothers had dropped piano lessons.

JK: [Laughs.]

MB: And she said, "Why would you want to do that?" and I said, "Well, Loren and Wayne did that. I thought that's what we did." She said, "Oh. You have gotten a very good start. You really must continue." And I said, "Well, I'm kind of bored." And she said, "Well, I'll call Fern." And Fern was Fern Nolte Davidson in our town who was the best, one of the best piano teachers in the whole Pacific Northwest. And here she was in our little town. And she had really outstanding students and had a reputation for being really demanding. But she had little kids and she had medium-sized kids and she had college students, and people were driving hours to study with her. Interestingly enough, Philip Keveren is a Fern Davidson product. And he, his family was over on the Oregon side of the Snake River, so he drove all the way from Oregon over to Idaho to take his lessons.

JK: Wow.

MB: I had about two or three lessons with Fern and would have signed a contract with God or somebody that I was going to be a pianist. Because she really changed my life. I've often wondered kind of what it was that was so exciting and seductive about her instruction. And I think basically, piano had been very easy. I could sightread. My fingers seemed to move. And she made it seem like a much bigger deal than just reading pieces easily and things. She had very high standards. I've often said I've never known anybody who can find more staccatos and rests and things that I was missing in my reading of the score than Fern Davidson. She really taught me to read a score meticulously. And she ran us through repertoire. I can't believe how much repertoire I covered during junior high and high school. I've never had a student come to me in college that had nearly as much repertoire under their belt as I did when I went to college. I mean, she had a

real strict curriculum. We had to do little Bach dances before we could do some of the Little Preludes, and then those had to be done before we could do the Two-Part Inventions and then the Three-Part Inventions and then some Preludes and Fugues and things like that. And that was a rigid kind of a curriculum. And in the Classical period, she absolutely insisted that we play sonatina after sonatina after sonatina before we could go into Haydn, before we could get to Mozart, and then finally get to Beethoven. But I had, I don't know how many Haydn sonatas under my belt. It wasn't that all of this material was memorized and performed, but we covered it. And I still can say, "Oh yeah. I did that in high school and that in junior high." It's really, really interesting.

JK: Wow.

MB: So, I finished the seventh grade with another local teacher and then we made the switch in the eighth grade. And it was just really, really exciting. She had a wonderful way to lift standards and yet to affirm all along the way. She was strict and she had demands, and yet, you knew that she liked you and that she thought you were doing well. She had a lot, we all did Guild Auditions, and Federated Music Clubs was strong out there. I remember taking a trip to Montana one time to play in a regional Federated Music Clubs competition because I was the Idaho winner. And that was all very exciting. We didn't, I'm not even sure if at that point if she was a member of MTNA. She has long since been. She has an MTNA Fellowship named after her. The money was raised by the Idaho teachers in her honor. That's kind of good. Fern is in her late 90s. She's just kind of holding out until she gets to be 100 years old.

JK: [Laughs.]

MB: I'm going home in July and playing a recital, and she'll be right there on the front row. She calls every now and then says, "Hi, Marvin. How are you doing?" And then the whole rest of the conference, the whole rest of the telephone call is about her and her teaching and things she has planned for some of her adult students. She's no longer teaching little kids at the age of 99.

JK: [Laughs.]

MB: But she does have adult students that come to her. Teachers that come and consult with her. And she practices every day. It's just amazing. Even in her late 80s Fern was flying to Portland to take lessons.

JK: Wow.

MB: From Boise, Idaho. An amazing and truly a inspiring mentor. So that relationship went rather quickly from one of my being her student to a really good friend, kind of a coach. And we have been dearest of friends for 50, 60 years. I don't know. 55 at least.

JK: Wow.

MB: It's amazing. It was so fun at the Seattle MTNA Convention. She wanted desperately to give a talk. And so it was approved of MTNA if Philip and I would kind of help guide her through her session. She wanted to talk about technique and basic procedures with young students and things like that. And so Philip and I would fire questions and reflect with her about what we experienced with her and what we remembered from our study with her. It was a standing room only session. People just loved it. There she was. At that point she was 98 years old.

JK: Wow.

MB: So, I went from there. Did 2 years of volunteer service in refugee camps after I left. Well, I had 1 year of college at a local Presbyterian school, the College of Idaho. And the reason I elected to do that was I really didn't know where I wanted to go to school. My parents had said it would be okay if I would be a music major. [Laughs.] I still remember. I have this vivid recollection of being home with my mother and father. My brothers were already away from home. And we were at breakfast one morning, and my dad put down his fork and his knife, and he looked across the table and he said, "Mother, I think if Marvin wants to major in music, we'll let him."

JK: [Laughs.]

MB: It was, they basically were not in favor of my being a music major, because they thought it was an insecure profession. But I was winning contests all over the place and really wanted to do that, and so they decided that that would be okay. So I went to the College of Idaho, and actually, I was the one that started a long process where Fern Davidson became a faculty member at the College of Idaho. Because I said, "I'll come to the College of Idaho, but I want to continue my study with Fern." And they had so much respect for her, that I was the first person that they allowed to get college credit for continuing my studies with Fern Davidson. And then that turned out to be a little bit of a trickle, and then it turned out to be a whole stream, and then almost an avalanche, and she was, for all intents and purposes, the head of the piano department for years and years.

JK: Wow.

MB: So I did 2 years of work in Austria. And obviously piano was some… I was actually working with refugee families who wanted to get out of refugee camps and immigrate to America. And so I was like our church's representative over there interviewing the families and writing up dossiers, and then the organization in the United States would find church sponsors here, and then the refugee families could immigrate. And that was just a whole different look of the world and what the Second World War had done to the lives of these people. And I learned German. I had to speak, this is in Austria. And I had to learn German so that I could be of any use in my job. And that in itself was just a wonderful blessing. I've been so appreciative of the fact that I can speak German. I took lessons while I was over there and had a good teacher and did quite a bit of playing. He was an active promoter of his students playing little public concerts. So three or four of us would get together and play a recital. That was very helpful. And he supervised my making a tape for my audition at Oberlin. And so I entered Oberlin as a sophomore because I had 1 year in Idaho. And I did my undergraduate at Oberlin and had a wonderful experience. I'd never been in an environment that was so intensely musical. And had wonderful friends there. That was just really a blessing. To go to Oberlin in those days.

JK: Who did you study with?

MB: I studied with Emil Dannenberg, who was a very gifted pianist. Major performer. He played recitals every year and did an awful lot of the accompanying. I heard him do all of the Beethoven violin and piano sonatas. And his recitals were spectacular. He was an outstanding exponent of the 12 Tone School. He performed the Schoenberg Concerto with an orchestra in Darmstadt, and he would do a lot of Schönberg and Webern and this kind of thing on his recitals. But he also was a superb Schubert player. And so his recitals were real learning experiences. He later became the Dean of the Conservatory and later President of Oberlin College. It was very interesting. He

had a wonderful mind and almost a gift for the politics of academia. And so he could paddle his rowboat through all these troubled waters of the politics of a college. And became President.

JK: Wow.

MB: I'm not sure there are many pianists who become president of colleges.

JK: No. [Laughs.]

MB: He's no longer living. And then from Oberlin I went back to Europe and studied in Germany for a year on a German government grant and came back and went to Indiana University for a year. I studied with Béla Böszormenyi-Nagy there and did my master's in 1 year. One year and a summer. And then started teaching. And I've been teaching ever since.

JK: Wow.

MB: Yeah. First job was a little Church of the Brethren College in Kansas. McPherson College. Which was just also a real blessing. I grew up in that church. And the president of the college, one time we were at some kind of a conference or a camp together and he said, "Marvin, we don't"... I was in high school. He said, "We don't expect you to come to McPherson College, because we don't have the kind of a piano department for you. But what we want you to do is go and get your education, and when you're finished, we want you to join our faculty."

JK: [Laughs.]

MB: Isn't that something? That you go through college and know that there's a job waiting for you at the end. So I did my master's degree at Indiana and immediately had a job. So that was quite wonderful. And so I stayed at McPherson for a few years and then went to Fort Hayes Kansas State College out in the western part of the state and taught there for a few years. Took kind of a leave of absence and went to New York, because I had never studied in New York. And I felt that that would be, sort of the finishing touches. Oh, I don't have a doctorate. After my master's degree, I was somewhat obligated to go and teach at McPherson in Kansas, but I had auditioned at Indiana after my master's at Indiana for entrance into the doctoral program, and I was accepted. But about that time my teacher, Béla Böszormenyi-Nagy, left Indiana and took a job at Boston University. And I was really not interested in Indiana if it were not for Dr. Nagy. And so I couldn't quite come to grips with the logistics of teaching in Kansas and spending summers in Boston working on... So year after year went. I never got around to doing a doctoral degree. And so I've gone through my life and had the right doors open at the right time even without a doctorate. And I know that that would not be possible anymore.

JK: Right.

MB: I had one door shut in my face because I didn't have a doctorate, but that's about the only thing where I just really had to come to a realization that it's a different world now than it was at that time. And so I was in New York for about 4 years and studying and teaching and working at Carl Fisher, interestingly enough. Rather quickly, when I was in New York, I knew that I needed to get some kind of a job to support what I was doing, and I had contacts that led to the specific person at Carl Fisher who was on their staff, and she had heard of me and hired me there to work at Carl Fisher. And eventually, that worked out. Well it's quite a story. But eventually it worked out so that they were sending me around the country to do workshops on their piano catalog. And that was a wonderful experience, because you travel and you meet people, and all kinds of

things come from that. And then eventually the powers that be at Carl Fisher said, "Marvin, we think that we would like to have you..." No, there's another intermediary step. "Do you know of people who should be published by Carl Fisher? Who are the people who would really add some life to our catalog?" And I had met Lynn Freeman Olson in the meantime. He was there living in New York. And I said, "You ought to get in touch with Lynn Freeman Olson." So I asked him to submit some things, and he did, and they liked them and they published them, and immediately they started to sell, like, you know, better than anything else in their catalog. And so they picked up their ears on that and eventually said, "We think that you and Lynn should do something together as kind of a major piano publication." They did not say piano course, but piano publication. And so we set aside… Oh, in the meantime. Excuse me. In the meantime I had auditioned and got a job at the University of North Carolina. I felt like it was time for me to leave New York. And so we set aside some time one summer when Lynn would spent about a week or so with me, and we would start to brainstorm about some kind of a publication for Carl Fisher. By the time Lynn had arrived in Chapel Hill, he had been judging for a month or more in Dallas. And he met the head of the pedagogy department at SMU, who was Louise Bianchi at that time. And he was absolutely taken with her style of teaching, the curriculum that she had developed there, the kind of work that she was doing with her students, the different influences that she was able to weave together to make the curriculum just really something quite unique. And when he arrived in Chapel Hill to spend that week or 2 weeks, he said, "Marvin, I think I've found a third person that we need to work with." And so we convinced Louise to fly over to Atlanta. And we would fly down to Atlanta. And we had a wonderful meeting together, a couple of days, actually. And we started talking about how we would start a piano course. And that was the beginning of *Music Pathways*. And it was a wonderful, wonderful collaboration. I feel that *Music Pathways* was my pedagogy doctorate, because I learned so much from Lynn and Louise. It was just wonderful. The logistics were really, really forbidding. Lynn lived in New York, I was in Chapel Hill, and Louise was over in Dallas. Louise was married and had extended family that really relied on her very much. And so at vacation times, the whole family would gather with her in Dallas and this kind of thing. So we had to work around all that. And so Lynn and I usually would do the flying to meet with Louise on location, but we got it done.

JK: Wow. Okay, let's talk about your students that you have now.

MB: Oh!

JK: How do you go about interviewing them? Do you take? How do you decide who to take...?

MB: Um, I pick up the phone and talk with the mother. [Laughs.] Most, virtually all of my students are here because of word-of-mouth. My home studio here is a combination of area piano teachers and then little kids and junior high school kids and some high school kids. I have no college students here. That takes place over in New Jersey. And they simply have heard that I'm here, and one person recommends, and it started out very slowly.

JK: You take whoever… Do you take anyone?

MB: I basically take anybody that comes. Yeah, I can't think of a single person that I have rejected. But they do come and they play for me, and I… With few exceptions, these are transfer students, because they've either lost their teacher, or they got discouraged, or for one reason or another they are here as a transfer student. And so I feel as part of the interview process that I need to teach them in kind of a sample lesson. So that is so the child and the parent can see sort of how I operate, what is my teaching personality, and how do I deal with younger students. And then I kind of put it in their own hands, and I say, "You think about this, and then give me a call

if you want to set up lessons." During the interview they always play for me. I check them on any kind of theoretical or technical background. They sightread for me, and I look over the books that they are studying. And so I get a pretty good idea of what their background is, their likes and dislikes and this kind of thing. But, as I say, I… I really can't… I really can't think of a single student that I have not accepted. I've had a couple students… I've been here 8 years, and I've had a couple of students who've dropped, because they just feel that I am asking too much or they just can't quite keep up. And some of the kids really get oversubscribed with other activities. I have a couple, a brother and sister combination, they are late grade school, early junior high, whom I like very, very much. But they're almost like semi-professional hockey players. I mean they are in big hockey leagues and stuff. And hockey is so demanding. We're deciding that they just don't have the time for piano lessons, and that really kind of breaks my heart. Because they are such pleasant students to work with.

JK: Now, let's talk about your curriculum for teaching technique.

MB: Oh, okay.

JK: How do you start them off technically?

MB: Well, you'll see this afternoon with Cassie. One of the first things that we do is to…well, we have a few little warm-ups. And one of the warm-ups is "stretch grab." You've seen me do this in workshops. And that truly is a warm-up, because I believe that that stimulates circulation in the hand. The grab is with a very loose, relaxed feeling. This is the stretch. And the purpose of that, the stretching kind of forces blood out of the system, out of the tissues, and then relaxing lets the blood come back. So it stimulates circulation. We do another little warm-up where they make O's with their fingertips, and that's to strengthen fingertips. And we do a little warm-up where I have them touch their shoulders to their ears. And that's just to realize a relaxed torso position. We make a cluster, and that has incredible benefits I think. [Puts his four fingers across the side of the 2nd finger of the other hand.] I wish more teachers would do this in the early stages, because I feel that when you have your hand shaped that way, that is such a beneficial model for shaping the hand. You sense immediately what part of your finger you want to play on. [Lifts fingers one at a time and drops them.] And you sense that the hand is always going to be a series of curves. It could be more extended, but it's never flat like this. And so I think we get started out really, really, very well with that kind of thing. I believe rather strongly that it's helpful to start with larger gestures and move to the smaller gestures. And one of the largest gestures we do… At the very first lesson I ask the student to pick up an imaginary fly swatter and in slow motion swat a fly. And we talk about how much of their arm they are moving. They're moving the whole arm in front of the elbow. And then in conjunction with that I teach this "Ebenezer," excuse me, "Engine, Engine Number 9," a black key piece. You'll see Cassie doing that this afternoon. And, so they do that slowly. And I help them decide that a Fly Swatter is a very easy way to play that, to move from one key to another. And so one of the things that they are putting together is that when you play slowly you can use a larger gesture.

JK: Do they do that song in both hands?
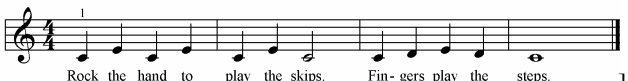
MB: Yeah. They do it right hand by itself, left hand by itself, and then just for a coordination activity I ask them to do that hands together. I play a little duet and we make a little bit of a rhythmic exercise out of that, because I'll play a little two-measure introduction in a certain rhythm, tempo, I should say. And then they have to match that. [Sings it at two different tempos to demonstrate.] So it's an ear experience, and it's an arm experience, and actually, it turns out also to be reading experience, because they are learning about upward and downward. And then

we show how that might look if it were to spread out across the page without any lines or spaces. Just upward sounds and downward sounds. So they're associating a symbol with direction on the keyboard.

JK: Do you find they have any trouble going faster, getting too stiff or anything?

MB: Yeah, well, it's not so much stiff, but they would like to go into the other level of technique or gesture, and that is the "Knock." And that is fine. They're making a very wise technical decision. They are going from slow to faster. [Changes from a Fly Swatter to a Knock with the wrist.] Requires a smaller gesture. That's exactly where I want them to be. The other little rote piece is "Ebenezer Sneezer." And that's a little scale piece with a lot of repeated notes. And so they, we talk about knocking, and they actually knock on the key cover. [Demonstrates Knocks on a chair arm with a loose fist.] We go "Knock, knock, knock. Anybody home?" [] And they differentiate what it's like to Knock with your hand and what it is like with a full arm. And so actually, from their very first lesson they are getting very good at differentiating between the amount of gesture that you use for the tempo. And you'll see Cassie doing this.

JK: Are they just practicing those two pieces for the 1st week?

MB: No. Well, no. Actually in the first, in the first couple of weeks, those are the main rote pieces, and then they have some exercises, and they have a "You the Composer" piece on each assignment where they do a creative activity, like on the black keys and upward and downward and that kind of thing. But I usually allow a couple weeks to go by before we open up the cover of a book so that we can talk about several things. Another thing, that virtually on every assignment I put a "Finger Twister of the Week." And this builds on knowing finger numbers. I establish the finger numbers by saying… [Puts his palms together and taps thumbs together with the rhythm] "Which are fingers number one?" These are fingers number one." [] And we do that with palms together and also either out on the keyboard or the key cover. [Puts his hands in playing position on his lap just behind his knees with very curved fingers.] And that can get also to the point where you say, "Which is right hand number two? This is right hand number two." and "Which is left hand number two? This is left hand number two." [Taps 2nd fingers on lap while chanting, same rhythm as above.] So a finger, one of their earliest Finger Twisters is a rocking gesture where they're playing broken thirds, and so on their Finger Twister we just read 1 3 1 3 1 3 1 [Demonstrates rocking back and forth with rotation], then 2 4 2 4 2 4 2, and 3 5 3 5 3 5 3. And then we add some lyrics to say, "Rock the hand to play the steps…" We call them steps because you're skipping a finger. "Rock the hand…" [Sings to demonstrate moving up by step.] And so they're practicing a rotational gesture, which we call "Rocking the Hand." Cassie now, in about her fifth lesson, is doing a little exercise that goes, "Rock the hand to play the skips, fingers play the steps." [

] [Rotates on the skips, uses finger action on the steps.] So she's starting to differentiate between an isolated finger gesture and the rocking. I find the rocking just so helpful to get students into legato playing. Because you can hardly rock the hand playing without automatically legato. And in the *Music Pathways* books that we're using, their first, their first individual note pieces are skips, and they're supposed to play that legato. And I tell you it's just a really wonderful collaboration between what they're learning in technique and how they want their pieces to sound. But it really does work. And now here Cassie
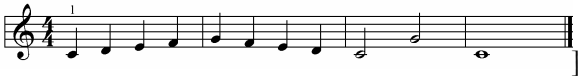
is in her 5th week. She understands two large gestures. She's understanding rotation. And now she's getting some exercise in individual finger stuff. And that in a few weeks, well, already this week I have on her assignment that she is to play finger 1 and hold it, and very slowly and easily, play fingers 2 and 3. And that she is supposed to play and hold finger 5 and play finger 3 and 2. And that eventually will go into an exercise, finger independence where she holds 1 and 5 and plays 2 3 4 3 2. I don't push that. It's just a gradually developing thing which gives them more and more muscle control over what they're doing with their hands. When Cassie learns about whole steps and half steps, we'll get into five-finger patterns. And there's just a whole curriculum that I use with five-finger patterns. They learn the five-finger patterns on the white keys.

JK: Is it hands separately?

MB: No, well yes, first hands separate. But they get that hands together rather quickly.

JK: In parallel motion?

MB: In parallel motion. Because I think it's an easier sound. I know that it's a more challenging technique, but there is something very interesting that happens, and that is that the ear takes over and makes the hand do that. I think that contrary motion is a little bit of a confusing sound for them, even though physically they can do that on the wood probably easier than they can do parallel motion. But they do indeed do that parallel motion first. And we gradually build that up to the point that they can play all their white key five-finger patterns. And I like, without ever talking about circle of fifths, I like them to follow C major up with G major. Oh, and put a little tag on the five-finger, they go [sings up and down
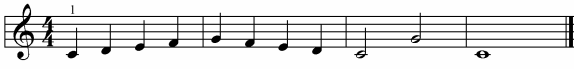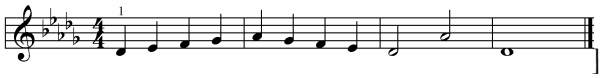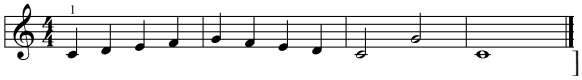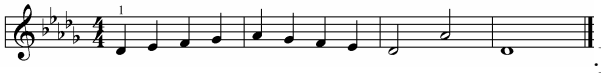


]. So already that's laying the foundation for tonic dominant tonic. And then they go to G, they take the top note and go… [Sings again.] You know, and then D. And so that we get to include F, because that will take us up to B without including F, then we start on F, and then F takes us to C, and then we go C, G, D, A, E, B. And we make a big deal out of B major because it, I just tell them, it's just incredible. "B major is so hard. You know. And it's remarkable that anybody your age can play the B major five-finger patterns." And you ask them what their favorite five-finger pattern is, and it's always B, you know.

JK: [Laughs.]

MB: If I asked them to transpose something, and I ask them what key they want to transpose to, it's always B major. They just love to show you that they can do something really hard.

JK: How about the black keys?

MB: And then that comes. Sometimes for some students I wait until after the summer. And we do that 2nd year. It depends upon the student. But we do indeed do the black keys, and then the next step with their five-finger playing is that they can do it chromatically with their eyes closed. It's a big, big deal, and we make a big celebration out of it. I mean they get a little prize of some sort or other when they can play their five-finger patterns, in rhythm. I'll allow to give them two beats in between. [Sings  shift

] And at first actually it can be four beats in between. With their eyes closed. [Sings ]. Db position ready play. [.]

JK: You talk to them about, do you say anything to them about using fingers or arm?

MB: It's all fingers.

JK: It's all fingers?

MB: Yeah**.** It's all fingers, and I'm constantly referring back to the cluster and how they played their fingertips in the cluster. And that's exactly what we want. And we make reference also to the O's in their warm-ups and that each finger should look like the top of an O. And so I basically am very pleased with my students' elementary hand position, and I think any child can do that. The teacher just needs to stress it. There needs to be a kind of a logical build up.

JK: Have you had students that have a really hard time with coordination or floppy fingers.

MB: Well, floppy fingers, yes. But we do talk about how you can build up finger strength. [Demonstrates O's again]. We play a little game too. I say that "You really have a wonderful strong piano finger if you can make your O so strong that I cannot cave in on that nail joint." And they prove to me that they've got it, you know, and what more do you need? What more do you need? And so, sometimes you'll see, and even with my intermediate level students I have to remind them in their scale playing and things that they really have to get their fingers up. But it's something that I am relentless about. I just won't tolerate flat fingers. And with the older students, of course you can point out that there is no way that they can develop scale fluency. I won't let them see videotapes of Horowitz. [Laughs.]

JK: [Laughs.]

MB: But there's no way that you can develop scale fluency until you have a very uniform, curved shape in your hand. I really believe in that. So I talk with my students a lot about playing out on the very, very end of the black key. And we imagine that someone has cut off all the rest of the black key, and there's only enough space on the black key to put the very end of the fingertip on. And that's all the black key that you can use. But at any rate… Oh, another thing that I find absolutely valuable. I'm not sure how many years I've been doing this, but it just pays off so handsomely. And you've heard me do this in workshops. But, we do a little spin-off on our five-finger patterns where one hand plays twice as fast as the other. And that is so helpful to establish that basic coordination that they are going to have to do in their pieces. But most of us really bog down on our pieces when our students hit the wall on that. And these kids just fly through that, because it's just a very natural muscular reaction. So they play one hand twice as fast as the other and shift and play the other hand twice as fast. And then that spins out into major, minor, and diminished. So they do the whole sequence of major fast in the right hand, major fast in the left hand, and then minor.

JK: How long have they been studying before they do that?

MB: Well, you'll hear Avery this afternoon, and he just nails that. And he's at the end of his 2nd year. He's been doing that for…, oh, easily almost a full year. It depends on the student. I don't have a rigid curriculum that says after 9 months you must be able to do so and so. But I just try to be sensitive to where the student is. Diana, who you'll hear this afternoon, has not progressed as fast, and she just now is beginning to feel comfortable with her left hand twice as fast as her right hand. I find it fascinating. And I just kind of, I really try to be sensitive to the student's own natural timeline in their physical development. I feel that I could really tie a student up in knots if I said, "Well, all the rest of my students can do this, why can't you?"

JK: Yeah.

MB: No, I just go with it.

JK: So do they keep the same exercises for a long time?

MB: Oh! Absolutely! I mean, I still do some of that stuff. Absolutely! And I have yet to have the student say, "But I did this 3 weeks ago," or something like that. It's just part of our curriculum. This is who we are as pianists. We warm-up, and we warm-up with the same kind of things. You, if you stay for Ellie's [Avery's sister] lesson this afternoon, you'll see that she does some stretching. I usually have my students warm-up with some kind of stretch. For the little kids it's this. [Demonstrates "Stretch Grabs."]. For the more advanced students… [Goes to the piano to demonstrate.]… I have them warm-up by putting their 3rd fingers out on the keyboard, and they turn their palms toward each other and they do the splits into 2, and then they turn their hands completely around, and with their palms out toward the wall they go back to 3. And they do the same thing with 4 into 3, and 3 back out to 4. And 5 into 4, and 4 back out to 5. Something similar would be that you could take a finger on a flat surface and tug down on that finger. What we're doing is stretching the webbing in the fingers. [Demonstrates all this.] It's that same philosophy that you stimulate circulation, you know, when you do that kind of stretching. So, without my even telling them, a lot of students will come to the piano and they'll do their stretching before we do anything else. [Walks back to chair.] So a typical warm-up will have some five-finger patterns, some rotational activities. See, I try to keep a vocabulary of gestures going. So we do stretches and we do rotations, and we do single finger things. We play patterns. We do block chords. We do patterns with the hand more extended. Broken octave chords and fingers together and all kinds of things. But I'll show you some examples of assignments later this afternoon, and you'll see that at least half of my assignments are warm-ups and technical drills. As I encourage the students, I try to be rather articulate about the fact that I expect them to cover all of their repertoire in every practice. But they have the option to sort of pick and choose their warm-ups, because there's so much there. And I tell them, "This is all important, but you don't have time to do all of those things every day. So just be sure that you are covering that on sort of a circulating basis." And I think that they do that, because we check it in the lesson. I'm a firm believer that if I don't cover stuff in the lesson, they will not practice at home.

JK: Right, right.

MB: So I cover it, you know, even if it's not everything.

JK: So, the exercises are mostly by rote?

MB: Yes. Almost exclusively, but every student has at least one or two technique books on their assignment.

JK: What kind of books?

MB: I went for years and years and years without ever touching *A Dozen a Day*. I knew about them, and I thought the little stick figures were kind of silly and stuff. And I have come in the last few years to really admire what's going on in that. How she builds things up. Her units of study. And how helpful it is for me to teach certain aspects of harmonic vocabulary. She really drills tonic and dominant chords. And although I have some of my students do in exercises in that, she is helping me cover it. And she does scale preparation and all kinds of things. And these exercises are easy enough. I have the students working out of easier books. They can literally sightread these exercises. And so they feel very successful about it. We usually keep an exercise, I have them do as many as three exercises per week. And they keep those on their assignment for a couple of weeks until they're really fluent with them.

JK: Do they transpose them?

MB: Some.

JK: Because aren't they all in C?

MB: Pardon?

JK: Aren't they all in C?

MB: No they're not.

JK: They're not?

MB: No. Most of them are. And when we come…I do have my students transpose a bunch of those. But, it's not a rigid part of the assignment. And then my other favorite technique series for the younger students is the Frances Clark *Piano Etudes*. These are little pieces by Czerny, Gurlitt, and Berens and all those guys. And they are more demanding, because they don't just do one little thing, although they focus on an idea. But, so those are more demanding exercises. Because of the repetitions of the patterns in those exercises I find them really helpful reading experiences for the kids.

JK: How do you teach them about arm, and how that works with the fingers? Do you say much about that?

MB: We don't say too much about that. I have an expression, a gesture that we call "Out Around." And that is swinging the wrist out as you go up. [Demonstrates a circular wrist and elbow and arm motion in outward circular direction]. And so when we deal with Hanon, especially the basic Hanon exercise, they hear about out around and moving over toward the 5th finger etc. And we talk about how the arm leads in arpeggio playing. And that the arm is really, really the secret to success in most scales and arpeggios because it avoids all that kind of thing. [Demonstrates the wrist going up and down in a jerky manner.]

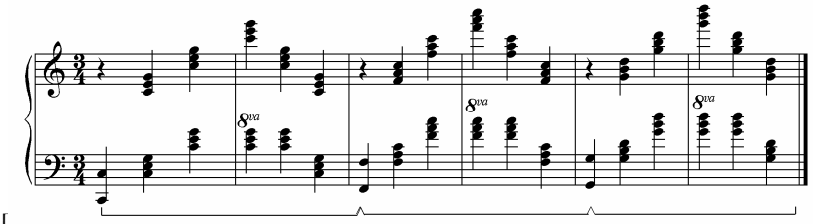
JK: Are you a passing the thumb under proponent?

MB: [Nods.] I am. And I know there are lots of pros and cons about that. But I tell my students that immediately after the thumb lifts off its key it goes under the hand. Yeah. And basically what

I want the thumb to do is be under the finger that is playing. So the thumb goes under 2, under 3, and it's ready to play the thumb. Yeah, I do. I've waxed and waned about that. But that's where I am right now. And the same deal on arpeggios. Yeah.

JK: How about chords? Triads. How soon do they start doing them?

MB: Oh, really quite early. Because I think first of all it's really an intriguing sound for them. And also without an awful lot of explanation, since they know their five-finger patterns, they obviously know what the first note is and what the fourth note is and what the fifth note is. And then we can build chords on I and IV and V. And I can point out to them rather quickly that those are the primary chords in a key because they're the only major chords. And so we do exercises to bring those out. So they have a little exercise that in the elementary stages…[Goes to the piano to demonstrate] They play the tonic tone and then they play…



]…with the pedal on. And when they're ready, they may do that in minor. And then we spend some detailed time thinking and learning about how to play triads. [Demonstrates inversions in the right hand.] And eventually that turns out… [Demonstrates same exercise as above with chord inversions substituted for the triads.] And they have to do that in all of the keys. And I don't care how slow it is. I only care that it is very, very steady. [Moves back to chair.] But that is our main chord, oh, I do have students also, elementary students, often times do kind of a broken chord thing. [Demonstrates a cross hand arpeggio in the air.] So that they play left hand, right hand, left hand and a high note. And they think that's a wonderful sound. But what they're doing with that is not only learning the shape of chords, but learning about tonic and dominant. When we do chord inversions I have my students chant and say "3's together, 2 in the right, 2 in the left, 3s together" so that they will establish a good basic fingering for the triads.

JK: So are they doing those hands together right off?

MB: Oh yeah. They start learning triads hands separately, obviously, but it's interesting at how quickly they can really start to think through that problem and put hands together. So that's why the 3s together, and then 2 in the right and 2 in the left.

JK: Posture.

MB: Posture. [Smiles]. We sit tall. I love Ted Cooper's phrase of "Sit tall." And I use that. I have, you'll see this afternoon that I have a footstool, an adjustable footstool, and I have pads, and I have a piano bench. And that's the extent of my high-tech equipment. [Laughs.]

JK: [Laughs.] More high tech than mine.

MB: No, I feel so embarrassed. People say, "What kind of digital keyboard do you have? How many computer programs do you have your students working on?" And I say I don't do any of that. I'm so old-fashioned.

JK: Well. It's enough just to deal with the piano.

MB: Well…, I'm very gratified to hear you say that. [Laughs.] But I feel that it's very important for them to sit comfortably. And so, I practice with the artist bench, but virtually all my lessons are taught with the flat bench, because then we can add pads to that. And you'll see Avery. Avery is about to the point that he can do without the footstool, and we can put two pads on the floor. Cassie needs all. [Laughs.] In fact, Cassie has to have the footstool raised up. The wonderful thing about that is that it's adjustable. So the little tiny kids can… My next purchase… I know of a person who is importing some pedal extenders from China. And my next purchase is going to be a $120 pedal extender. I've seen them in operation. I like them very, very much. Because my kids are still to the point that when they need to use the pedal, we have to get rid of the footrest, take one of the pads out so they can sit lower and reach their foot on the pedal. And I hate that. So the pedal extender is really the answer to that.

JK: So how do you tell them about how to position themselves at the piano?

MB: Oh, when they're pedaling?

JK: Well, any time.

MB: Oh, oh! A couple of things. They are to sit far enough away from the keyboard so that they can stiff arm the fallboard. [Puts arm straight out with fists at the fallboard.] And that's their…they are to sit on the front half of the bench. Those are the two main things. And the reason for the footrest is so that they can have their feet firmly planted on something solid. I know there are teachers, the whole New School for years and years and years was built on the premise that you cross your ankles. But I find that is not stable enough. And so I convinced the New School people to get footrests in every studio. And the kids are doing that.

JK: What about height?

MB: Oh well, of course. Oh, well the arm is on the level with the keys. [Matter-of-factly.]

JK: And do they have the pads and things at home?

MB: The parents are not required to buy those pads. But the parents are required to see that they're sitting at that height. That's part of the talk with the parents.

JK: This is something for me. Do you take students that only have a digital piano?

MB: Do I teach students that only have a digital piano? I can't think that I have a single student either here or over at the New School that practices on a digital piano... I don't think I have a single one of them. On my interview form I have them write down what kind of piano that they have. I can give you the form that I have the parents fill out for an interview if you would be interested in that. And then I have a little form that I try to keep with my own observations during the interview. But I don't think I do. And I don't think that I would refuse a student if they only had a digital. [Sounds like he had never considered the possibility before.] In fact, I'm quite sure that I would not. But I would really point out regularly to the parents what they're missing when they cannot have that feel of the sound. The one thing about a digital piano. I know Richard Chronister really talked this loud and strong, that at least the digital piano stays tuned. You know, you go to the…and the keys function. So many kids come to lessons and say, "Well, this key doesn't work." or "These two notes sound the same on my piano." That kind of thing.

So I talk to the parents about piano maintenance. But it's true that so many of our students, we talk so much about beautiful sound. And I try to keep my piano in pretty good maintenance. I know my piano is just 10 times better than any of the instruments that they're practicing on, with the exception of one family that has a new Steinway B, and it's just a gorgeous, gorgeous instrument. But we talk about trying to keep the piano in good shape, because we're working on sound.

JK: Do you talk a lot about relaxation?

MB: Well, I probably would have to answer that and say honestly no per se. Because I think that if I get my students sitting well and playing comfortably, that those are components that lead to relaxation. If the wrists are way up like this and the fingers are ill-formed and things like this then obviously there's going to be tension. [Demonstrates very bad hand position with extremely high wrists and flying, flattened fingers.] When repertoire gets to the point where because of loud playing there may be excessive pushing, we indeed will talk about that and how important it is to come out of the key and illustrate the better sound that you get with that kind of thing. We talk a lot about how you play a key. How you play a key. And I cannot give you any particular specifics, but how you play a key to bring a melody out over an accompaniment or something like that. The accompaniment you feel on the surface of the key and the melody you feel deeper into the key and that sort of thing. And we talk about how a beautiful tone is played as the arm comes out of the key as opposed to just punching down the finger. And this sort of thing. And they see that. And I am really quite comfortable with how my students are playing and the kind of tone quality that they're getting.

JK: How about moving around the piano? You do some of that with the chords, moving around. Do you do that earlier too, with playing at different places around the keyboard?

MB: You mean, do they scoot on the bench?

JK: No, do they just play all over, the whole…

MB: The very first lesson. Because "Engine, Engine Number 9." And actually, their little "You the Composer" exercises are calculated to play high and low. And the early *Music Pathway* pieces show them what blocked fifths they are supposed to use on the keyboard, but it's a very limited keyboard on the page, and so we have the prerogative to say, "Would this piece sound better low down on the keyboard or high up on the keyboard?" And so we talk about the quality of sound and the different areas of the keyboard and the lyrics and the type of piece. And so we really start interpreting right away. To get the right sound to fit the mood.

JK: Do they have different dynamics right from the beginning?

MB: Yes. Basically yes. There are two pages, I think, in *Music Pathways* that go by before they play in *forte* and *piano*.

JK: And how to you tell them to do that?

MB: I illustrate the sound, and I don't tell them how. They just do it. We talk about good, loud sound. I don't find that many younger students play a really brutal, an ugly, loud sound. And if so, we'll talk about it. But basically, rather than getting a student bogged down with the mechanics of *forte* and *piano*, I would rather have their ear guide. I'm quite convinced, Julie, that anytime I can let the ear take over to direct the hand, I'm way ahead musically. And as far as their music training

is concerned, I think I'm ahead. Because that's what we want always to happen. We want the ear to correct the sound. And I think I can get the fingers to work better if I can get them to listen better.

JK: Do you have trouble with them playing a *piano* that is not really *piano*, it's just kind of wimpy?
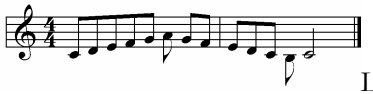
MB: Oh yeah. We talk about that. Because if a *piano* sound is too quiet and wimpy, how are you going to play *pianissimo*? That kind of thing. But actually in the beginning, Julie, I find that contrast is the most important thing for them to deal with. So instead of belaboring a student with the quality of the *piano*, I'm more interested that they really play a very quiet sound in contrast to a loud sound. And later on we'll talk more about the quality of the sound.

JK: How long generally does it take before they start playing scales?
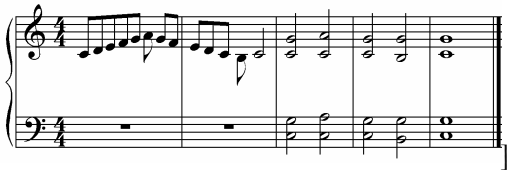
MB: Oh.

JK: And how do you introduce those?
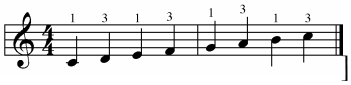
MB: Well, it's kind of interesting. I introduce a key before I introduce the scale. And we introduce a key through, and you've heard me do this also, through a five-finger pattern. And they add to the five-finger pattern and get the whole key built up, and we call it "Major Key Study."
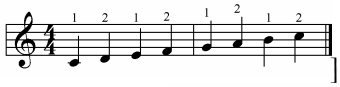


[Sings Left hand goes over to play *la* and down to play *ti*.] They add the sixth degree and the seventh degree on top and below the five-finger pattern. And that's a wonderful help for them as far as their key signatures are concerned, because now they know all the black keys that are going to be used in that key. Another thing they do with that Major Key Study is to block what they play. The five-finger pattern is represented with a blocked fifth. And then they go up a whole step and come back down to the fifth. And then they go down a half step and come back to the fifth. And obviously it sets the tone for the cadence pattern. [Goes to the piano and demonstrates
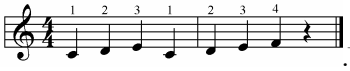


] And it's a very short trip to add that half step in there. [Plays the whole cadence, I-IV6/4-I-V6/5-I.] But the scales, sometimes actually the scales get started through *A Dozen a Day*. Because she does it maybe before I would. But the main thing that we do with the scales [Goes back to chair] is to work with getting the thumb under the hand. [Goes to piano.] And so I may have them do an exercise where they do 1 3 1 3 1 3…[Plays C



]… so they just get used to that. Or they do 1 2 1 2 1 2… [Plays



]… so they get used to putting the thumb under. And then we will play [Plays



.] Getting the sequence of three fingers and then four fingers in a row. And then we could do that sequence… [Demonstrates a regular C major scale with three fingers and four fingers]… and so we start with that. And I would do that on the left hand going down. [Goes back to chair.] So obviously they do scales hands separately before they do them hands together.

JK: How long?

MB: How long hands separate? I don't know. [Laughs.]
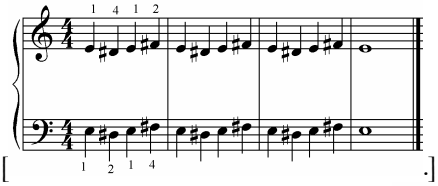
JK: Like years or 2 weeks.

MB: Oh no. Oh no…Maybe a few months. Maybe a few months. And then I have... Do you need to change tapes?

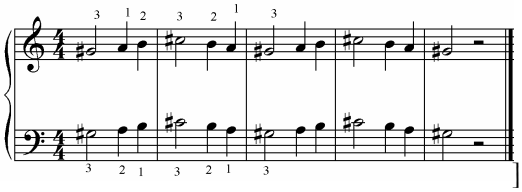
JK: Yes. [Changes tapes.]

JK: Scales.
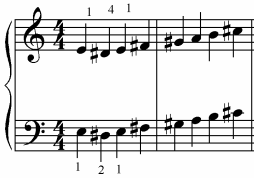
MB: Yeah. We…I use very traditional finger plans and my students learn about Rule 1, Rule 2, and Rule 3. Rule 1 are the C major fingered scales, C, G, D, A, and E. And Rule 2 are the early, the first four flat keys. And Rule 3 are the keys that have more than four accidentals in the key signature. And so they learn those rules, and they start playing hands together. The Rule 1 has always been kind of a puzzle to me. Because some students catch on, and other people will put their 4th finger in the wrong place. And recently I have come up with something that I find very helpful, and the students really seem to find it helpful also. What we do is a little routine where they will say, okay. "E major." And I make them tell me what the rule is. "E major is Rule 1, 4th finger next to the tonic." "How many sharps are in E major?" "There are four." "What are they?" And they have to say it in key signature order, "F#, C#, G#, D#." And then what they do is put their thumbs on the tonic note and do a little chant [Plays while he says] "Thumbs, 4 in the right, thumbs, 4 in the left, thumbs, 4 in the right, thumbs, 4 in the left"



.] And they do that four or five times. Then they go up and they say "3s, 1s, 2s, 3s, 1s, 2s, 3s" [



] And so every scale has those two segments. We've got a first segment. [Plays the 4 1 segment.] And our second segment. [Plays the 3 2 1 segment.] The rhythm is not all that important, but it's kind of catchy. And after you're done with your 3's, you are ready for another 4 1. And what they do is they start visualizing, and they see this scale is two different segments. And who can't memorize two segments, you know? And for most of these kids, instead of starting out with 5, they actually do a little running start and they go… [

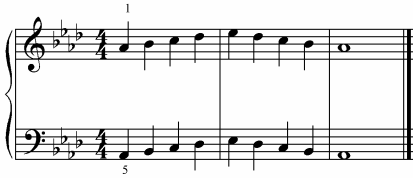
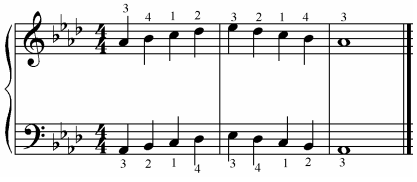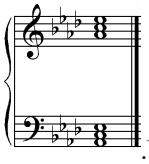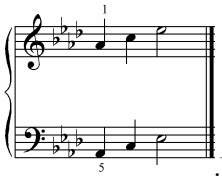


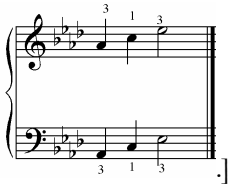
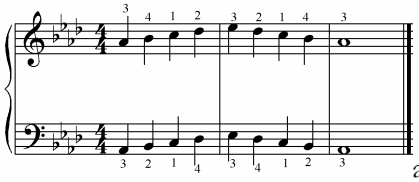
etc. and says 4, 1's 2's 3s, etc.] And it really does help. And it really helps.

JK: Wow. I'll have to try that in my group classes.

MB: Well yeah. It really helps. With the Rule 2 scales, I just take a little time and teach every scale separately, because it is easy if you can see what holds a scale together. So for F major, I play a slow F Major scale for them and have them discover that the thumbs play together. "What do they play together on?" "The tonic and the dominant, tonic and dominant." And so we play a little activity of playing thumbs on Fs and Cs and Fs and Cs. And then I point out that there is a bigger space between F and C than there is between C and F. So obviously the 4s are going to go in that wider space. So we block, and we play thumbs in a block of 2 3 4 and thumbs in a little block of 2 3 thumbs. And it just turns out to be very easy for them hands together. Bb. I tell them that a lot of people regard Bb as the hardest scale of all the major scales because it has enough black keys to be problematic but not enough to be helpful. But I say, "Let's just look to see what happens." And so I play it through slowly for them and they discover, I ask a question of which fingers are allowed to play on black keys? And is so it's 3 and 4. "Do they ever get to play together at the same time?" "No." "Well you know, there's something that's very easy about this. First, Rule 2 says that right hand 4th is always on Bb. So if the right hand 4 is on Bb, you know that the left hand plays 3 there. And if you trust your right hand going up and let the left hand follow the right hand, you can't go wrong. So they play Bb C D." And I say, "Do you see already, that your right hand is headed for the 3rd finger on the Eb? What does that tell you about what finger your left hand will play?" So they've played 4 against 3. And the opposite's true. The left hand is going to be fine going down, and you make the right hand conform to that. And they find that Bb is really a cinch. And they can't understand why other people have problems with that. And I say, "Well, it's because you're smart."

JK: [Laughs.]

MB: Eb is really easy if we look at the black keys and realize that the 3s come together on a single black, and 3s and 4s come together on the... So you get 3, 3 4, 3, 3 4. And I say, "Play the scale." And they can do it. Ab is a little harder, although we can refer to what we do with C major. [Goes to piano.] What I usually do with Ab is to ask my students to play an Ab five-finger pattern first. [Plays .] And then I say, "Will you please play that once again but use the fingering…" [Plays  and sings "3s and 4s and 3s and 4s and 3s."] Actually, I'm sorry. That is not the order that I do. I ask them to play. Excuse me, I ask them to play an Ab chord. [Plays .] And then play that broken. [Plays


.] "Now play that broken, with this unusual fingering, 3s on the black keys and thumbs on the white keys?" [Plays .] "Now could you play the Ab five-finger pattern using that as your outline." [Plays  and sings the fingering.] I say "And that's the Ab major scale." It's just that simple. [Sings and plays "3s and 1s and 3s a couple of whites, 3s and 1s and 3s a couple of whites."] So those scales are traditionally really, really difficult for most students. And if we take it one by one and see the logic behind each of the scales, they can do that really quite easily. So that's how we do it. [Goes back to chair.]

JK: Okay. Articulation.

MB: Oh. Okay.

JK: You do legato from the beginning?

MB: Right from the very beginning.
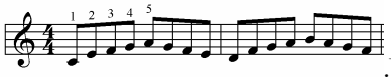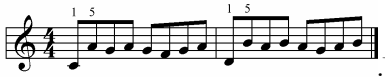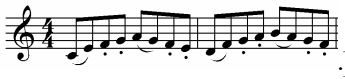
JK: And staccato also with the Knocking?

MB: Yeah. That is our access through a Knock. I don't really talk about staccato individually until it comes in their pieces. And then basically I present the sound and have them work out the technique part of it. If they're putting too much effort on getting a finger down, I point out that they can play a much easier staccato if they just are right on the key and just lift off. Yeah. And that's basically my philosophy about staccato. Is that it's easiest to play a convincing staccato if you start with your finger touching the key. Most kids will do too much of that kind of thing. [Demonstrates hitting at the key with the forearm.]

JK: Right.

MB: And then in later studies, some of the students are doing detached or staccato five-finger patterns just as a variation. And we talk about scratching. That if you're playing faster, you don't have time for all this individual stuff. [Demonstrates a high finger staccato bouncing with the arm.] And actually if you just pull in on the individual finger, you would be getting a wonderful fast staccato. So that's our access to a faster staccato. If you are asked in a sonatina to play a faster scale or something like that, every finger scratches by pulling in. Just right on the surface of the key.

JK: How about when they start mixing staccatos and legatos?

MB: One of the first things that we do, I teach them are Bach Hanon. I don't know if you've heard me talk about this, but it's simply the first Hanon, which all the kids know. I teach this by rote… [Goes to piano and plays .] My favorite Hanon exercise which all my older students have is Number 11. [.] Because of the way it works with rotation, and we use it for that. And they transpose it and all this stuff. But the Bach Hanon is… [Plays .] They have a legato at the bottom and a legato at the top end and detached in between. And that helps them start to mix the articulations. Yeah. We…I try to be very, very particular about them following the articulations that are in a score. [Goes back to chair.] And I think they get pretty good at that. Articulations, I suppose this comes back from my study with Fern, that she was so adamant about staccatos and rests and everything like that. And I find that unless I really, really keep after the kids, they will overlook phrase endings and articulations, slurs and things like that. So there's just...and I think sometimes, upon reflection, I'm probably too extreme in this, because even in the Mozart K 570, I would lift… [Sings with separations between each phrase mark.] And I know a lot of people don't agree with that. But for me and my house, we lift at the end of phrases.

JK: Phrase endings, two-note slurs?

MB: Okay. From the littlest kids. I mean this starts, oh in about, I would say about their 5th or 6th week of piano lessons, they hear me say, that, "There's a rule about musical sound that everybody all over the world agrees with. And you could talk to somebody in Russia, and you could talk to somebody in China, and they would say, 'Oh yes, of course. This is what we agree on, that the last note of a group is the quietest.'" And that just serves my purposes so well for like a whole year or so in shaping a phrase. Because there will be a kind of a natural flow to the phrase. But the thing that most elementary students will do that will spoil that is that they bump the last note. And if I can get them to listen for it…You may hear examples of it this afternoon, where they're so careful that the last note of a phrase is quiet.

JK: Do you have them doing lifting?

MB: Oh, they do it automatically.

JK: Okay. So you don't…

MB: So we talk a lot about breathing. And I interchange the words "lift" and "breathe" and "break." They know that they have to get off the sound. And I keep reviewing with the students, "Well, what happens at the end of that curved line? What do *you* have to do, and what does the music do?" And we talk about the breath. "How do you breathe?" You have to get off the key.

JK: I know that some teachers are really exaggerated about the lift.

MB: I don't do that that much. No. See, it's the sound that I'm after. And I really feel that if the student has an image of the sound, the technique will sort of find its way. If it's very exaggerated, I would probably point out that that's not the way that pianists play or something like that.

JK: Do you have anything to say about how rhythm relates to technique at all?

MB: Well yeah. Because I think lots of times what we think might be a rhythmic problem is basically just a technical discomfort. You know. That they can't quite get there, or they don't know when to move. So the rhythm is thrown off. Yeah, they don't know how to manage a shift. And so I think that there are pure rhythmic issues where they don't feel the beat or they don't know how to count it or they don't practice the counting. I hope this comes out loud and strong in my teaching this afternoon that we really believe in tapping and counting before we play. I have yet to prove to me that the sequence is incorrect that the rhythm should be solved before you get to the notes. And I see almost every day, that if the sequence is rhythm and notes together, you may live to suffer from that. Because it's so difficult to unravel the problem after it has established itself in the mind and ear. And so we, in fact there's an assignment this afternoon…I made copies for you of the assignments…But there's an assignment this afternoon, where there's a piece where all Avery is supposed to do is tap the rhythm this week. So he solves the rhythm a whole week ahead before he gets to play the notes.

JK: And he will? He won't cheat and start playing at home?

MB: Yeah, well, Avery, Avery is very precocious. But he also, he is Chinese, and his mother is very loving and a wonderful, wonderful mother to the kids. But she makes them do what's on the assignment sheet. So he probably will do that. And his assignment is so extensive, I sometimes feel really guilty, like I'm overburdening him. And so he probably will be glad that he does not have to learn the notes this week.

JK: Have you had problems with parents who are not serious enough about making the kids practice?

MB: Oh yeah. Oh yeah. I do several things. You'll find that most of the older kids. By older I mean...Well actually, the Z___'s this afternoon, they will hand me a practice sheet. [Goes to get one.] They are supposed to write down when they practice every day and what the week's total is, and their goal is to get 5 hours during the week. And it says up at the top something about extra credit and honor roll and all this kind of thing. I didn't carry through with that this year, and you know, I was just so tickled, not a single student said, "Well, where's my extra credit award," or something like that. But if they got their 5 hours every week throughout the month, they got on an honor roll, a practice honor roll. And if they got more than 4 extra hours of extra credit, they got a prize. So practice is something that is... checked, actually. And so everybody gets one of those sheets. I don't do that with the 1st year kids. What I do for the 1st year kids… [Goes to get a sheet.] The 1st year students have a practice assignment that… it's so dark, can you see that?

JK: Well, yeah, sort of.

MB: Anyway, you can take that as a sample. I draw a grid here with the days of the week. So their practice is that they've got to go through, and they also have a requirement of five days a week.

JK: That's what I do too.

MB: And so they check that off. And then when they get into their 2nd year, then they'll start to get the practice sheet. Parents really vary...In general I feel blessed that I have such supportive parents. But even with that, some of the parents are more involved than others.

JK: Groups. I know you teach sometimes in groups.

MB: I used to do that *all* the time. Since we've been here in Pennsylvania, I have not had the opportunity, except that I do teach repertoire classes over at the New School. And so that's some group teaching. But it's not the kind of group teaching that I used to do in Goshen where I actually started the kids out in the groups. And the pedagogy students would watch me teach that. I miss that in a way, and in another way that was so much work. [Laughs.] It's so much work. Sara Fay would always ask me on a Sunday night, "Why are you working so hard at the computer?" And I said, "Well, I have to get my classes together." "But you've done this for 20 years." "Well, I have to do it better this year." [Laughs.]

JK: Do you feel it slows them down if they don't have the group?

MB: No, not particularly. No...The advantage of a curriculum that has group and private in the same week is exactly that. They get two lessons a week.

JK: Right.

MB: And I think that there is a disadvantage to the private lesson in that they don't have the peer stimulation; they don't get interaction with other students; they don't hear other students play. And so there are some, it's almost a social, musical deprivation when they don't have the stimulation of the group. I swore this year I was going to get the kids together for Saturday repertoire classes at least once a month, and I just couldn't pull it off, because I began to teach more and more on Saturdays, and then there just wasn't time. So, I don't know what to do about that.

JK: What's the youngest you usually start them?

MB: I've never started a 5-year-old. Well, one exception. When I was in Goshen, a mother came to me and said, "I've got a little 5-year-old who is already reading and sings very well." And so I interviewed this little girl, and she was just incredibly bright. And she turned out to be one of the… loves of my life. She now has graduated from Indiana University as a performance major. She's just an extraordinary student. I had the great privilege teaching her 11 years. As my, as my, she was in my classes and in my private studio. And then she went to other classes in the Goshen Prep Department, but I still had her as a private student. And then we left here, we left for here as she was going into her senior, maybe her junior year. She may have had 2 years after I left Goshen and now has graduated. But she's a wonderful pianist. And she's the only 5-year-old I've ever taught. She got started out in our program. She would bring her teddy bear to class.

JK: Oh!!

MB: [Laughs.] She's absolutely a precious person. I've started 6-year-olds. I prefer to start the kids when they can read the language fairly well. Because there's a lot on the assignment, a lot in the books that I would like *them* to be able to read rather than have the mother always have to read that to them.

JK: What's the length of their lessons?

MB: 45 minutes. I've taught 30-minute lessons, and most especially when they have class, and then the backup lesson is usually 30 minutes. But, I feel really, really hampered. Avery's mother wanted Ellie to have an hour lesson and Avery just to have a half hour lesson. And we're finding that that just doesn't work, so he's getting 45 minutes. And I have a surprisingly good batting

average with getting even my intermediate level students to take hour lessons. And that's really a financial commitment. Because it's actually, you know, dollar for dollar, you pay for 15 extra minutes of my time. And it really adds up, especially…I have one family that has three kids in it. And they just, it's Diana's family. And the older boy just graduated from high school this spring. But I used to see them for 2½ hours every Monday night. It's a big financial commitment.

JK: Do you think there are certain points with a student that are crucial technically? Or is it just sort of evenly…

MB: I see it more as a continuum… I really do. Because it never ends. And it starts right from the very beginning. I just think of technique as being absolutely a continuum. And gradually we get into pretty standard technical warm-ups and drills where there's not much being added. It's just reinforcement of what we already do. I have a lot of my students starting to work with the metronome on scale speed. One of my favorite devices for stimulating scale fluency is to play two octaves in 8ths and three in triplets and four octaves in 16ths. And we establish a metronome speed that is "very easy," "comfortable," and "out of the question." And they deal with the "comfortable" and they strive for the "out of the question." And I've got some high school students over at the New School who are playing scales at 160, and I can't even get my college students to do that.

JK: Wow.

MB: I'm really pleased. And I've got, actually a high school student here. She's a junior in high school. And she can whip off any scale at 160. And I think it's just a process. You know. And if you stop it, then the process ceases to unfold. But if you keep after it… And so my role as a teacher is just to keep the process going, and to think of new ways to do it. I probably have 10 or 12 different scale routines that the kids eventually cover. They don't have to do it all at once.

JK: How about double thirds? I know that's not elementary technique but…

MB: No that's not elementary. Double notes in general, I teach my students that even in the repertoire, when they have double notes, especially when they have ones that pass from one finger to another…[Demonstrates double thirds.] It's no longer a finger issue, it's an arm issue. So you put your fingers on the note, and you push push push push. And the arm takes care of the other notes. So one of the spin-offs of five-finger patterns is to play double thirds in major minor diminished. And at that point I would first of all start in contrary motion so that the hand feels like 1 3s, 2 4s, 3 5s. But they start with push push push. And then they start doing Out Arounds on those. And then we go from there. [Demonstrates with circular elbow motion outward.] But I try to alleviate the strain in the hand when you try to lift fingers out of double thirds and press down. It's much easier to just push push push from the key surface. And I tell my students, "When you get double notes like that the only responsibility of the finger is to get over the correct note, touch the correct note, and then the arm pushes."

JK: Finger lift?

MB: Lot of finger lift. Lot of finger lift. It's one of the varieties of five-finger patterns that we do. But the thing that I try to work with is that the finger stays as a unit and that you swing from the knuckle. You swing from the knuckle, and there should be nothing that happens in here. [Demonstrates swinging from the knuckle and not moving the other joint of the finger out of the curved position.] I had a teacher-student that came, and we're really trying to change her technique, because she has gotten started in such bad technical habits. But almost everything she

plays, she'll do something like that with… [Demonstrates flapping the finger around and pulling]… you know. And so she has to learn, and we're doing five-finger patterns really, really slowly. She has to learn that there is the joint from where you swing, but this stays constant. [Demonstrates lifting from the knuckle with a curved finger and dropping on the fingertip.] And then it's not a matter of forcing the finger down, but from a lifted position you simply allow the finger to fall. And if you're relaxed there will be a nice *mezzo forte* sound that will result from that. Just because you have mass, and you are relaxed and gravity will let that fall to the key. And you get a nice sound out of that. So we approach a lifted finger from first of all, the source of the lift, and then instead of, as I say, instead of forcing the finger down, you simply let it fall. I really try to stress that, because I think that eliminates so much stress in the hand.

JK: I know that a lot of young, little students, to get the keys down, they sort of play with their arm.

MB: Oh. We talk about that. And I tell them, that is one way in which I will ask you to play the piano. That you do the push push push push push. But I say, you know, that's kind of, if that's the only thing that you can do, any baby can do that. And what you have to do now with this exercise in *Dozen a Day* or whatever we're doing, or this piece, is that you must make your fingers play. And so we talk about the difference between arm play and finger play. And so they understand that, and they work with that.

JK: Okay. Do you think that the arm play is the same as arm jogging? Because I hear all the time, people say that arm jogging is bad.

MB: [Looks confused.] No. I think I misunderstand what you mean.

JK: Letting the arm go up and down on every note. Is that the same…?

MB: Well see, I think that all of us in all of our playing do some of that. And we don't do it on every note. But when you try to play a really beautiful, slow tone, that's what you do with your arm. So, I actually use more of the term of pushing, that you push sound into the fingertip, and I find that also another very useful aspect of their technical vocabulary. You just simply have to know when to use that. There are times when you play with finger. There are times when you play with the finger on the key and you push. And there's a lot of logic behind that. I heard György Sebok say one time that actually the strongest muscle that we have or utilize is the muscle that boxers use, that kind of pushing in. [Punches from the upper arm in the air.] And that's very powerful, and if you use that easily you can get a big sound very easily on the keyboard. I see no reason not to utilize that if we know when it is appropriate. And what the sound that we want to get out of that. But if I hear your question correctly, I do know that a lot of little kids will just jog the arm up and down or push their arm up and down all the time… [Makes an exaggerated up and down forearm motion with a wobbly wrist]… and we get rid of that almost immediately, and we say, "No no no. Now it's time to learn to play with the fingers."

JK: Okay. Okay. Any common problems? That you see in beginners…? Or in transfer students?

MB: Common problems? Well, probably lots of common problems. I think if you go about it wisely… A common problem in transfer students is that they have such poor hand shape. They've just never been taught what it feels like to play with a good nail joint and how to lift the finger and things like that. So that's some remedial technique. If you get started well, I think you avoid all of that. And start developing really good hand shape with kids right from the very beginning.

JK: Let's talk a little bit about the students that I'm going to see today. Just their ages and how long they've been studying.

MB: Okay. The first person that you will see this afternoon will be Ben. Ben is just finishing his 1st year of piano lessons. He's been using *Music Pathways*. He's into the B books now. And he's really on target. I just noticed the other day that in my old book that I've been teaching out of for so many years, I made a notation in 1985 that our class got to exactly that place by the end of the year in 1985. And Ben is there. So we're really on target. And I remember in other years I would have thought, "How in the world did we ever get that far?" Because I was not quite there with other classes. Ben is bright. He has two older sisters, one of whom is my student, and an older student, a high school student studies with another teacher. And the mother is a piano teacher. The father is a political science professor at Ursinus College here, right in Collegeville. Ben is…I think…an av- a talented kid. He hears a lot of piano playing at home. And so he catches on very quickly. I was absolutely unprepared for that fact that Ben came back to his lesson one day, and he said, "Well listen to this, Mr. Blickenstaff," and he could play all of this five-finger patterns in minor. Simply because his sisters were doing it, you know. And he had worked that out. And so, here he is, playing his five-finger patterns in both major and minor. He's well-coordinated. He is…passing between 7 and 8 years old. And so he's finishing second grade in school. He's just right on target. And really an enjoyable student. I had to work with Ben to be sure that he was practicing regularly and what I wanted him to and that he was covering his assignment. But I think we've crossed that bridge now. And he's doing really very well. Very well. I was proud of his little recital pieces. And, so he will be first. And you'll hear him do five-finger patterns and warm-up with his stretch grabs, and he will have some pieces to play for you so that you can see what he's doing. So that will not be a full lesson. And then the next student will be Cassie S___. I was just so tickled that her name…But that's really it. She came, Cassie is about 7 years old. She looks like she's 3. And I got a call from her…mother, I think rather than the teacher. Her former teacher…is... a kind of on and off adult student of mine who is not very regular. But she's a teacher here in our sort of extended area. And I could not believe that Cassie had had lessons. She was doing some of the Faber books. And I would open the book and say, "Can you play this piece," and she would say, "No." And I would say, "Well, do you know this note, the note that begins this piece?" "No." And in the interview, it was just really startling, she didn't know which was up and which was down on the keyboard.

JK: Oh my.

MB: And she could play "Heart and Soul," but that was about it.

JK: How long had she been taking lessons?

MB: Well I thought her mother said a year. I can't believe what went on. But anyway, I have a feeling that I really don't know the picture before she came here. So we started from scratch. We started with "Engine, Engine Number 9" and "Ebenezer Sneezer." And we're down on the floor. We'll be down on the floor today doing skips and steps. And she's got a fabulous ear. She sings like crazy. I mean, there are not many kids that age who can stay on pitch and sing [Sings] "Engine, Engine Number 9." And just really nail it. And she sings beautifully. She's going to be a wonderful student. She does everything perfectly. Tiny, she's so tiny. But her fingers are responding very well. I just [Laughs], she came to my recital a couple weeks ago, the studio recital. And I was standing up, and she walked in, and I just couldn't believe the difference in our height, because usually when I work with her, she's sitting and I'm sitting, and we're eyeballing each other. [Laughs.] But she's about six feet shorter than I am. [Laughs.]

JK: [Laughs.]

MB: Amazing child. She's going to be a wonderful student, just a really wonderful student. But she's a bare beginner. Now as I say, she's had as many as four or five lessons. She is catching on very well, and it could be that I am plugging in to some previous experience that I don't, that I'm not even aware of. But as far as I know, she still doesn't know where middle C is and this kind of thing. So where working in *Music Pathways*. We're on limited staff. On skips and steps. She is just this week going into steps. And part of her assignment this week are pieces that combine both skips and steps. But every lesson she comes in very well-prepared. She does her tapping and her counting. She's just wonderful. That's going to be a pleasure for years to come. Then Diana B___ will come for a few minutes. And, I was going to…Diana needs lots of reinforcing. My heart just bleeds for Diana, because she tries so hard. And everything is so difficult for her. And so when there is success, we really celebrate. And it takes her weeks long to learn some pieces, you know, and to get an exercise down. And so there's lots of celebration when a piece is good, and she seems to tolerate that. Diana is my very best counter. And I keep telling her that. That I don't have anybody in the studio who counts as well as Diana. And she will count out loud on every piece. She's just, she's lovely. She just has a little bit of a facial disfiguration. I think that it's a birth defect. But as she grows, that's beginning to disappear. She's just grown incredibly. This year she comes in, and I think, "Who is this beautiful young woman?"

JK: How old is she now?

MB: Diana is probably nine…We'll ask her. I don't think she's 10… She may be. Her mother is just made of pure gold. They're a Polish family… I think even the senior in high school who just graduated, P___. I think he was born in Canada. And then the two younger girls were born in America. But the parents are Polish. The family language at home is Polish. But the mother works so hard with Diana both on her schoolwork. I mean, they are doing everything to give Diana equal opportunity. And the mother practices with Diana every day. And the mother is just wonderful. I'm not even sure if you'll meet the mother tonight, because I think the father, whose name is S___. Who was the governmental official, the Secretary of Defense that we had, under… was it under Nixon? Or Carter? S___ Anyway, it's Polish background. They have the same name. And no one can say it, so he just goes by Z___.

JK: [Laughs.]

MB: Z___ B___. Then the Z___'s come. They are in many ways the apple of my eye. And they are just fabulous kids. And I don't necessarily attribute this to the fact that they're Asian. There's just something just so special about their souls. They're just wonderful children. The mother. The father has his doctorate from University of Missouri. The mother did her master's degree there. They're scientists. And so they come from a very intellectual background, and they want the best for their kids. They push the kids hard in both athletics and chess and music. And so both Ellie and Avery, and Avery's, well Avery's grown also. I wish you could have see him a year ago, because he was just… [Puts out his hand to measure a very short person]… kind of like Cassie. Cute, he's got a big tooth that hangs out. I just love it. Avery wins chess tournaments. You know, as a little 8-year-old. And so does Ellie. Mother says that Avery is just an incredible soccer player. And he *plays* the piano. In some ways I would say that Avery is probably my most talented student right now. It's just, I mean the mind is incredible. I never, never tell him something twice. I wish some of my college students could see the way that mind works and see how he practices and comes back with just perfect lessons. It's amazing. His older sister came to me as a result of a phone call. Somebody in Washington, DC knew my name and Ellie had started with him, and he

had gotten wind of the fact that I had moved to the East Coast and was in their basic area. They live about 45 minutes from here. Or an hour, well, I think it takes about 45 minutes to drive. And so he said, "I've got this girl and I think she's really, really talented," and sort of in her 1st year she could play all of her major and minor scales. He really pushed her hard on technique. She didn't read worth of tinker's dam. And she has really kind of overcome that. I keep complementing her and saying, "Who is this Ellie Z___ that has turned out to be such a great reader? Because I'm just so proud of you." Because she reads very, very nicely now. She plays sonatinas like they're just going out of style. Her fingers just fly. So we're building on that good scale technique. And she's in different technique books and is doing all the scale stuff. She's wonderful. Unlike Avery, she makes mistakes. And there's something about Avery's ear that seems to sort of just guide his hand. And Ellie not, doesn't quite have that. But she is a wonderful student. And they practice hard. Ellie will practice up to 7 and 8 hours a week. And she's just a little late grade school student. She's in about sixth grade. Avery played, he will play for you this afternoon, he played the whole Latour C Major Sonatina that he played and memorized on our recital. And Ellie plays Kuhlau and stuff like that. I think next year we'll do the *Hammerklavier* or something. [Laughs.] She's really good, she's really good. My temptation a lot of times is to push these kids. And sometimes I realize that I do not have… all of the answers on sequencing of repertoire. Because I see that the kids will bog down a little bit on some pieces and really flourish on other pieces. And I know that they have not been the best of choices for the students. But Ellie played just an incredibly beautiful Gliére Arietta and got that memorized. It was just so beautiful. And she plays sonatinas. This summer were doing a little bit of Martha Mier and things. They're just great students. And those are my most elementary students. And I didn't think that you were interested in anything more advanced. And so I got them all to come this afternoon for you.

JK: That's great. Great. Anything else you want to say? I know you've been talking for a long time.

MB: Well, you feed really good questions. I think what I really would like to say is that I'm sort of torn. Because I realize that it's the music that really draws the kids to the piano. And it's the technique that they probably don't want to do. And yet I think it is so important to give them that strong technical background, because it is the vehicle into the music. And so I'm trying to straddle these, I suppose there's at least three different components. It's building up reading skill, and getting really good technical principles going, and having fun with the repertoire. And if any of those three things lags behind, I feel that the whole curriculum is in jeopardy. So that is a constant juggling act. If I err on any side, it may be that I'm over-assigning technique. Although they certainly have an awful lot of repertoire. I mean, if I err in any way it might be that I'm over-assigning. And I've actually made a resolve… I have a couple resolves coming up for next fall. I always feel that I should be a better teacher and I've got to do it better. [Laughs.]

JK: [Laughs.]

MB: So, I have a couple resolves for next fall. One resolve is that I'm really going to try to individualize every assignment so that the student and I work out together what is the right amount for them to practice on so that they cover everything every day. I think my students are reluctant to tell me that the assignment is too big. Because they feel guilty about that. They think that I know what I'm doing and they should be able to meet up to that. And I really have to… engage them more in helping me determine how much they can handle on the assignment. I'll push. I'll push to the breaking point practically. But I think that we reached a point where there are no positive returns if they have to choose one piece one day and another piece another day and a third piece another day and they don't get around to that first piece for a couple days.

JK: Right.

MB: Okay. So that's one resolve. Another resolve. You will notice that my kids tape their lessons. Cassie not. Her mother will take notes. But the Z___'s will tape their lessons. And at times I've been pretty good about what they do with the tape. The last few years I've been pretty lax about that. And not even everybody tapes. So next fall everybody is going to tape after about the 2nd year of lessons. And what they have to do, and they get credit for this on the practice sheet. Everybody has to spend the 45 minutes or the hour that it takes to listen to the tape before their first practice session. It's a backup to, it's a reinforcement for what went on at the lesson. And I will give them a special form for taking notes on that. And for the littler ones, about all I want them to do is to listen for the two most important practice suggestions for each piece, and they have to write that down. And then I may formulate the sheet in some way for them to check that they actually did that every day. "Did you practice those two important points?" For the more advanced students they'll have to take more detailed notes. And I want them to write the stuff in their music also. So when they're listening to the tape, they have the sheet and they're looking at their music. So they will continue their practice record. I may do a better deal about the prizes this next year. I just don't know. [Laughs.] Actually, I'm just so tickled that the kids feel obligated, or that it's part of our studio routine, that they keep track of their practice, and they're not demanding prizes. I think that's exactly where I want them to be. That they record, but they don't feel like they have to be rewarded. I think what I will do is to do a monthly honor roll. And then maybe on the final recital I'll give out awards to the people who achieved the honor roll the most times. But I don't want piano to be just a series of earning your statuettes or something like that. So those are a few of my resolves for next year. I want their assignments to be realistic, and I want them to take notes on their tape. I would like to work out some way that we could, that I could schedule in repertoire classes, but what's happening in my life right now is that I'm just teaching heavily every day but Friday and Sunday. Friday I just refuse to touch. It's kind of my day. And so many times I'm out of town for workshops. And so then, sometimes the Thursday kids lose out, because it's a Friday workshop, and I have to fly out Thursday. The Saturday kids are really in jeopardy, because if a workshop is over a weekend on a Friday or Saturday, then they lose. But in order to earn the right to have a Saturday lesson, and it's kind of a privilege, because basically I don't teach on Saturday. Well I'm teaching all day on Saturdays now. It's just grown and grown. And people come from further and further distances. And they're busier as high school students, and they have to have the lesson on Saturday. But that comes with a price, and that's that I may be out of town. Sometimes we can have make-ups on Sunday afternoons or evenings, but I just hate to do that. Because I spend almost all Sunday afternoon and evening writing up lesson plans for the next week. Every, you've seen an example, every lesson is pre-typed. I don't, and I shouldn't even allow this to be on videotape. I don't do much overt lesson planning where it's down...Now with a new student like Cassie I will have a lesson plan. Because I really need to be sure that I'm covering all the bases in sequence. I type up on my computer a big sheet. In fact, some of these kids, they get two sheets of a practice assignment. And that is basically my lesson plan. I'm old-fashioned enough to have carbon paper. I print out two copies of every assignment, and I put carbon paper between their copy and my copy, so that I know everything that I've written down to send home with them. And that's kind of the lesson plan. And as I'm making up the new practice assignment, I know what we have to cover this week and everything.

JK: Wow, that's a lot of planning.

MB: It's a lot of planning. But I find it's efficient. Obviously I save each one of those lesson, those practice assignments. And for some students, for the more advanced students I scarcely change a word from week to week because they're on more extended repertoire. Yeah, it's a lot of

work. I feel that if I don't put in my time, my students will probably not take their practice as seriously. If they see that I've spent the time to type up a whole new practice assignment for them, I think they say, "Well, that's kind of special, and that's for me." Their name's on it in bold print, you know, and that kind of thing. So that's what we do. So I teach here at home on Mondays. And then I go to New Jersey on Tuesdays and Wednesdays. Up until now I've been teaching at the College of New Jersey on Tuesday and Wednesday mornings, and then I go to the New School in the afternoons. I've resigned from that teaching position so that I could have a little bit more time in the mornings. So now all my mornings are here at home. But Mondays and Thursday mornings I do some adult student lessons. Saturday mornings I'm teaching kids. And then I will leave, next fall I will leave here about noon on Tuesdays and Wednesdays and start teaching in the afternoon at the New School for Music Study. And so I don't get home until about 10 o'clock at night. Because, obviously, you can't teach the school kids until after school. So my earliest departure over there is at 8:30, and it takes me about an hour and half to get home. Long day. So I believe we're done.

APPENDIX G

Ted Cooper Interview
October 7, 2006
Washington DC

JK: Okay. First, can you just tell me a little bit about your training, growing up and in college?

TC: Sure. Sure. Well, my training as a pianist started in junior high actually. I started rather quite late. I was a trumpet player first and started college as both a piano major and a trumpet major. And then gradually piano won out. And my training was fairly typical, you know. I came from a really very small town, so there wasn't anything really incredibly structured. So it was basically going through a course. I went through the *Michael Aaron Course* just sort of page by page. My teacher just sort of flipped through it. And then when I got to college I started as a piano major, which was a bit of a rude awakening. And I just gradually sort of, you know, came to really love it most. And worked with, as an undergraduate, I worked with Michael Campbell, who was a student of Leon Fleisher. And I worked with Ann Collins in pedagogy at the University of Illinois. Then I did my master's degree there as well in pedagogy.

JK: At Urbana?

TC: In Western Illinois University in Macomb.

JK: Okay.

TC: And then I took a teaching job in the Baldwin Music Education Center in Cincinnati. So I taught 2 years of very, very intense teaching. I taught something like 25 classes a week. And I realized that even though I had a master's degree—and I think I had, my master's training in pedagogy was really very thorough because there's a big internship that was supervised quite, quite closely. But after those 2 years I realized I didn't know very much. I didn't have a lot of real practical training on how to work with normal kids. So I went back to school and went to the New School for a postgraduate degree program, which was, they call it Certificate now. And so I did a year there with Frances Clark and Louise Goss, and I ended up staying for 13 or more years. And you know, just sort of gradually became, took on more responsibilities as a teacher and more administrative responsibilities, looking over the elementary program for a long time, and then I ultimately became the director of the school for a number of years. And then I left in 2003 to take this job.

JK: So you did your undergraduate at University of Illinois?

TC: I did it at Western Illinois University.

JK: Western Illinois.

TC: Both of them at Western, in Macomb.

JK: Okay. Got it. How do you select students for your studio? Or do you have any control over who you take?

TC: Yes. I do. They are all interviewed by the head of the department, and then if they're looking for—I'm talking about beginners—if they're looking for a class situation, what they then do is

come and interview with me. And then we see if this particular class that I teach is a right fit for them, because it's a heavy commitment timewise, because they have to be here an hour and a half a week. And then I just to make sure that group fits together well, that the personalities work together. And if that works, then we sign them, you know, we sign them up. So it's a two-person process. First it goes to the head of the department, and that it comes to the individual teacher.

JK: So then class is an hour, and then the private lesson is half an hour?

TC: Yes. The class is an hour.

JK: And then you said that some kids don't take the private lesson, they just have the class?

TC: Yes. In the school there's also a group piano program which is 1 hour a week. That's just group only, four students in the class. And that program just runs for 30 weeks. And after that they go into private lessons. The program that I'm talking about where they have the group and private lesson is actually a 2-year program. And then after that they go into private lessons.

JK: And that's just your kids. That's not all the piano teachers?

TC: No. That's a program that I've brought to Levine when I came. It was something that I adopted from what we did at the New School, and brought it with me because it was really so effective. But, you know, because of the time and because of the cost, it doesn't fit everybody.

JK: Do you take transfer students too?

TC: I…do take transfer students, but I don't really have room for them anymore. You know, it's hard to find the time. Someone has to move away to make room for that. So most of my students come in as beginners now, and they sort of gradually come up. But I do, I definitely take transfers. And it happens exactly the same way. They first interview with the head of the department and then they interview with me. Which I think is a very good way to do it so that they get to know me, the parents get to know me, and I get to know them. So there's a real sort of meeting of the minds before we go ahead.

JK: Parents. How much do you expect from them? Do they all sit in on lessons and classes?

TC: I expect, I expect, unless there's a behavior issue, because sometimes children really have difficulties having their parents in the room, I like the parents to be there for the private lesson of my beginning students. I think that's really important to do. Especially if they have the class. If we have the class that's when we're on our own. The parents aren't in the room. And so when I come into the private lesson, we're really sort of focusing on the individual's specific technique and musical issues. That's when they can be really, really helpful. And I think everyone sits in on the lesson, all my students, all my beginning students, they sit in. And they monitor the practice at home. So I think, generally speaking, for the first 4 or 5 days they're really sitting with the student and making sure the practice steps are being accomplished for the new pieces. For the review pieces, I have a feeling they probably leave that on their own to what they need to do and give them some independence.

JK: Materials. You use Frances, the *Music Tree*.

TC: Yes. I do.

JK: And then I saw some duet books. Those are yours?

TC: Yes. Those are mine. Those are my duet books that I've written with Amy Glennon. They go along with each book of the *Music Tree*.

JK: Okay. Do you use any other books at the beginning?

TC: I use, I use, I use the Activities Books [of the *Music Tree*]. I don't use the Activities Book with *Time to Begin*, because there are writing pages in there, but I use it starting with Part 1. And then at the end of the 1st year I start using supplemental material. But nothing really specific. They're almost always solos. They're almost always like two-page solos. But nothing, I don't ever do anything like, routine really. But that's the point when they're getting at the end of Part 1 where they really need to sort of branch out into other repertoire and see what other music looks like. And I find it really very helpful and inspiring. So I do use other stuff. And in the 2nd year quite a bit, actually.

JK: Okay. Now we get to talk about technique. What do you do, like, at the first lesson to get them going technically and what do you do in the group versus the private?

TC: Okay. Well, I think what I've found to be successful, and I must say that what I do each year is different. It always evolves…And what I do right now is very different than what I did last year. So what I do now is I introduce the idea of technique as an area of study in the interview. So we work pretty seriously on technique and making a piano hand in the interview so the parents know what they're getting into, and the students know. What I found before, and I didn't realize this was happening, but I found it sort of a bait and switch. You know, you start, and you're working on the music. And, I mean, the first pieces that you can play without any sort of major technical instruction. They're just to be played and experienced. But then you start talking about technique, like, at the end of the first lesson or in week 2 or something like that, and I think it really catches people off guard. You know, they don't really think that's coming. They think "What is this? Why are we doing this?" So I think to do it in the interview is very important. And that really sets everything up. This is my expectation. We're going to have some very concentrated work on these sorts of things, and it makes it just so much more easy, I find. And in the lesson, in the interview we just talk about that we have to make our body fit the piano. And that posture is really the very first thing. We can't really play a note unless our body's ready. And that's basically finding a comfortable way for your feet to be on the floor, you know, if a student is tall enough. And finding the right height to sit at the piano. And trying to adapt it with the pads [Styrofoam pads]. And so that they know what the pads are. And that they can take responsibility for it. [He also said that in class he has the students sit all the way back on the bench and cross their ankles if they can't reach the floor, because it is too much trouble to move footstools back and forth in the class, but this is not his ideal. However, all his students right now are tall enough to reach the floor without footstools.]

JK: So they have the pads at home too, or they sit on something?

TC: With the parents, I show them how high they should be from, so that their arm is parallel here and not low or high. [Demonstrates a forearm level with the keyboard.] And probably at home it will be something like this. [Demonstrates forearm slightly lower than the keyboard.] So that we revisit quite often in the first few lessons. And, and you know, it's really up to them whether they do it. I have a feeling from the consistency of the students coming in that they probably do it. You know, that there's probably some seriousness attached to that. And then with that, and that becomes, that's a major issue. You know, if the body is not in a good position,

there's nothing that can really remedy that. It's hard to make a good sound and be poised at the keyboard. So that becomes a point of real teaching before they start. So you know, you just check to make sure, "Is your body ready?" And we look down at the feet and make sure that they're sitting tall and really do a lot of comparison between what it feels like to sit short and to sit tall and to feel that difference. And I think that with that sort of regularity, they really begin to absorb it. And then we talk about, you know, that our hand can be in many shapes. [Demonstrates flat, fist, sideways, all different shapes.] You know, and that one shape really fits the piano. And not every shape fits the piano. And the best way to find it is to let your hand hang loosely at the side. And that, I find, is a great teaching tool, because it just naturally does it. It's a rare student who can't feel totally relaxed here. There are a lot of students who come in, and they really feel that their hand that this is loose. [Demonstrates a spread hand with flat fingers down to his side.] They have no idea what loose is. And so you really have to teach it. You have to teach what loose is. And I do it by jiggling here. [Demonstrates jiggling the arm with the non-playing hand just below the elbow while the arm is down by the side.] Just making sure and letting them do the same and then taking that piano hand to the keyboard cover so that they're not worried about sound. I just think the only way to work on it is to remove the piano, making a sound right now, because it's so hard to control one thing and think about something else. So I find this way they can really control all the elements that make a good piano hand. And we talk about three things. Making sure there is space underneath the hand—which I sometimes pass a pencil underneath—making sure there is a knuckle bridge on top, and making sure the thumb is loose. Those three points. And that's what I start with. And basically develop a warm-up so that they're really thinking about only those things. So we find this position and they think [Demonstrates and says on one black key with the 2nd finger.] "Space, knuckle, thumb." And they do that with each finger going up [moving up an octave]. And we look at that, and we get down take a look and make sure everything is just right before we go on to the next position. And also do it with the left hand. So that's, that's the beginning.

JK: And the stroke, is it an arm, is it a forearm, is it a whole arm?

TC: Yeah. At the beginning it's hard to know what they're going to do. You know I don't, I found that if I can get a piano hand, then whatever the other apparatus does is okay. You know, it's just making sure that they are in control of this [piano hand] and just making it a priority. So that becomes a priority, and then this will come [the arm]. Sort of working back [from fingers to shoulder]. For me it is definitely from the arm. It's the relaxed finger on the key with a little bit of help from everything coming back here. That's my goal. [Demonstrates a little movement of the whole arm down as a finger plays slow repeated notes.]

JK: So if they don't have enough control over the finger, then they can't worry about that [the arm] yet?

TC: I don't think so. What happens is that this is, this is something that can really capture their imagination [piano hand]. This is something that they can really, they can really get into and master. This isn't [shoulder and arm]. This is something that takes time. So if we can do something they can really achieve, and achieve with security and fluency, I'm going to go for that and then do this [arm] later. You know, I'm not sure if that makes sense, but…
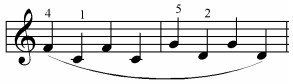
JK: Yes. Do you do other exercises outside of the *Music Tree* books? Or do you basically just stick to the ones in there?

TC: I don't really use those exercises.

JK: Oh, okay.

TC: I don't really use those exercises very much.

JK: Because Naomi was playing some.

TC: Oh, in the 2nd year, in that one. Yes, that's true. For beginners I don't use them usually. I change them into…In *Time to Begin* they have a lot of things where they use two hands. And I find it's enough to think about one hand at a time. So I've sort of modified the requirements to do this, to do just one hand at a time. Yes, for 2nd year students I often do the ones in the book. And you know, if there are any sort of areas, like you know, if we're getting ready for fourths, we might just do a pattern [Plays 

with a slight rocking back and forth of the hand, then repeats an octave higher]. You know, something, something devised specifically for them that you could put on their assignment with just finger numbers. I must say that I use the exercises in *Time to Begin*, because you can just write them down, and they're there and they can go there and find them.

JK: So basically, they're slow like that?

TC: Yeah. I mean if I'm teaching, you know, if we're doing some remedial work, at some point, which, you know, always happens during 2nd year. There's some sort of remedial work that has to be done, then it's pretty slow and easy. But for *Time to Begin*, the exercises I use are basically either single fingers and groups of fingers. So we're always doing a little bit of both. And the single fingers is basically to work on first joints. And groups of fingers is basically to work on legato and fluency. And I've tried to mix them together, and it never quite works. Especially at the beginning, I find that they really need to be separate things. That if we try to start playing legato and make sure that every finger is strong here [nail joint], it just goes, it doesn't fly. So we end up doing things that aren't really excellent all the time. But if we separate, I find if we separate them, then they can really be excellent. And that's the key, I think.

JK: Can you demonstrate some of the joint exercises?

TC: Sure, well. We just…

JK: So away from the piano?

TC: Yes. We start away from the piano, and I think it's really important for them to know why a joint has to be strong. [Demonstrates making O's with the fingers with collapsed and strong joints on each finger.] And I simplify it by saying that we can really feel the key much better if our joint is strong. And within classes, you know, I relate it, I really relate to all the joints together, so we have six major joints in our arm [from the shoulder down] to help us play the piano. So we find them, and we get all the way down to the smallest one. And it puts it in the context of the body. And that is really important. So we just sort of look at them and examine them and say, "What is that? That doesn't look so good." [Demonstrates a collapsed nail joint.] And then just play really slow notes so they can really have total control over making sure that that is a strong joint. And I think it's really tricky business, because along with teaching this being firm, you have to teach everything else being loose. Because if you don't do that, then it's just, everything gets tight if you're trying to make this. So it always has to be both. And if you're that and thinking about legato, then I think average kids have a hard time thinking about all those things. So I think it's

really much, much better to separate them. So my priority is posture, a piano hand, working it away from the piano, then on the keyboard, working in single fingers on the keyboard, specifically with bends after about 3 or 4 weeks. I don't introduce that right at the beginning. I might do it in the future, I don't know. But right now that's how I'm doing it. Because I think it has a tendency to make us tense to think about that. So it's got to be isolated in a way. And then just working on making connected and not connected sounds. That's basically what the first, maybe even 10 weeks, and then the technique is either 3 2 and 3 2 3 [Demonstrates on the black keys with a lateral, semi-circular motion per phrase] and then 3 2 3 4 3, maybe something like that, so it gradually gets more fingers. And working on just the inside of the hand and then working on the outside of the hand. Working on them separately. That I really, I think that is really genius. I think that's really good. And it comes straight from Frances [Clark]. Working inside and outside, I think it works really, really well.

JK: So when they start the outside, do they start individual fingers or is it blocked?

TC: I again, I again start away from the piano, if this is away from the piano. [Puts down the keyboard cover.] And just looking at this [5th finger in a gentle curve] and making sure this really has a nice feel to it before we really focus on it. And that the thumb, that they really see what it's supposed to look like. [Thumb is on its corner.] I sometimes talk about, you know, the little triangle below the thumb, and the little, the space above. And to make sure that we know what it feels like to do that [Plays the wrong way on the side of the thumb], and what it feels like to be right on this corner. Then we begin to use them. So they come to whatever thing we're going to do with 1 and 5 for the very first time with some history of doing it before they actually play it and can treat it without any respect.
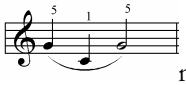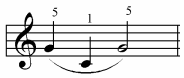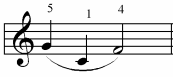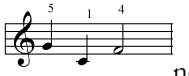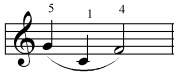
JK: Going back to the very, very beginning before you start the exercises for their joints, the pieces that they play, do they play it braced, or do they play just with fingers?

TC: I don't play braced. I don't. I find it's really hard to keep a relaxed hand that way. You know, it's possible, but, no, they play "Take Off," which is the first piece in the *Music Tree*. [Demonstrates with gentle arm motions on each note, alternating hands.] So they're just using single fingers. I expect their hand to be reasonably close, their fingers to be relatively close to the keyboard, and I expect [Demonstrates arm motion back and forth between the hands with the whole arm] this motion to go back and forth, because almost all the pieces in the beginning of the *Music Tree* do that.
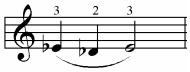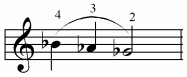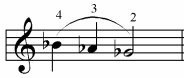
JK: So you're more concerned about the arms than the bend?

TC: I am. Yeah I am. I find it really backfires if you do the bend too soon. And I think, I think probably that you can change the introduction to that to suit the student, you know, to tell when they're sort of ready to do it. You can begin doing it. You can't do it too late. I made the mistake of always doing it, you know thinking about those things much too late. Which is, you know, a huge disaster. But no, I think, I just look the other way, you know, at the beginning. And if they have a space underneath their hand, it's not going to be that bad. You know, if they really sense that the arm is a light, something that's light behind holding up their arm, then they're not going to do that [drop] so much.
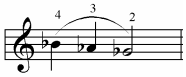
JK: Okay. You said up until about 10th week, that's when they're working on legato non-legato and bends and everything? What comes a little bit after that?
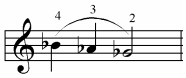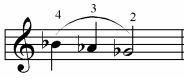
TC: Right. Well, that's when we start with the inside and outside, you know, the outside of the hand. And I usually, I usually start with broken intervals when we're doing fifths. And I usually start with pinky, because I think it's easier to play 5th finger well than to play thumb well. So you know, just things like that. [Demonstrates  moving up by octave very slowly with a slight back-and-forth motion.] Weeks before they have them in the music. Weeks before, so that they really treat it with respect when they get there. And that's, that's probably at the heart of probably what I do, is making sure that they have these technical things in their arsenal before they have it in the music. And when you start it's tricky, because you're always playing catch up then. They're already playing it. So it's a dangerous thing, but once they get started, and like the *Music Tree* is sequenced well. And you see these things coming up, you can really plan for them and make sure that they have their technical things in order before they get to them so they can come with a bit of knowledge. So it's basically that. [Demonstrates  with a slight back-and-forth motion, but not with extreme rotation at all. Mostly with the hand, not the forearm.] And, you know, integrating the outside of the hand with the inside of the hand. You know, it could be [Plays  moving between octaves] you know. And then… [Plays  non-legato.] I think that it's important always to do the two articulations. And then speed, which is tricky. Which is tricky because it can get really, really tight really easily going fast. But if you can find, especially with thumb, you know, it just gets so tight so easily. But if you get soft, I find that helps. [Plays  *piano* and faster with one down and up motion for the whole phrase. Repeats an octave above.] If you play a little softer when you're playing fast, it sort of alleviates the tension. And for kids, that's pretty fast for them to maintain the high standards.

JK: I noticed that you're using one motion for that too. Do you talk about that a lot?

TC: One motion for three notes? Yes. I think that that comes, that comes from the beginning. [Plays  on the black keys.] [Plays  with fingers, and then  with one arm motion.]

JK: So you have them do both?
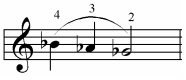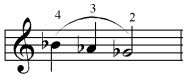
TC: Yes. I mean we use these motions in music. [Plays  with a down forearm movement on each note.] So I think it's helpful to do. And also I think that especially in technique, that those contrasts are really helpful. Doing things badly is really instructive to kids. Doing it purposely, so they can really feel the difference. I mean often, what I found myself doing is just teaching toward what we want, but they have no real frame of reference. I mean it's an

unusual activity. But if they can feel that [Plays  with a forearm movement on each note], then they're more apt to feel that. [Plays  with down up one forearm motion for the phrase.]

JK: And do you try to get that right from the beginning, or do you let them play like this for a while? [Demonstrates forearm movement on each note.]

TC: Well…

JK: Because it's kind of a hard thing for them to do.

TC: Yeah, well I think that there's probably, you know, there's a gray area between [Demonstrates  with forearm movement on each note] and something sort of more artistic. [Demonstrates  with one motion going down and up for the phrase.] Which is probably just being aware of your wrist being loose, but not bouncing on each one. That's probably what I go for. To eliminate the bad habit, because that is a bad habit. [Demonstrates forearm bounce on each note.] I mean that's a bad, bad, bad habit. That just gets in there and doesn't come out, you know. I deal with it in transfer students all the time. I don't know what you see…

JK: Yeah, well, I see that in my college students.

TC: I just get that wrist bounce all the time. It's insidious. It really is.

JK: Do you let them do it ever? Except to show the wrong way?

TC: Well, I suppose there are pieces that you can do that. [Demonstrates a simple legato but march-like *Music Tree* piece with forearm motion on each note.] You know, if you're playing that has a certain [has of strong character], you know, you don't want to hear too much. I could hear four measures of that sort of playing and be okay with it, but after that, it's just as charity to the teacher you don't want to do that anymore. [Laughs.] Yeah, but that's, I think that's probably the biggest problem I see with transfer students.

JK: They can't make one long phrase?

TC: Yeah. It all comes out really just from the arm. Everything is pulsed. And I think it has to do with counting. I think they're trying to feel the rhythm someplace, and that's the way they do it. It's sort of their substitute for counting out loud. And they just feel it there and you know, you know, no one's ever helped them with it. So you know…

JK: Are there any other exercises that you do away from the piano to warm them up or teach them things, or is it mostly done in group class?

TC: Well, I guess the other thing we do is drill on finger numbers. So you know, that they really know right from the beginning what their finger numbers are. [Demonstrates with the fingertips of both hands together in front of the body and behind the back.] And they tap them this way, and they do them over their head, so they can feel all of them. You know, first doing them in order, and then doing them, "Tap 2, tap 4." That's really helpful. And it's a fine line to know which of these things are technical drills and what aren't. Between reading and technique it's a gray, gray area. But I do lots of drills with intervals within the hand. "Start, up the third, up a third, down a fourth, up a third." That, I think, has a real technical element to it, because it develops their fluency. So we do that, but nothing really that occurs to me other than those things.

JK: Is the group lesson sort of an introduction to the pieces for the week, or is it kind of separate so that people in the book in different places could still be in the group class?
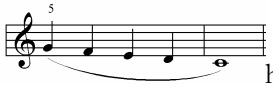
TC: No. They all have the same assignment sheet. And they all, everyone has the same exact, we're following a specific curriculum that is tailor made for those particular students. But they all get the same assignment. And the assignment comes from the group lesson. And then they go home and have a few days to practice and then come to the private lesson. So everything is introduced there. It's primarily a way to get time with students to introduce activities and concepts that are coming up in the future. That's basically what it is. And it's a way to get them to work on rhythm as a group, which is really effective, and a way to work on technique as a group. So it's basically an excuse for that. And then we work out one new piece together, so we end up practicing and ending with a person playing it three times, or three different students playing it three times and everybody making a check so that they really know what practicing is. Because that changes at each level. As the music matures, the practice steps change as well. So that is, so they basically follow the same assignment sheet.

JK: Moving around the keyboard. Of course, in Frances Clark you play in all different octaves. For moving their arm?
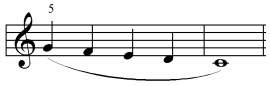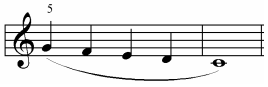
TC: Yeah. So they really don't get fixed in any particular position. I think it's really very helpful. And I think the practice step that they do, in finding the position is really helpful. [Demonstrates playing the position of the song blocked and moving between octaves.] You know, because you don't get embedded in any of those specific positions. And then also, making sure that the warm-up is also played in more than one octave, which is helpful just to let your arm carry you and for me to see them do it, to see how they move. And so I can think about what to do in the future. And also it's great, because it just gets them to play it more. I find with kids, like you saw today, the first two, that doing it here and here is better than here and here. [Play it in one position, move up an octave, and then back down, rather than moving up and playing in three different octaves.] Because they're so small that they get really out of balance. I don't think it works. I think in the *Music Tree* it's written this way [up three octaves], but I don't think it really works so well.

JK: Five-finger patterns. Do you have anything to say about those?
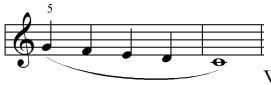
TC: Well, I think they're very tricky. They're really tricky. You're blending, often I think when you start playing five fingers in a row and making the fingers match, you often have to do some remedial work, because the piano hand has to be excellent. Because if it's not even, if there isn't really a great space under the hand, or under this finger [5th finger], it's going to make a very different sound than the other fingers. So to connect an even hand with an even sound, it's really helpful to go back and do some remedial stuff. And that's, I guess that's a part that I think is really developing in my teaching is realizing that all this stuff really needs to be taught again. You

know, you teach at the beginning. You try to be very, very thorough, and then at some point when what they're playing changes, it really has to be taught again. These things have to, you have to come back to all these things. It never gets old. And that has to be the approach, that this piano hand never gets old. You really have to have that. So that's what I find with five-finger patterns, is just getting an even sound that comes from a very even hand. I think it's better to work with something that's more *mezzo forte, forte* than to work with something softer. I think it's more difficult to really match tones like that. And I think it's especially important for them to move around and do it so they hear how different it is up there than it is, than the sound is here. [Plays  high and in the middle of the keyboard.]

JK: So that by this point, are they playing it mostly just with fingers, or some arm?

TC: I think, I think if we are just talking about starting it, they're really doing it pretty slowly. [Plays  with fingers.] I think at this tempo it is really hard. [Plays  slowly and makes one arm motion.] It's hard to feel, to feel the arm. Though that would be my goal.
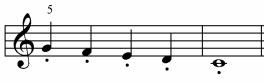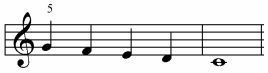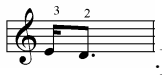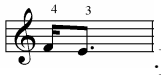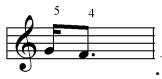
JK: Okay. So it's mostly the fingers then.
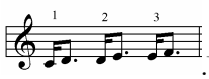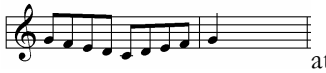
TC: Yeah, it's mostly ear. You know, it's mostly just listening. [Demonstrates playing  with the fingers.] Because if they're not really listening to what they're doing, then it's really hard to do. And after that fluency. Doing it faster.

JK: How do they do it faster? What do you do if it's not even faster or…?

TC: When it's faster? When you try to get it faster and it's uneven?

JK: Right.

TC: I think…Well, you know, there's articulation work is very helpful. And matching. [Plays  slowly.] At the tempo, matching like that. [Demonstrates playing  non-legato.] And then I think probably the most helpful thing is, you know, long short practice, you know, and that's challenging for a kid because that's pretty easy. [Demonstrates .] That's harder [Demonstrates .] That's really hard. [Demonstrates .] That's really hard without karate chopping it. [Plays


.] So you can do a lot of things like that and experiment. I would be very careful about assigning it for home. I can see that butchered so much. So there are a lot of things that I can experiment with in the lesson and then figure out whether I should send it home or not and get to it this way. But for elementary kids, I think that [Plays  at a moderate tempo], if they could do that, I think that's fine. Anything faster than that is good, is fine, but is not necessary, I don't think, in the stuff they're doing. At least in the 1st year, maybe even year and a half.

JK: How long does it usually take them to get through *Time to Begin*?

TC: *Time to Begin*? 9 weeks.

JK: The whole book?

TC: Yeah.

JK: Wow.

TC: Yeah. There are nine chapters, so a chapter a week, give or take.
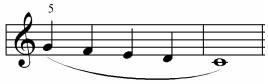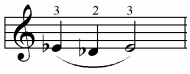
JK: Okay. And then how long does it take them to get through Part 1?

TC: Depending on the group, depending on the group, it takes longer. I would say they're finished with it, some groups are finished with it by the end of the 1st year. Some groups have like, like Naomi, she was like in Unit 9, getting ready for Unit 9, something around that area. So you know, they're about ready for Part 2A within the first 4 weeks of the next year, something about that.

JK: Is she in a group?

TC: She isn't. She was last year.

JK: For the five-finger patterns, do you talk at all about alignment of the arm behind the fingers. Or do you look for that?

TC: Yes. Yes, well, I look for a position of the wrist. [Drops his arm to the side.] And to make sure that the first alignment is [not twisted either way] and that they're sitting in a way with this can be sort of the gentle straight motion. [Sitting far enough over so the hand is not crossed in front of the body.] And then, and then again it comes to tempo. And so after they can match tone. [Plays  with a slight lateral wrist movement to keep the arm behind the finger that is playing.] Then they can really let the wrist follow their lead, but that actually comes up… [Demonstrates  on the black keys with the arm behind finger that is playing.] You know, when they begin doing these things and letting the wrist really follow. But a lot of things have to be in place to do that. I mean, hierarchically it's not what I'm after first. But

it is my goal. You know, it's tough. Because it's not really literal, because it's not that. [Demonstrates exaggerated movement to be literally behind each finger.] You can't, with children, you know, you can't, there's a general motion, your hand is really in one place between 5 and 4, and then it sort of switches and it comes over a little bit behind 2. So it's like 3, you know, it's modest. That's a hard thing to teach. You know, that's something that you really sort of have to feel, but I think it comes down the pike for me. For better or for worse.

JK: You start with the 5 for those?

TC: I think it's easier. I think it's easier to control what that looks like and to control the sound. If you start with the thumb, it just falls, it just falls down. [Demonstrates a very low wrist when playing the thumb.] You know, we talk a lot about the thumb. You know, with the kids that you saw today, we talked about the thumb being really the boss, you know. And that whatever the thumb does, everything else does. So if it is tight, then your other fingers don't have a chance. They're going to be tight too. You know, so doing the experiment of making the thumb really, really tight, and keep these tight and make these loose. [Keep the thumb tight and make the other fingers loose.] And they realize that it just can't happen. So the thumb being really sort of the powerful one is, I think, is really important and will see them through. I think it's appropriate for this level and will pave the way for what they're going to do, what they're going to do later. So the thumb is just sort of nice and up, but the thumb is major, major work, I think, to get that. And I think a lot of it has to do with where it's placed. Because if it's like this [on its side], then there's nothing that's going to happen there that's going to change that, to improve it, unless it's in a particular spot [on the corner].

JK: Do they play their five-finger patterns in other keys?

TC: Yeah. We have a curriculum guide here, so students take juries. So they will play, they will play, starting at the end of *Music Tree* Part 1, we basically do, you know, C, G, D, A.

JK: Hands together?

TC: Can be.

JK: Contrary motion or parallel?

TC: Parallel. Always starting contrary. But the requirement in this particular jury for this school is hands separately for the youngest students. But those that can play hands together do. But basically those keys with just the ones with the black key in the middle. Because it's easier to manage. I think this is very tricky.
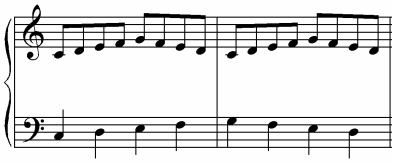
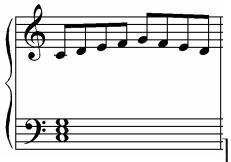
JK: Do they play the other keys eventually?

TC: Yes they do. Yes.

JK: So it's pretty slow at the beginning. When does it start to speed up a little bit?

TC: Speed up?

JK: The tempo.

TC: Oh, the tempo of what they're doing? Well it depends on, it depends on the student. I mean there's a lot of this. [Plays  .] That happens a lot. I think if you have speed, then it's probably going to be [] rather than note against note, because how often do you play note against note in music?

JK: That's true.

TC: You don't really use it that much. It's, it's nice that students, that everyone can do that, but it's not really necessary to play the repertoire. So, I think I would generally adapt it so that they're playing an accompaniment of some sort.
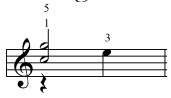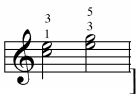
JK: How early do they start playing chords?
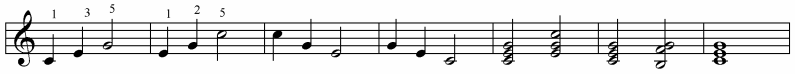
TC: They play. That's a good question. I think it comes in 2B actually.

JK: So pretty late.

TC: I think it's in 2B.

JK: Do you think it's a good idea to do it that late?

TC: It depends. I mean, I think, I mean the *Music Tree* was designed for the average kid. You know, and it can always be adapted for other children. You can always skip pieces and go faster. But I always think probably better to do it later than earlier because you can get that rock hard wrist. That can happen so easily. Well, you know, if they're doing intervals, if they're doing blocked fifths, and they're experimenting with this [Plays  and ] and this, it's not too far away [to play a try the whole triad]. I think it could be done sooner. The curriculum guide that we use does this.

[Plays  .] This is in Level 2. Which I think is kind of a nice way to go at that. You know, broken and then blocked. But it's something that I worry about, I don't really have a, I don't have an agenda as far as when they do it. As long as it feels good, there's a certain level of mastery, and they have the technique to play the pieces, you know, that they're studying. That's most important.

JK: Scales. How you introduce those?

TC: Well, they would come, they would first do crossing over, they would cross over 2 and then cross over 3. And out from there, and thumb under, and behind finger 4 to come out. [Moves

thumb under with a slight outward swing of the arm to help the thumb get under the hand.] So they don't start as scales, but they start as individual things. I think that's also another place where the *Music Tree* has isolated those things pretty well. It's pretty sequenced. It's all in 2B. So that happens, thumb comes under, and then scales basically start as, well, they're all well acquainted with major five-finger patterns. So it's just an extension of those. And for me, after they feel comfortable with this, these things [the finger crossings], just finding, you know, capturing their imagination that a scale has eight keys, and we only have five fingers. How do we do this? What are the options? And write that down and find a real logical way to get to that. And if, and usually they come to it pretty quickly. They really see it, especially if they start with the 5th finger in each hand. It's much more natural than starting on the thumb. And then that becomes really the basis, so that, so that it really comes from them. You know, it comes from what they deduce from, you know, how possibly we would play this. And then we just work, I think fairly typically, in C major, G major, D major, mostly sharp keys at the very beginning.
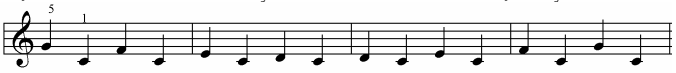
JK: So they're always starting with 5 and coming down?

TC: Yeah. When they first start it's always coming down. [Plays a contrary motion C major scale]. And then they have the pleasure of the contrary motion so much sooner, you know, and really get to feel like a big shot. And then it's so easy to do two octaves. I almost, I teach one-octave scales for maybe a week or two. And then it's just immediately two.
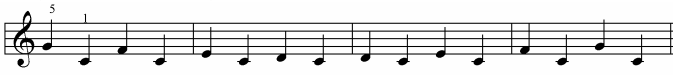
JK: So are you a thumb under gradually person or a thumb under suddenly person?

TC: [Laughs.] I think, I think it depends on the music, you know, and the tempo. But I think my arm brings the thumb over. [Demonstrates thumb gradually moving under with the arm leading and moving to the right.] Yeah.

JK: Rotation, do you work much with that?

TC: Well, not with 1st and 2nd year so much. I mean, they do this [Plays  with a slight rotation, more with counterclockwise circles.]

JK: So you're more of a circle person than a rotation person?

TC: Yeah, I do this only with tempo. If the tempo gets really fast, then I add some rotation. Yeah, but I'm much, I much more feel that connection like that. [Plays  separated and slowly with a forearm wrist roll on each note, which combines with the back and forth motion of the thumb to make circles.]

JK: Dynamics at the very beginning. Do you worry about it much? Do you like them to start more soft and than loud, or loud than soft?

TC: I try to do whatever they do opposite naturally. You know, so if they're always, if they're always sort of, you know, always playing *forte*, I try to make a point to change a lot of the pieces to *piano* so that they can really feel it a different way. And sort of stretch a little bit. Because I think they can sort of refine the movements a little bit more. I think that *mezzo forte* is really the softest

dynamic I'd like any warm-up to be played in. Most of is *forte*. It depends on how they think about *forte*. You know. So I would adapt it. So I think a full tone is much, much healthier and will take them much farther. If they can get a full tone, they can really probably get a softer sound. But that's not necessarily true the other way around. You know. They can always tone it down. But *forte* is probably it for me.

JK: Legato, staccato, I saw some of in there. Do you just do it by ear, or do you tell them a specific way to play staccato versus legato?

TC: No. It comes, I hope it comes very naturally in that whatever they're playing, their fingers are staying pretty close to the keys. And the fingers are really sort of relaxed toward the keys, and then they, it all comes from the idea that if you want to make a connected sound it would make sense to stay connected to the keys. And chances are if they let their hand be pretty close to the keys, they have some independence. [Demonstrates playing slow, repeated notes with a slight down motion of the forearm and arm.] They've done this sort of thing. They've done that sort of thing, they probably are going to play legato. And if they want to play not connected, they just feel their fingers not connected to the keys. [Demonstrates non-legato notes with down up forearm and wrist motion.] I like those words very much. I think those words have a physical component that communicates in a way that legato and non-legato doesn't. And I've used them all. I've used "bumpy" and "smooth" and I've used every single one. And "connected" and "not connected" work for me. Because it's, it has to have a name that is meaningful to them. And it is meaningful, because it translates in a way of the actual motion. The sound and the motion come together, which is, which is exactly what we want. So, you know, I let them, I mean, there are going to be differences in how they do it. I mean, I start with non-legato and not staccato, you know, when we're starting, because I think staccato can be, I like to stay away from staccato as long as I can. You know, because it's so difficult to do well. But yeah, I think that those are the things. And I just watch what they do and try to have them lead me to what to do next, you know, as far as, if they really look relaxed doing it, then it's probably okay. You know.

JK: I noticed on that one, you were using your arm up and down.

TC: In staccato.

JK: So is the non-arm bouncing just for legato? Or is?

TC: Well, You know, this is, you need a lot of flexibility in these joints. I might have just been overdoing it. [Demonstrates playing staccato with a little bit of arm movement.]

JK: Do you distinguish between jogging like this, and a different arm motion where you do use the arm?

TC: I think that the arm, the arm has to participate more in staccato with young kids, because the fingers are so small. You know, they've got to play it a little bit differently than we do to get to, if you want a good sound, if you want to sound that really connects. But I think, I think that would be fine to do. [Plays staccato with an arm movement on each note.]

JK: But then legato is smooth.

TC: Yeah. Definitely. Absolutely.

JK: We did chords, we did rotation. How much do you have them practice every day, or do you have a time, or do you have just do the assignment?

TC: I say to do the assignment, yeah. So they have, they usually have four or five new pieces and four or five review pieces, a warm-up or two, composing, and a writing assignment. Now, I would say that with the kids you saw first, that's probably 20 minutes. Probably divided up in two different units a day. Two different practice sessions. For Naomi it's probably, she's just sort of getting into her year. It's been a little difficult start for her. I would expect half an hour, you know, of practice a day. But to start with a warm-up always. Go to other pieces and come back to the other warm-up. So they're not necessarily doing them all together. Maybe the warm-up, all the new pieces, the other warm-up, and review.

JK: Do you have them do a lot of review pieces?

TC: I have them do, I guess I do.

JK: And do they review them for a long, long time? Or just more recent ones?

TC: Well, with the kids who just started, they have them for 2 weeks and that's it. So once they're new, 1 week they're review, and then they're gone. Because it's such a high, I mean they're learning so many things so quickly. And you know, within 4 weeks, playing "Take Off" is just going to seem like nothing to them. So, there's a pretty high turnover of pieces.

JK: For Naomi, do her pieces go further into the past, or are they also new…?

TC: Yeah. I think there are certain pieces that are earmarked for, that are more performance oriented pieces and not necessarily educationally based that we'll keep longer. And also there are things that she really loves, you know, I'll keep them on her assignment sheet for longer. So it's usually, for her I would say probably it'll be on her assignment for 3 weeks minimum unless they're like a four-measure piece to introduce a concept. And when it comes, then it's gone the next week.

JK: I think that's about it, unless you have anything else you want to say?

TC: Well, I did want to show you the pictures.

JK: Oh the pictures, right?

TC: I found, I found a strategy. What I think we do a lot of times with piano technique and really all teaching, I guess, is to make it valuable, you know, to show them that this is really important stuff. And I found that just using a Polaroid camera in a lesson and showing them what a good piano hand looks like it is extremely helpful and then putting their name on it. And in the private lesson just looking at them and letting that be a motivation. But this is done usually in the 2nd week, maybe 3rd. And what'll happen after I stop using them, these particular ones in the lesson, I'll put them over on the board so that we can always refer to them, and it's something that makes it really important. And they really enjoy it. And it's really very helpful. I mean, they can really look at these things and see, like we can see that S__'s wrist is a little bit higher than it should be. And you know, you can see all these great things. I've not really done this. It's the 2nd year I've done this, but it just fascinates them, you know. They think it's so important to memorialize it in a photograph. You know, it's meaningful, I think. And it keeps them looking. And that's really important. So that's, that was sort of my new thing. You know, Polaroids are just so cheap.

JK: Oh really?

TC: Yeah. Yeah. It's amazing. I just sort of have it stuffed in my cabinet over there and just bring it out whenever I need it for something good that's happening. And just bring it out. I mean you can imagine how much Otto will love looking at his picture. You know. They really, really love that. So that's it.

JK: Great. Thank you.

TC: You're welcome.

APPENDIX H

Mary Craig Powell Interview
September 19, 2006
Columbus, OH

JK: Can we start just by telling me a little bit about your background, like where you went to school and who your teachers were?

MCP: Sure. Let's see. I did my bachelor's degree at East Carolina University in Greenville, North Carolina. And there I studied with a teacher named Elizabeth Drake. And then I went immediately from that degree to Kansas, to Wichita State University, where I studied piano and piano performance with Dr. Robert Steinbauer. Then, in terms of, that's as far as I went in terms of degrees, but I have done a lot of additional study. My first husband did his doctorate at University of Iowa, so we would travel to Iowa and live during the summers for several years, and there I studied with Skip Doppman, or William Doppman. Then I went to Peabody and I think University of Iowa, and I studied piano and organ and harpsichord. The piano was my main thrust. And I was accepted into the doctoral program, but I had babies instead when we went back for my husband to stay there full time. And then when my husband left there we had two children and we moved to Athens, Ohio. And he was on the music faculty there.

JK: Was he a pianist too?

MCP: No, he wasn't. He was a choral director. He actually was a pianist, but his degree was in choral music. Now, prior to moving to Athens, as soon as I finished my master's, both my husband and myself were able to get a college teaching position at Campbell College in Buies Creek, North Carolina. It's a little tiny hole in the road close to maybe Raleigh, Durham, Chapel Hill area. And I used to travel from there and go to Duke University and study with a man of some name by the name of Loren Withers. And I did some faculty recitals. Then we left there. We were on leave of absence positions where people would just be gone for a short period of time. So we went from there to Erskine College in Due West, South Carolina, another tiny little hole in the road. And it was close to Greenville, South Carolina. There again we taught. I taught piano and he taught voice, and I also accompanied his choirs. And so that job was especially delightful for us. We were there for 2 years. And the choir was the big nucleus of this college. There were no football teams. [Laughs.] So we toured, and it was a wonderful experience. And then we left there and went to the University of Iowa. We were there for 4 years for him to work on a doctorate in choral conducting. And there I had my first child, and so I began teaching children. I had done a little bit on the side before. I began teaching children in the home for extra income. I was a church organist as well. Now the last year I got another part-time job in a college nearby where I taught piano 1 day a week. And then when we left there we moved to Athens, Ohio. And I was there, I believe for 11 years. And my children grew up there. And I taught piano in the home again during those years. And I was a traditional piano teacher. And both of my sons, we enrolled them in Suzuki violin with one of the leading people in the country at that time. And they both began when there were four. And I was so delighted with it. It was just so thrilling to me to see what was happening, and so the violin teacher said to me, "Well, there is such a thing as Suzuki piano too," she said. "But it's very controversial, and they say that they think the children can't learn to read," she said. "But, you know, it exists." And at that point there was only one place in the country where you could go for training then. And it was the first so-called Suzuki Institute in the United States, where children went for a week with their parents for a delightful week of instruction, and also teachers attended. So we packed up and went to Steven's Point, Wisconsin. And the boys did the violin and I did some teacher training for piano... And I heard a

little child play and it was just very exciting to me what they can do, because I had always, I don't know, I always saw how the method worked to develop the artist in the child. And it was quite appealing to me from that standpoint. So I went home and began my class of Suzuki piano students. And while it has remained a controversial thing, and with good reason…because I think when the training in the United States came in, it was handled loosely in the beginning. And too many people came into it without strong background, or even half strong background…and got it started poorly. But for me, it's been extremely exciting to be able to start the preschool child and to have that many years to develop them. The reading to me is definitely important. I never under attend it, so to speak. But when you start them at the age of 4 or 5, you are able to…we delay the reading in the beginning. We are able to start the reading within a year or 2 years approximately, while we're do pre-reading experiences. And so, I have the kids start on the reading books by the time they are in first grade or the second. And it gives me many long years to develop the reading skills too. And so, at any rate, at one point, my first marriage ended, and I needed to work, and I began commuting to Columbus from Athens. And eventually they asked me, at Capital University, they asked me to come and be full-time here. And so I moved my boys and myself here in about 1984, and I was originally just teaching Suzuki on full-time contract. But they began to ask me to teach the college students, and I also did the intermediate piano pedagogy course. And so that's where I was until a year ago, when I knew I needed to cut back a bit. And actually I cut back from 40 Suzuki students to 30. [Laughs.]

JK: [Laughs.] Not much of a cutback.

MCP: And so I teach, and I have, most of my students have 45-minute lessons. Very few of them except for the beginners have 30-minute lessons. Just a few for various reasons have the other. This afternoon, little Felicia that you'll observe, her sister for example, is in our Suzuki Book 4, and she still does 30-minute lessons, and that's because her mother has a degree in piano performance from Indiana University. Her grandmother does too. And so they kind of handle mostly the reading part at home, and I just check it to keep her, you know, working for somebody besides mom. But I can give less time to that. And it just saves them some money. But most of the children have 45-minute lessons, and some of the advanced ones are an hour.

JK: Do they have classes too each week?

MCP: I do group classes once a month. Yeah, once a month. You'll see the bulletin in there when you go in there this afternoon as a reminder of group lessons this Saturday morning. Group lessons are fantastic.

JK: What do you do in group classes?

MCP: I divide it into three areas. They always play for each other. We take a piece that is not necessarily ready for a festival or something like that but it's still strong enough to show some skills and confidence. And they're confident enough that they build confidence from playing rather than falling apart because they don't know it well enough. And they all share a piece with each other. And then we have a discussion of the playing afterward. I will never allow any group to discuss anything but the positives of the child's playing. And yet it's very, very meaningful. I'm so amazed at how much the children hear and how much they get from that. And we manage to turn some negatives into positives. Like one of the praises might be, "I liked the way she was able to keep going when she had some problems." You know. And so, we have that aspect of it. And then the second aspect is working on music theory. Now I do music theory in the lesson just going through the traditional theory books that go with their traditional reading series, you know.

JK: Which reading series do you use?

MCP: Right now I use... this is what you call a senior moment... the team, they're a newer group, Faber and Faber. I have used Bastien, and I've used the Frances Clark series a lot, and I still go back. I use the Bastien *Intermediate Theory Books* once the children have finished these elementary books. And I use a lot of the Bastien, excuse me, a lot of the Clark reading books. Not the A B C books, but these ones that advance beyond. Because I have so many advanced readers that it's hard for me to find a series... They finish the series and they need more to read. So like, Frances Clark has the books Levels 1 2 3 4 5, and 6. And I like them too because there are a lot of classical things in them and, you know, they get a lot of good literature from that. But I began most recently with Faber and Faber. There is a Suzuki teacher who has written a book. Her name is Connie Starr. And I put the children through her Book 1, and then we go into Faber and Faber. I can show it to you if you would like to see it. One of the nice things for children they say, is big print. And it has wonderful print, just really big pages. And secondly, being a Suzuki teacher, she knows the value of repetition. I know that when I used to teach in the Frances Clark library, where one unit would be the interval of the second, and the next unit was a third and then the next unit the fourth. And for a lot of children it moved too fast. And she, in this first book, just teaches them to read seconds and then thirds. She doesn't introduce a dynamic, a tie, a slur…nothing except just plain seconds and thirds. And for the young preschool child especially, it's really good. It's not especially tuneful, but they are little one-liners. And after that, I have to put them in a portion of the Faber and Faber Primer, because I have to introduce them to ties, slurs, and dynamic markings in the score, a few things like that. And then we move into the Level 1, and we work from there. And it's been the best series I've ever used. I think the children like to read out of that series. And I don't think they always liked the pieces in a lot of the other series. These are very enticing pieces. And I think they're very clever with it. And I also appreciate that they take more time to discuss the technical aspects than any I've seen. And I love it because the technical approach is exactly the way I approach technique. And they might say it with different terminology. You know, like with the wrist, I forget what they use for the word, but when the wrist comes up, I tell the children in colorful language that it's like a helicopter has come and is lifting them off the keys. And theirs is a different one. But so many of the things that they teach are connecting to what I've already taught them in Suzuki. And it just strengthens it for the parents to see that in the reading book as well. So, that kind of brings me up to the present. I also, by the way though, in the addition to my career, I became back in the 1980s, I became a Suzuki piano teacher trainer. And I've traveled all over the world now, many times. I've been to South America three times and Australia four and was in Italy in the spring. And it's been fun. Whoever knew that a piano teacher would get such opportunities? You know. And I'm going to London pretty soon, in a few weekends. But that's because it started with me, you know, training teachers and getting a reputation. And I've written a book about it that I think any traditional teacher could gain from. I have one for you I'm going to give you.

JK: Thank you.

MCP: Actually, I didn't begin by intending to write the book. I was asked in the 1980s to be the piano editor for a new periodical that was started for Suzuki, and it was an international periodical, and I wrote articles for that. And then at one point the magazine folded because they had done it so beautifully that it was making them bankrupt, you know. And so the editor of the magazine said he would like to compile the articles into a book. And so we organized them into, you know, a book. And I think, I don't feel so strongly about Suzuki method as I do about just loving pedagogy period and wanting to strengthen it for everyone…When you know what you're doing, I think there are many things that we do that the traditional world could benefit from.

JK: Can you tell me just a tiny bit about your growing up years in your study?

MCP: …My aunt, my mother I guess could play anything she ever heard by ear and sit down to play by ear, you know. And my aunt had a beautiful voice, and she would sing to me. And I just grew up loving music. And I wanted to play the piano something awful. And I kept telling my dad, who struggled financially, that I wanted a piano so badly. And finally I saw a piano in the music store window in our little town in North Carolina where I grew up. And they had it all wrapped up in red cellophane for Christmas. And it was so small it didn't even have a full keyboard. But I spotted it and I told my dad. I said, "Daddy, I found what I want Santa Claus to bring me." I was a very naïve child, and I continued to believe in Santa Claus much longer than children usually do. [Laughs.] And I took him by the hand and asked him to take me downtown, and I showed him that piano. And I guess he couldn't resist it, you know. So we got one. He got that one for me. Got it from Santa. And in the fourth grade. And I guess being older and all, but I took off very fast, and my teacher declared me a prodigy. And I'm sure I wasn't. But, you know, I sailed through the method books, and I played every piece from memory each lesson, and I was just a fast learner, I think. So within a year I was playing the classical stuff, and he wasn't a good teacher though. He certainly sort of capitalized on my ability and let me go too fast and didn't really give me a strong foundation. But I could play. I could get through advanced pieces, you know, and learn them. And he would take me to different places in the area. And he would gather new students after hearing me play. [Laughs.] But at any rate, by the time I was in sixth grade...Oh a year later after starting, I needed those last keys at the end. So he got me a grand piano... So I went off to college. First of all, I was lucky I went to any college. And so I certainly didn't get to choose the Juilliard's of the world, you know. But I knew that I wanted to major in music. And I was lucky enough to have a piano teacher who had been to Juilliard. And she had studied with James Friskin there. And she took a great interest in me. And I came in with a weak background and lots of ability, you know. She gave me lots of extra time, and you know, in the 4 years I was there, why, I went from being fairly poor. Well I think I was. In terms of what I see with my students, my background was just not good at all, you know. But I worked hard and I loved it. And so I came a long ways, you know, with it. And then that kind of catches you up. There's one teacher perhaps I should've mentioned. I studied with Earl Wilde. And for a while he left Juilliard. He became tired of New York and Juilliard, and he came here to Columbus and taught at Ohio State. He was their guest artist in residence. And he really didn't take any private students, but he had master classes there that were open to the public. And I used to go to every one of them. And at one point I took a student over and accompanied her playing a Mozart concerto, and he liked my playing, my accompaniment so much that, and said so much about it, that I got up my courage, and I had just sent my youngest son off to OU [Ohio University] to go to college and had more time to practice. And so I wrote him and asked him if he would take me, you know, and he did. So that was a wonderful experience for a while. Yes. And then there was Seymour Fink, who has written a book on piano technique. He lives in Columbus. And when he came, Earl Wilde had left OU, and I asked to study with him because I just wanted to see what he had to offer. So I haven't studied since about 2000 though, and I have all sorts of fibromyalgia and stuff like that [Laughs.] You know, I have to be very careful when I practice to make sure I don't hurt myself, you know, physically and all. I guess that brings me up on what you were asking there.

JK: Let's just start talking about how you teach technique from the very beginning.

MCP: Okay. Oh, that's a heavy duty one. [Laughs.]

JK: I know. We'll fill in the gaps later. [Laughs.]

MCP: Let's see. First of all, in the Suzuki method, you know, we take the first Suzuki book and use it to develop technique, and consequently artistry, before we begin the reading. We put them in two different packages. And so we set the children up for success physically, we hope, at the keyboard, you know, before they begin playing. And at the same time... I do pre-reading skills. And about their second book, we begin learning to read also. But at any rate, with the technique, in Suzuki there are a set of variations on "Twinkle, Twinkle Little Star" that give much of the basis of their technique. And so that's what you will see with, most of all, with Ivy tomorrow morning. Now her sister, Grace, who is coming today, took some Suzuki lessons. And they stopped because they felt like she wasn't getting the right thing, and they waited in hopes that I would take her. So I'm moving a little faster with her, and it's a little different. You'll see her too. But usually I end up with a preschooler, whom I love to begin, spending three to 6 months on just those four little, simple-looking variations. And I use it to teach them how to sit properly at the piano. I try my best to use every childlike approach that I can even though there's a seriousness of intent behind it. For example, when they sit, you know, so that they will sit on their whole sit bones. When I sit, the way so many children look like this, you know. [Sits up but slumps.] But I compare them to a squirrel. And I have told them, stick out your bushy tail first when you're sitting, so that they will sit properly. And imagery I have to use heavily to hold their interest. And so, they're sitting and I compare them to a tree. And their legs and their feet are like the roots of the tree. And their back is like a tall, beautiful, but comfortable tree trunk. And the little hands and arms are the limbs and the branches. I begin with work with their first lesson, with actually some games on the floor. And prepare them for the technique of Twinkle A, as we call the first Twinkle. And through that, those games, I have taught them some of the basic techniques of the Twinkles. And I might say that on the Twinkles that one of my biggest goals is to teach them to incorporate the use of their arm along with the fingers from the beginning. We exaggerate with young children. So you might see some things that you think, "Horrors, does she do that?" But we modify them later. Young children do very well…it's natural for them to make big motions. And so Twinkle A, for example, we play it moving it from the elbow, and not just from the fingers, but moving here. [Makes a forearm motion.] And so we work with moving it from the elbow. We also teach them to play very fast from the beginning. I think that's unique in the world, to begin with speed. But we feel that if we have the mechanics set up and have them done correctly, that they can be loose and free enough to do this. And if they can't do the speed, then we know they're tight, you know, and we work with it. At any rate, we begin with Twinkle A, teach them away from the piano some clapping games that teach them this little rhythm that is . We call it "Mississippi Hop Frog." You'll notice many frogs in there. I got one years ago to help me teach little children, and at one point I lost the frog. And everyone was so grieved because I used him so and he was such fun for them. Then I thought first of all that we were going to have to have a memorial service for the frog. At any rate, they started bringing gifts of frogs to help recover for that. And so now I have over 200 frogs. [Laughs.] But you'll meet Fred, the main frog, this afternoon, I'm sure. But at any rate, Fred helps me teach all of these things. And so we begin with the forearm for our Twinkle A. When we get to Twinkle B we are teaching them to use the wrist. [Demonstrates moving the wrist down and up a wrist roll.] And to move here. And of course that moves their upper arm. And call it a roll, because it is like you're rolling through your wrist upward. And that's when the exaggeration is much greater than you would ever see with an advanced student. And if you see some advanced students, I think you will not see the exaggeration. But children do not do subtleties well. They use big motions. So we work that, and again, another use of the arm, and the upper arm moving forward and all is a very freeing thing. Twinkle C is more of the forearm. And Twinkle D uses the wrist movement, but it is also their first introduction to legato playing. So these are some of the things that we're working with the Twinkles. Additionally, even at the first lesson, of course, there has to be some type of the hand that we use I try not to use the word hand position anymore, because it can imply some

kind of a fixed, rigid shape, you know. So I sometimes call it their piano hand, or, you know, I'm still struggling. I change with the words. But I have done away with hand position except when I'm with people like you, you know, where the world traditionally knows that, you know. So I work with their hand. And you can read about that in some of my book, because I'm going to give you that. But you know, mostly these days I just have them put their hands to their side, and it's a natural position. And then we bring it up to the keyboard, and I even close the lid at first, because as soon as they try to play the individual notes, they start doing the funny things children do. [Demonstrates poking at the keys with straight fingers with a very high wrist.] So we do it the whole hand on the closed lid. And we bring it up to the keys. And I made up this story about this is like a straight road. [Demonstrates the forearm in a straight line with the wrist as a straight road.] And I take a pencil and I say, "This is us in the car. This is our car." [Makes a line down her forearm with the end of a pen.] And we drive on the straight road. A lot of children will hang their wrist down like this. A lot in the beginning, or up. And in the beginning we just want it straight. We talk about the knuckles being like bumps in the road. We talk about how the fingers look like rainbow arches. I do not use the word curve your fingers. I'm very bothered that even some of the newer method books call, talk about it, because I have to undo all of that. And I'm so conscientious about the tension that comes from that involves the long flexor and comes from here [top of the forearm] instead of using the short flexors [wiggles fingers from the bridge] and moving from this joint [the bridge]. And so we have assignments that 1st week. I'll pretend my left hand is the closed lid. And we bring the hand up, and mom takes the pencil and she checks for the straight road, and she looks and sees if there are a few bumps in the road, and she looks for the rainbow arches. And we talk about how the thumb touches only on the side of the nail to avoid this problem. [Demonstrates a flat thumb.] And then I turn the pencil into a pretend kitty, and I pass it under the bridge. [Moves the pencil under the hand from the thumb side.] And if they can get under the bridge, the kitty purrs. And if they can't, the kitty meows. [Laughs.] A lot of times the children say, "You forgot to check to see if the kitty is purring." You know. I have to find a thousand ways to hold the child's interest, you know. And at first I thought all these imageries were just for the preschool beginner. But I must say that I remember in the early years in Athens, I was still teaching traditional students as I began Suzuki. And I had a little girl who was a transfer to me. She was about the fourth or fifth grade. I could not get rid of that horrible hand. [Demonstrates flat hand.] So finally one afternoon in desperation, I said, "K___, I just want to tell you a story that I tell my young children, my preschoolers." And I started this with her, and her eyes lit all up, and the next week she came back and she was trying to do these things. And she said, "Tell me that story again." And so I got the message from that, that I didn't have to limit it totally, that I had to be careful with those that were older that I not be insulting, but that the children love a colorful approach to teaching. And I'm big on that. I may be getting off the subject, but I can talk for hours about the importance of creativity in teaching. And I know that back in about the 1980s that learning psychologists were realizing that learning did not involve just from the neck up, just the brain, so to speak. But that learning was greatly heightened through the use of creativity. And they did studies, and there are studies to support this. And also when the right side, the creative side, of the brain is engaged in learning with the left side, the neural connections between the two sides of the brain are supposed to be strengthened and help children in the learning process in whatever they do. But at any rate, I believe in the use of creative teaching. And these are the some of the things that I do with the children in the beginning just to work on technique. And so back to the first lesson and the beginnings of technique, I've taught them some things like move from the elbow with the Mississippi Hop Frog rhythm, and I've shown them the piano hand and talked about it being loose and soft and comfortable, and Fred's arm, my frog, is very soft and loose and comfortable. And we flop his arm, and we talk about it feeling like that so that they don't get knotted up, you know. And then we put those two steps together on the closed lid of the keyboard. The child takes the piano hand

and then taps, "Move it from the elbow" [] and things like that so that they're getting used to the hand that we're going to use. And then, after the child can do this, of course, I put them on the piano with individual notes. Now I have a parent helping at home, of course. And she often, with the young child, I've taught her how to hold the hand and help the child experience through her help. And then she begins gradually to let the child try it on her own more and more. And I make assignments like the hand down to your side three times a day after you're seated, and bring it up and check all the things we want, and then let's take that piano hand and let's practice these rhythms. But once we start playing, often, especially the younger they are, the more those kinds of things, the rainbow fingers, can disappear for weird things, and they begin pushing the keys instead of dropping in with gravity. But they all have an imagery in their mind, a childlike imagery that we can come back to. They have an understanding of what we're after, you know. And so as the weeks go, you know, we keep working for the rainbow fingers and those kind of things with them.
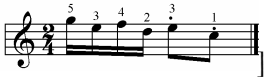
JK: What do you do about this problem? With the joints? [Demonstrates collapsing nail joint.]
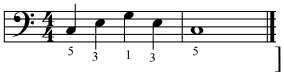
MCP: Oh. Well, I go crazy with it. [Laughs.] When I see it, I've devised a few little games. Like a child, I'll have them play a piece for me and I might tell them I want them to freeze, I want them to stop when I say freeze. And they're playing, and I say, "We're going to check that this bump in the road is strong." And so they'll be playing and I'll say "Freeze." So they stop, and if it's like that [collapsed], then, you know, they are allowed to fix it, but their goal is to try to have me stop them without it looking collapsed. It's just an awareness type of a game. And also Fred the Frog, he's a pretty big frog, and his hands can cover his eyes. When he sees that in a lesson, he covers his eyes in horror. And I fuss with him and tell Fred that's bad manners, he should not do this. And he's a little too shy to talk out loud for the children, so he whispers in my ear what's wrong. And it's these. [Demonstrates collapsed knuckles.] And I say, "Fred, just don't look for a minute." And I turn him away and we'll practice this and see if we can do it better. And I turn him back, and they play looking better, and then he jumps for joy instead. Again, I find that children are irritated and annoyed by just constant teacher hacking at them, saying, "You know, you're driving me crazy." [Laughs.] With all of this, you know. So I've tried to find some fun type things that we can laugh through and still improve it. And of course, just technically speaking, the Twinkles, Twinkle A and C in particular, are full detached notes. And while their little fingers are too weak to make a tone of adequate volume and quality, plus these joints aren't strong [nail joints]. By moving from here, it begins to strengthen this if we keep our so-called rainbow fingers. You know. It begins to strengthen it. And there's far less of a tendency to collapse when you're playing detached than when you're playing legato. And you know, in Russia they teach the children—and of course Russia is the place for me that honors the art of piano playing more than any other place in the world—I understand that they teach the children to play everything detached at first for that reason, to help strengthen that. And so we keep reviewing Twinkle A a lot, and that seems to help strengthen too. Now the interesting thing is that, when I studied with Seymour Fink, in his book on piano technique, he told us, not just me but a whole group of teachers in Columbus, he said, "I think you shouldn't worry as much about this" [Demonstrates collapsing nail joint] "as teachers do," spaghetti fingers as I call them, because he said, "You are risking having them have a worse problem, which is tightening with a curving of the fingers to prevent it." And I used to be harder on this, or, you know, more determined than I am now based on this new kind of thinking. Because curving the fingers excessively can tighten and leads to all these other problems. He said it's far better that their fingers collapse some and that they are playing more like this [less curved] even if it causes more collapse. You know, the natural hand is not a curved hand. And so I've tried to close my eyes a little bit more to it and be a little bit more about it. And I must say that I have a class, and have for years, of very loose players. You know, I might

not teach them if they are younger like, teach them all the piano techniques that I know, but they manage so well as we advance, and the Suzuki books advance rapidly in difficulty. They manage and can play them brilliantly. And I really think, honestly, that it's because I've got them loose physically. And that they, even though they are not doing extreme motions from the arm and the hand like we do in the beginning, that that beginning helps them to just feel loose back here [at the arm]. I see so many children that just move their fingers, and everything behind them is so rigid, you know. There is no movement. Now, there's lots more that I can tell you though about the piano technique at the beginning. We certainly work for the nice piano hand. We're working to move from the arms. I also try to teach them alignment from the beginning. And I did not until a few years ago. I'm the kind of person that I think, "Okay, that child did that well. I'm going to try this now. They do that well. So I'll try another one." And so I actually work with them, I just get so bothered by seeing so much twisting at the piano. [Demonstrates ulnar deviation.] And they get so tight. And when they get to their scales, why, you've got all this twisting like this in their hand because they're so unaligned. [Demonstrates radical twisting of the elbow outwards when moving the thumb under the hand.] And so I have some tape in there that peals off of the piano easily and it's called colored tape, and they like it, to keep from putting that finger out on the edge. We could go to the piano if you'd rather. They turn their hand so that their pinky is right at the front edge of the piano leaving them very twisted. If they put their pinky up close to the black keys, it tends to align the hand. And I also have taught them, and even 4-year-olds can understand this. How if they take their large knuckles and they put it against the fallboard, which I'm pretending this sofa is, and bring back and still stay in a straight line with the fallboard, that the hand and arm are aligned. And so, then I find what it is that if those fingers play up close to the black keys it helps to keep them aligned. It's this business of pulling around to the front edge that twists them so much.

JK: So it's an alignment with a finger that's playing, or a general alignment in the middle?
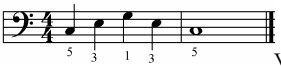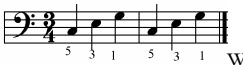
MCP: A general alignment but of course we try to keep it aligned with the finger that's playing. Keep the arm behind the finger that's playing. And I think you probably would like to see that done at the piano at some point. But they like the tape. And even the little 4-year-old can put their hand on the fallboard and bring it back and then even play just a five-finger pattern where I put some tape where their finger goes. Visual aids. And we begin trying to create a habit of playing aligned. Now, I don't master that with them. But by the time we get to Book 2 we're beginning to do some heavy duty scales and we continue this process of beginning out by being aligned to keep from twisting with the scales, you know. So I work with that. I also, in Book 1, I've developed this little game called "Follow the Leader," and it's a copycat game. I developed it for many reasons. One was to train their fingers to jump, to skip. I didn't realize this until I was a Suzuki teacher, but preschool children have difficulty skipping, like a third. And if they're going from G to E, they'll take finger 5 and stretch their little hand to play 4 over to the E, from the G to the E. And even if it half kills them, it's not natural for them to skip. And so I have little patterns I think maybe Grace this afternoon, I think I've started her on this, 5 3 4 2 3 1 thing

[] in the rhythm of Twinkle A just to get her used to skipping 5 to 3 and 4 to 2 just to prepare her for the skips that are coming. So I've developed that game for that reason to preview some skills that will be needed. I've also developed it for eartraining. Which I won't have a student this afternoon that is at the point that can do that. But I teach them some patterns, and they are to do these patterns each week with their parents. They learn it through looking and listening at first. But then I begin to have them close their eyes, and I give them those patterns and some they have never heard. And, you know, just to develop their ear. But I also additionally use the Follow the Leader game to introduce little techniques that I'd like them to know for years

to come. For example, circles. And I'm always using the rhythm. But, you know, like C E G E C [], and I have them learn to walk in, so the speak, for the E, and I tape those. And again, I'm sure that you'd like to see these on the piano.
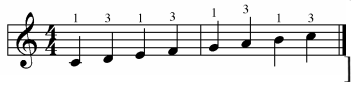
JK: Would you like to move?

MCP: Sure. I can just sit at the piano.
[Move to the piano.]

MCP: Here's the tape. If you don't know this tape, it's neat stuff. If you put some on a reading assignment, on a note they've missed, and when they correct it the next week, it just peals right off again. And you can write on it. Right now, since we were talking about alignment, I teach them, for example, to put their knuckles up to the fallboard like this, and this puts the hand in alignment with the arm. We bring it back to the keys and make sure that we're not twisted but that we could see that straight line with that [bridge with fallboard]. And I do things like put some tape. And by the way, I call these, with the young ones, these are the black houses [black keys], and these are the front yards [white keys in front of the black keys.] So this is up at the front door. [Demonstrates a finger on a white key close to the black keys.] And this is the edge of the road. [Demonstrates 5th finger close to the edge of the white keys.] And we're trying to avoid playing… [Plays a five-finger pattern on C with the 5th finger at the edge of the black key.]… on the edge of the road and getting this kind of tight stuff. And so sometimes I put the tape for all four of the keys just to get used to playing there. [Puts tape on G close to the black keys so that as the five fingers play, the hand moves in slightly so that the 5th finger is aligned with the arm.] And so you see, I'm playing up there, and that actually leads them to the skills that we want, because we want them to play close to the black keys anyway, but in a line. So as they play the arm moves a little bit. And the tape is a visual aid. Now with the circles… [Puts tape on the E just inside the black keys and one piece of tape just in front of the black keys. Then plays  with the fingers touching the back tape on the E going up, and the tape in front of the black keys on the E going down. C E in G E out C.] Going up we do it here, going in we do that. Going back down. The parents see this and they understand. I give them some tape, and pretty soon they're doing circles with great ease. And this in this hand, we're always playing broken chord accompaniments, Alberti basses. And so, you know, a little tape slightly inside the black keys… [Plays left hand  with 3rd finger playing the E just inside the black key area so that the hand moves in a little on the E.] And again, the children that play with a low wrist, their hands hang out on the edge like this and everything falls down. But this just basically forces them up, and we begin to get this kind of thing just with that little tiny 2 seconds spent on it each day in practice. Even the traditional child could understand that with an assignment book and a picture. Of course it's fun when you do it with the game-type approach. So, at any rate, once we begin scales, which in our book don't occur until the beginning of Book 2…

JK: How long does it usually take them to get through Book 1?

MCP: Depends on the child. A good child, the strongest ones go through it in a year. And one prodigy did in 3 months. And most of mine are through it in a year and a half or 2 years. And I have a studio of pretty strong students. And some of them though, it's amazing, some of them are quick learners and not as musical, and others are super musical and are slower in the learning

process. But 1 to 2 years for me is a good guess. And I would say, I teach so many workshops where I see a child in their fourth year in Book 1. I don't see how they stand it. You know, it drags out so long. And of course, I don't see how the teacher can avoid starting them to learn to read. I think they have to start the reading process sooner. But I don't think they get a commitment from their studios for enough work. When we start our scales though, Julie, again we put this up here so we're not… [Demonstrates knuckles against the fallboard so that they don't play with a twisting wrist every time the thumb moves.] And I have a little exercise…I read this in some traditional journal, just at first just practicing 1 3 1 3 without twisting []. I make an analogy and call this the bridge. And bridges don't move. The thumb is the boat going under the bridge. And boats can move, but the bridge can't, you know, like that. And the 1 3 thing is awesome because you don't have to concern yourself with getting the right fingering. It's just a one step with the thumb, just doing it without twisting. And then, you might see Hannah do that tonight with her scales. Let's see, I'm trying to think. There are many other little things I do. I hope I'm touching on enough of them right now. We basically are trying, unless their hands are unusually small, to learn to play the four fingers up close to the black keys, thumb at the edge of the road, so to speak, from the beginning. Not only for alignment just, but because when you want those black keys later you don't want to have to seesaw back and forth [in and out] with it. Twinkle techniques and legato playing. There are many techniques, and I don't know whether they're the same kind of things you're looking for, but I have some techniques that I use for helping them learn to balance well between the hands at the beginning if you're interested.

JK: Yes. How do you do that?

MCP: Okay. Well, they benefit from listening. So I have a model with the listening so they know what sounds better. And so if they're playing pieces they have learned, and they're playing it with two heavy hands. [Demonstrates.] You know. And I realize that they've reached the point that I think they're playing strongly enough that I can start working on balance. I begin through a listening approach. And one of the things is just to ask them, which one sounds more like your CD? [Demonstrates two ways.] And so I demonstrate like that. And so I begin through listening. I use imagery. And I talk about the right hand needing to sound like an elephant, a very musical elephant, mind you. Like an elephant. And the left hand is to sound like a mouse. And we have a little elephant and a mouse among all those gifts that I have here that somebody gave me. And I tend to pull them out for the young ones. And I'll bring in the ghost, and you'll see why. But the children like these. [Laughs.] And we talk about, and we do listening games first, which I think is the way to do it. I think through the ear first. I think it makes that, it's attractive to them to sound good once they hear the difference and can discern the difference between what sounds good and what doesn't. And so we do listening games like, "I'm going to play for you, and you tell me whether you heard two elephants, or two mice, or elephant and a mouse." [Demonstrates different ways.] And that's two elephants. And an elephant and a mouse, but he got in the wrong hand. And this becomes the right thing that we want. So listening to get them ready for it, as preparation. Now once we're ready to try it, I take the easiest piece they know, which I think is "Mary had a Little Lamb," because it has blocked I and V chords. And Alberti and broken chords, they tend to play them noisily. You would think that with all the notes going down at once [plays chord] they wouldn't be, but it is. And so we practice playing, we start out just by playing the elephant's part. [Plays the right hand.] And then I say that I want them to make the left hand sound quiet as a ghost, so quiet you can't hear him. And so they learn to play… [Demonstrates right hand playing and left hand ghosting]… left hand silently. It's called shadow playing, formally. But I called it ghosting. [Laughs.] And then after that we try to play just a little

bit bigger than that [moves the stuffed mouse], and make it so it's almost like a ghost, and turn it into a mouse. And I break it into steps. I'm big on really structuring it for the parent. And step one is to start out with just about two measures of the elephant, because I know what happens. As soon as they start making this softer, they make this one soft too. [Demonstrates both hands soft.] And so we get this started first [Plays right hand by itself], and we follow with the elephant and the ghost, and then we try the elephant and the mouse. I also teach them that if they get above the keys slightly on the hand that needs the sound for the melody and drop on it that it's easier to make a difference. So we make a little preparation. But the ghosting, as I call it, has been the most successful the thing I've ever found. And actually I find it not only for getting balance in the hands, but like for an echo or something that echoes [Demonstrates], that if you do this first, then they can always play it softer. [Pauses between the loud and soft parts and plays the echo ghosting first with both hands.] So it's nice for those sudden dynamic changes, and it doesn't have to be limited to just the ghosting. Another reason that children might not be able to get…

JK: Can we stop just for a moment? I have to change tapes. [Changes tapes.]

MCP: I've had people from places like Juilliard. And I'll never forget that this young teacher came one summer for training with me from Juilliard. And she heard some of my students play, and she took the course. At the end of the course she said to me, "If I could manage it, to get here from New York City, could I come in about once a month or every 6 weeks and study with you?" And I looked at her in amazement and said, "Well, why would you want to do that? You study at Juilliard." And she said, "Because you know *how* to help people. And my teacher doesn't." And I've realized that all across the world on the international scene, from the babies who start to the people who are studying at the Juilliard's of the world, their teachers might know what they want, but they don't know how to get it across except just to tell you that you can't do it. Or to play it themselves, you know. They don't know how to help you. And this word "Stop" in between the sudden change that we do in the Suzuki method, and I should share that with you too, because when the child first begins and first starts playing, if we let these young children start out with their nice piano hands looking soft and good, by the time they get to the second note, they're going to be going [Plays Twinkle A and plays the 2nd note with a flat 4th finger] and all these things. And so we have what we call the Stop-Prepare technique. And a child is not allowed to play a note until they look good. So I, or mom at home, sees it and says the words "Ready, go." Then the child might move to the next note, and there is no starting until she looks good. And then the mother says "Ready, go." And we do that for weeks until the child begins to be strong enough to play the piece looking good from beginning to end. And it's a beautiful control that you can have over them. And if they start with it, they don't seem to mind. A few do, but most of them don't seem to mind, if that's the way they started. The transfer, it'll drive them nuts, you know. But we are just stopping to make sure that the technical preparation is started good at the beginning. But I put that word "Stop" before sudden dynamic changes. I put it where they've missed a fingering over and over. Then I put the word a stop on the note right before it, so that the parent and child never miss it. They stop and get ready to do it successfully. And it eliminates doing it 19 times out of 20 wrong until you get it right the 20th time and wanting to quit lessons because you're so frustrated. You keep practicing doing it correctly. So the Stop-Prepare technique is a fabulous technique for any teacher to use. I play police woman and I say "Red light," and when it's good "Green light" and things to keep it light and fun for them. But it's all still an integral part of the importance of what were doing, the stopping. I kind of got off the subject, because I was talking about the balance between the hands. But let's see, I've given you some thoughts on balance.
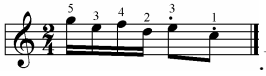
JK: How about legato? How do you introduce that?

MCP: Well, we introduce it with Twinkle D, and there is a little exercise that they do right before it where we do everything on five-finger patterns before we begin, and so I introduce it through the ear again, like Suzuki method, and I make them hear it legato. [Plays a slow C major five-finger pattern with the right hand with down up on each note with a wrist roll.] And there's a little article in my book called the Legato Game. And I have the child, I will have them close their eyes, and I say, "I'm going to play something for you that sounds, that's called legato." No explanation whatsoever. Just, "It's called legato. Listen to the sound of legato." And with their eyes closed, they hear legato. And then I say, "Now close your eyes, and if you hear anything different, anything that's not legato, raise your hand." And then I play and make really huge differences, and I become more subtle like that. [Demonstrates the legato pattern with a staccato in the middle, and then legato with a non-legato in the middle.] And help them to begin to get the concept. In Suzuki method we try to come in through the ears first. I should show you how we teach them dynamics, for example. This is a group lesson thing. But you might want a move that back if you want to see this. [Stands up while Julie moves the video camera back.] This I didn't make up myself. This is something Mitsuko Yurko, you might have heard of her, *Music Mind Games* for studios. Suzuki talks about in our method that first we hear, then we learn. Then we see, and then we learn. Which is kind of a reversal. And so without any explanation of what dynamics are, we begin like this on the floor. [Crouches on the floor and whispers] *pianissimo*. *Piano* [stands up a bit] *mezzo piano* [puts hands on hips] *mezzo forte* [puts hands on shoulders standing up] *forte* [puts hands on face and speaks louder] and *fortissimo!* [Jumps.] [Laughs.] They love that. We do *crescendo* and *diminuendo.* [Moves up and down and makes her voice louder and softer.] And after they've done that for a while, and pretty soon they understand it without too many words. It's something that thrills them. You might ask me some questions to lead me onto some other thoughts.

JK: At the beginning do they play just *piano*, or *mezzo piano*, or do you fuss much with dynamics at the beginning?

MCP: No. No, I try just to get a *mezzo* kind of a range. *Mezzo forte* or *mezzo piano*. *Mezzo forte* probably is the best range. And it's just, it's a little ways into the book, almost half way in before dynamics are introduced. And so I introduce them first with the Follow the Leader game really quick [Plays a five-finger pattern *forte*], and then they copy me. [Plays a five-finger pattern *piano*.] Like that. And they begin to realize that they can make different levels of volume. And then we begin doing it in pieces. And we put a big focus on that. But I'm not interested in it at first. I'm interested in just a good tone. That I should talk about, because tone production appeals to that too. We try from the first note they play to make a good sound. A lot of children sound sickly like that. And a lot of children are really aggressive at first. [Demonstrates sickly and harsh sounds.] And they sound horrible. And so at first I try to approach through listening games. And this is Fred, by the way, with his nice loose arms. And he can cover his eyes or he can jump for joy. And he's fun. But at any rate, the listening games, since we use the frog so much with the little ones, they to close their eyes and they tell me whether it sounds like "I'm a tired Hop Frog" [Plays  quietly on one note], or "I'm an angry Hop Frog." [Plays very loudly.] Or "I'm happy Hop Frog." [Plays with good tone.] To give them some ways to discriminate by hearing bad and good examples, what really is good tone. So, you know, then we work to sound like "I'm a happy Hop Frog." So we work from a tonal standpoint. Another thing I do though, of course, is to try to help them in a childlike way understand that tone is made through gravity. And so I have them put up their hand, open their hand on their laps and let Fred fall into their hand. And I say, "This is the way we make a tone. You know, there is no pushing. There is no poking. We just fall." And then I let, I actually will do my hand on their hand and let them feel it fall. And then I say, "You do that. Just let your arm and everything just go." And we don't really use the word gravity, unless they're older. Sometimes when they're older I'll say, "Remember how Fred used to just fall?" You

know. And because it's a frog, they like it and they remember it. I've seen examples of the retention they get just from it being somewhat imaginative. And so we work on that kind of a feeling, and we work through sound, and demonstration, of course. I'm always demonstrating a better sound. I keep it simple. I think everything should be kept simple with children. And to teach them as simply as we can and not get too fancy unless necessary, you know. But we definitely work for beautiful sound. And as we're getting ready to play Twinkle D, which begins legato playing, not only have I done those little legato games, to get to work on the concept of deep sound, but we make an exercise which Dr. Suzuki called tonalization. And my boys did tonalization on the violin. And I remember them going from little scratchy, squeaky, squawky bows, tight things that you'd want something in your ears for when they first started, to starting to use longer bows and adding vibrato, it became a work of art within a year. And so I determined when I became a Suzuki teacher to use the tonalization at the piano. You know, when I became a Suzuki teacher, the training was so surfacey at the beginning. I went for 5 days and took a course on all seven books. And when I left, it had gone by so fast and there was so much uncovered that I mostly trained myself and developed my ideas based on what I learned from my boys' violin training and turning them into a piano medium for it. But at any rate, with the tonalization, which I was determined to use, we use these rolls because it helps to you learn to use arm weight. [Demonstrates a slow five-finger pattern with down up motion of the arm and wrist rolls.] And I can get a beautiful tone out of a 4-year-old and a 5-year-old when they're using the arm weight. And we combine that with legato playing. And that is another way that I work on tone. It's not just to get them working legato playing and to get them ready for Twinkle D and Book 1, which is primarily legato, but it's also to help to work on tone. And at first it might look good and they might be flopping the arm, but they will not really be using the weight of the arm. So we work for weeks and weeks on that, and I've developed a game that they can do at home with their parents and other game that they could do in the studio with me. And every week once I've taught them this at their lesson in Book 1, we do tonalization and the game with it. The real reason is to get them a deep, weight-based tone and make it so appealing that they do it. [Laughs.] And at home, or let's say when there are two people involved, mother just closes her eyes and the child plays, and if she hears a tone that sounds different from what we're working for she raises her hand. And the child's goal is to keep mom from raising her hand. And that makes it fun. In the lesson, mom, or dad, I do have some dads too, closes her eyes, and we say then that a first player and a second player are going to play tonalization. And for months, I'm the first player. And then the child tries to copy me. And mother, after I've played and the child plays, maybe there's just a subtle difference, like in that weak 4th finger. [Plays 4th finger weaker than other fingers in a five-finger pattern.] She might say, "Well, I think both players sounded really beautiful for the most part, but I thought maybe second player 4th finger sounded a little weaker. Was that you, Johnny?" [Laughs.] And they of course, they get to the point that they are listening so for a beautiful sound and a deep tone that it becomes habit. And that habit then carries them for years. They and their parents that are working with them see how the concept developed through a simple, little, foolish game that gave them the confidence to, and you know, they've repeated it. I love what Suzuki says, "Skill is knowledge plus 10,000 times." You know. We're doing the 10,000 times, so to speak, that builds their ability. We try not to have these little thin tones, you know. And trying again to use this weight to get stronger tones. So that is something that I use a lot in Book 1. I have to phase it out, because in Book 2 we begin the reading, we're working scales, and it's impossible. However, with Book 2, I do develop it. I don't spend as much time as they do in Book 1, because I can't seem to fit it in. I do the tonalization where they do this wrist gesture on every single note, and I show them how to make two-note slurs out of them. [Demonstrates down up with the wrist and arm on two-note slurs.] And I show them how to make three-note slurs. [Plays down up up.] And five note slurs. And I show them how when we get to this a while later… [Plays Burgmüller's Arabesque]…Because that's what that is. And that's in their Book 5. [Plays the group of five notes going up. The hand moves down up and slightly forward]. That's a

little rotation, just down and walking in a little bit. And so they are things that I've developed from that. And also, there's the same feeling at the end of the piece. When they get to the end of the piece, they use the wrist to lead them off. [Demonstrates.] And that's what I was mentioning in there that we talk about a helicopter coming along and taking them off the keys. And the young ones are funny on the recitals. They are so intent on showing that they get to the end of the piece like this and come lifting… [Demonstrates lifting the hands way above the head]… to impress the audience. And the audience laughs and laughs. They wanted to be sure the audience saw the helicopter lift. There are a lot of things that grow out of what we are doing. And I certainly cannot give them all technique in Book 1. But I've found that if there's anything I do give them, and a lot of things are starting with that little tiny Follow the Leader game on which they spent maybe 2 minutes a day. But they do it everyday, and it becomes a habit. Let's see, and I told you that I use it to get them to play skips. [Plays .] I use it to begin eartraining. I use it to introduce some technique. And I showed you circles on that. But sometimes I like my students to slide sometimes. [Demonstrates sliding with the fingers back toward the palm.] And so sometimes we practice doing that just to get them used to something that we're going to use down the road a little bit. Something that I don't introduce in the beginning that I add later but is still in the early years is finger staccato. And I wait on that just because I told you I'm so big on getting the arm loose back here and working. But some Suzuki teachers start with finger staccato in Twinkle A. [Demonstrates.] It's a good motion, but again, I choose to wait, because I want, I'm so intent on the arm bit and the use of the body.

JK: So when you do finger staccato, is a sort of a pulling?

MCP: Scratch yourself and you've got a finger staccato. As long as you're not moving your arm when you do it. But we just concentrate on scratching ourselves. And then I go back to Twinkle… [Plays Twinkle A with finger staccato.] We're always going back to Mississippi Hop Frog to get something. We practice that. Yes, it's just a scratching. That's all it is.
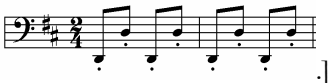
JK: Do you do hand staccato?

MCP: I don't do hand staccato with the exercises much. I just sort of teach that when it comes up, so to speak. I don't know why, but I guess the literature itself just doesn't have as much, as many places for it, you know. I do it when it becomes appropriate.

JK: For the Twinkle A, the 16th notes, those are still forearm? They are not hand?

MCP: They are. They're forearm, but there are other words for it besides "Move it from the elbow" would be "Low bounce low bounce high bounce." So that when you're doing the 16th notes, you're staying close to the keys. You couldn't possibly do a big elbow motion and get it quick. And then Fred shows that "Low bounce low bounce high bounce." [Bounces Fred.] Like that. And of course you can't get the speed either, and you get tight and tired if you make too big a motion, but you still want it to come from here. [Demonstrates forearm movement.] Young children are so natural with big motions. I have trouble keeping it from coming from the shoulder sometimes. I have to work to get it from here [elbow]. Whereas adults have a hard time moving from here [elbow] into the smaller physical motions so much.
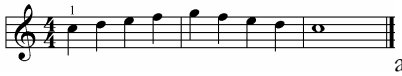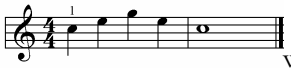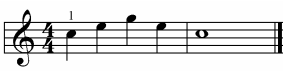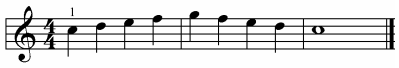
JK: How about rotation?

MCP: Rotation? I teach it to them when it comes up in a piece. Like when we have… [Plays the left hand of Bach Musette in D  .] And we just talk about it feeling like a doorknob turning. And I also know another motion for that that feels better for a lot of them. [Demonstrates a counterclockwise circle on the left hand of Bach Musette in D.] So swiping the keys out in. [Out on 5th finger, in on thumb.] For some of them that's easier to do than this [back and forth]. On that particular piece, for example, we'll go home and just make an exercise of practicing that. They don't have especially a separate exercise that I give them. Many of the things, as they come up, we just get the technique from the piece and create exercises. We do previews of pieces, like previews of coming attractions at the movies to prepare them for new skills. So I might just give them a preview of that, for example, before they start the piece. Any new skill that I know they could do, they could play those notes, but it wouldn't be the way I wanted it. You know, so previews work, and just lifting them out for extra practice too.

JK: Like on the thirds, do you do rotation, or is it mostly...?

MCP: [Tries it with rotation and without so much rotation.] Not so much at the beginning. I guess because I think the goal at the beginning is to get it so they can skip, you know. I certainly don't do it when I first teach it though.

JK: For five-finger patterns do you do any rotation?
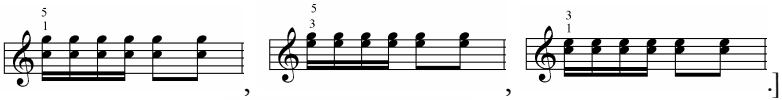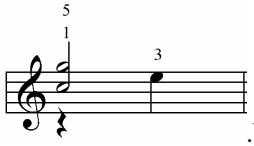
MCP: Not using a particular exercise. We certainly learn to do that later. [Plays  and  with circles, not with Matthay rotation.] Sometimes I do that, but I guess I don't stick with it like I do the skipping notes. [Plays  or  with circle movements.] Just because I know there are so many places where we're doing those kind of things. You know, in our Book 1, we have Allegretto I by Czerny that gives me a wonderful chance to do the circles. [Plays the right hand and shows large circles.] And so the Follow the Leader game, by the time we get to that, because that's maybe almost two-thirds, well, well over halfway through, by the time we get to it, we've been doing that kind of a motion for a long time that I just say, "We need circles." And that's it. But like when we do arpeggios, we talk about circles. [Demonstrates a two-octave arpeggio with a circle at the top at the turnaround. Then plays a five-finger pattern with the circle.] I really should do that too. I just haven't needed it in the literature, so it didn't grow out of it.

JK: So for Alberti, are you more concerned with the circles and the placement of the fingers on the keys than with the back and forth motion?

MCP: Yeah, I am. [Tries both ways, with circles and with rotation.] I am. Because after teaching all the children the world at this point [Laughs], I see that there are certain universal diseases, and this is one. [Plays back and forth Alberti with a very low wrist sagging below the key level.] The disease of the low wrist is just one of the worst that I see, traditional and Suzuki. And I find that this helps that so much. [Demonstrates with small circles the 3rd finger playing in further on the E of the Alberti pattern.] More like that. And you know, I haven't come from training like the Dorothy Taubman technique, where such a huge focus is on rotation. I'm not opposed to that. In fact I'm very interested in all that she has to say, but I haven't been able to take in a workshop. So

I just get bits and pieces from people of information. I'm always interested in new techniques, but I feel that, you know, I probably don't work with rotation as much as some teachers. I definitely do when it's obvious, you know.

JK: How soon do they start playing triads?

MCP: Triads. When they learn "Mary had a Little Lamb," which is about their fourth piece beyond their Twinkles. Some of them can't do it depending on their age and physical ability. And when they can't, sometimes we had to leave off a note, but I usually don't have to. I give them exercises where they play these two together, these two, and these two. [Demonstrates .] And then we do things like this. [Demonstrates .] And we visually, usually, the only reason we would leave off one of the notes is because it's too tight for their hand when they play the top note, they can't reach. [Laughs.]

JK: [Laughs.] Little tiny hands.

MCP: [Laughs.] Yeah. Some of them are really tiny. This one tomorrow is really tiny. And with Ivy, we'll probably have to leave off the B when she gets to it first. I'm very opposed to stretching hands. Very opposed. And I teach that in the training too. We give up legato when necessary to prevent stretching. And we work not to stretch the hand in any way. And like here we have to break the legato when it's tight. But instead of stretching hands, we move the arm to it. [Demonstrates leaping instead of stretching.] Even in Twinkle A, and all the Twinkles, for me that's no stretch, but for them they might look like this. [Demonstrates the space between the first and second notes of Twinkle A.] So we stop and let the arm move over. And we try to keep the hand small or in its natural position rather than stretch. And that's part of that "Ready, Go" and stopping helps us with that. Because you've got some control over it. The child would just like to take off and play, and if you can't stop him, they are going to develop a million wrong habits. The only way that you could start a young child, I think, is to be able to have some control over it. And if you can make it fun, you can get by with anything. You know. Fred here is the most fun thing that I think that I have, and he's been lots of fun. And he actually has several Halloween costumes. [Laughs.] We have a good time with him. But I think you've got to find a childlike approach with children. And I no longer think that that's for the 4- and the 5-year-old. I really think it's for the elementary in general. I think that it's got to have some creativity. And it's not that every word I say is like that. I'm not hung up on it. I'm hung up on reaching the children and finding a way that I can. And when I first started teaching Suzuki, I thought I didn't know whether I could help children to do amazing things like the violinists did. But I evolved from that, and I remember my first Suzuki student. She was four, and after all my years of college teaching and traditional teaching and the experience that I had, and when that child came to my door I just wanted to run out the back door. I thought, "How can I teach that little hand to play?" But I've evolved from that to the philosophy that believes that children can do just about anything we want them to do. And they can do it well. They're like little sponges. And a lot of reading and writing from leading people well outside of Suzuki method, they have supported that. And they look to the Suzuki method to strengthen their ideas, I think. And I really feel that children can do just about anything I ask them as long as I find a childlike approach to make it attractive for them

and make it so appealing that they don't mind doing whatever I ask. You know. I don't always find it, but I work hard at trying to find all that I could.

JK: Do the parents have frogs at home too?

MCP: Most of them have a frog. Yes. [Laughs.] Everywhere I go. Because I've written about Fred in my book. And I remember when I went to New Zealand to teach that everybody had a frog, and they called it Mississippi Hop Frog. Well, I'm the one that named it Mississippi Hop Frog. And I started the frogs, and I couldn't believe that the frogs had preceded my visit. [Laughs.] You know, to New Zealand. But what I knew was Mississippi hotdog. And I had read, I used to read a lot of books on child psychology. It's something I enjoy reading, and I had read that psychologists say that children respond well to an inanimate object like a stuffed animal or a puppet. I dialogue through them. They take no offense from them. It's fun. And so when I first began my teaching I thought, you know, I kept trying to come up with more and more childlike ideas, and I thought about that statement and I thought, "You know, I'm going to go shopping and see if I can find a little dog that I can use, a little puppet." And so I went shopping in Athens, and I could not find the right dog, and I found a little beanbag frog that was similar in size to this one. [Goes to get a frog.] This isn't the original one. And I named him Miffy, short for Mississippi Hop Frog. And I used him. And I started getting all these ideas. And the criteria is that he had to be able to cover his eyes, and he had to have soft, loose arms. He needs to be soft and floppy. And I thought, "I can just change this to Mississippi Hop Frog." You know? And so I did. And as you know, the frog got lost. And by the way, one day weeks later, a D on my piano got stuck, and I had to call the technician, and I left the key for him to get in the house because I couldn't be home. And when I came home, there was a frog. And he said, "You won't believe it. There was a frog inside." [Laughs.] I do counting games with pennies, and I used to use pennies with them. And another time I had to call him and he took about 12 pennies out that had gone in the cracks. I no longer use pennies. I use other things, little counting objects. They're frogs in there too, with them instead. [Picks up a little container of plastic frogs.] Yeah, it got so that after I lost the frog, the gifts started, well, the gifts just poured. I only bought that one original. I haven't bought any more. And I have beautiful frogs from all over the world, really. It's fun. [Laughs.] I have a frog waste paper basket over here. I think he's a riot. And when the children, when there's tension or the shoulders are rising, I'll take a heavy frog if it's not too heavy for them. This is just right for me but not for others. This has got weight. [Gets a heavy frog.] And we plant it on the shoulder to weigh it down and remind them. And since I have plenty of frogs, I send it home for the week and it helps to remind them. Because again, children don't like just an adult to say, "Get your shoulders down. Mrs. Powell said your shoulders are up." You know. But the frog has been fun for them in a nice way. And another time someone gave me a frog water gun. And I thought, "What in the world am I going to do with a frog water gun?" And at the time I was teaching at Capital, and I didn't have a living room with nice carpets that I had to worry about. And one spring morning I thought, "I know what I'm going to do with this." So I filled it up with water, and every child that came, I told them the frog was for backs. And every time he saw a back slump they would get squirted. Well, some of them slumped to get squirted. [Laughs.] But it kept them mindful. Because children will do this, and that ruins everything at the piano. [Slumps.] So they've been lots of fun. And even the older ones like it. I mean, I don't use them quite the same way with them. But they like the environment. Teachers have gone home from the classes, and some of them are traditional teachers and have remained that. But they've learned some things they like from the classes. And they write me and say that the first thing they did when they got home was buy a frog, or if they couldn't find it, another stuffed animal, and that it had changed the whole attitude of the studio. And there were so much more smiling and pleasure, and they thanked me. [Laughs.] So I also think that the stuffed animal industry has no idea that they owe me some royalties! [Laughs.] After all these years. They have no idea how many stuffed

animals, especially frogs, have been purchased because of me. [Laughs.] Well, can you think of more questions to ask me or do you want to take a break? It's 1:00.

JK: Shall we take a break and then do a little more after?

MCP: Sure. [Break for lunch.]

JK: Okay. Five-finger patterns. Do they play them in other keys?

MCP: In other keys? Yes. We transpose. We take a lot of these basic five-finger pattern pieces of our Suzuki Book 1, and as we move on, it's not in the pedagogy, it's just something that I've added. And we then will learn to transpose "Mary had a Little Lamb," for example, which just uses tonic and dominant chords and a five-finger position here, and we'll learn to do it, and we'll play the pattern first and the chords and transpose. And I don't know that every Suzuki teacher does that. And it's certainly not an integral part of Suzuki method. But that is the way I go about it. We do it a lot in group lessons. They prepare it and show everybody how they can do all these keys at group lessons.

JK: Moving around the keyboard? Do you do lots of things in different octaves?

MCP: Not so much. No. Some reading books put them into playing in a lot in different octaves. Is that what you mean, reading in different octaves?

JK: Just playing.

MCP: Playing different octaves? We often will play our pieces in a different octave. And in the beginning when we're learning note names, we go to all the different octaves, but I'm not sure that that's still what you mean.

JK: Well, because of large arm movements, just moving around.

MCP: Probably we don't do it. We definitely don't do it in the beginning, except that they're often so little that unless they get off the bench it is so far. I think our literature expands their reach sooner than most because we advance so rapidly. And so our arms are beginning to move away from the center a little sooner than usual, but I don't do any thing more than the literature provides for mostly.

JK: Can you demonstrate the perfect posture, like the height of your arm?

MCP: Well, I'll start like a squirrel. [Stands up and leads sitting down with the rear.] So they stick out their bushy tail first, and sit like this. [Stands up and sits back down and ends with the back leaning backwards a little bit.] You know, so many children sit like this, and in Alexander technique, people say they don't sit on the entire sit bone, and so they sit like this. And everything is thrown off balance. So you want to get your entire sit bone on the piano bench, and so you stick it out first. And the hand [drops hand to the side] and then we check after we get seated we check that the roots are on a footstool that we use to our tree. And that the back is straight and tall and comfortable. I don't want stiff. And definitely not a slumped tree, but the back is either this way or learning forward. In terms of the hand, we begin shaking it out loose and comfortable. [Shakes the arm out by the side.] And bring it up to the keys, not over middle C, because that makes you twist more, but an octave up. And I use a pen for my car, and I start at my elbow and drive on a straight road, find the little bumps on the road. And we discover that we have rainbow

arches for our fingers. We discover that the thumb will touch on the side of the nail, not on the rest of it like this. [Demonstrates a thumb flat on side.] Sometimes I'll paint a little picture on the side of the thumb for them. I put dots often on the part of the finger that's touching the keys at first for them to see. And then we talk about the bridge that is formed and make the car into a kitty that goes under the bridge. And it purrs because it got through. We check that the arm feels soft. [Takes one hand and lifts the playing hand up several times to make sure that it is loose.] And that the fingers, I'm always doing this with their fingers to make sure that they're not stiff and tight. [Whacks her fingers softly to make sure they are loose and soft.] Just like old Fred's arms, and we're always flopping his to check what soft arms feels like. I try not to use words like tense. First of all, a lot of children don't know what it means. And what it does, it actually can make a person tense to say it to them, "Don't be tense," or "Relax." And so I try to use imagery that they relate to. Feel like a rag doll or a wet wash rag. Or feel like Fred's arm. This kind of imagery that would not make them tense, I think, and also would relate to something, a vocabulary that they can comprehend. And then we practice, often at that first lesson we often practice bringing the hand up to here [closes the lid] so there's no real playing involved on the keys, and then we would play the rhythm of Mississippi Hop Frog Twinkle, we're doing it with the whole hand [on the piano lid]. And that way we don't get into funny things. [Demonstrates poking with one finger.] It's very easy to get used to feeling the hand when you use the whole hand. Very, very easy. Whereas as soon as they take to one finger, they go back to funny stuff. And you have to work to get to this goal with them. The younger they are the more likely that is to happen. But even older children can have a time with that. I love playing on an inanimate object like a closed lid. And I love using the whole hand, because it takes away from some of the problems that can come as soon as you individualize the fingers.

JK: Can you talk a little bit about parents, like how involved they are and what you expect from them and what you do if they're not doing what they should?

MCP: [Laughs.] Well, as a Suzuki teacher, of course, we are dependent on the parents. So before we even begin, before I begin with a child, the most important thing is for me is to know their commitment. And so we usually have a parent meeting before they start to let them know what's involved. I also require that they observe at least two lessons and group lessons before I accept them, because I want them to see what their commitment is to the method, and I want them to see these parents sitting here taking notes and coming in and talking about their progress. I want to know how deeply involved they are. And then I also talk with them these days about commitment before they start lessons with me. And I say to them, "I'm a teacher that asks for an hour a day or more." And I don't, and I say, "I don't expect you to begin with that. We usually begin with 10-minute practices, but we build up to this over a period of time."

JK: Is it 10 minutes a day or 10 minutes several times in a day?

MCP: Usually it's 10 minutes a few times a day with the little child like you'll see tomorrow morning, because the concentration level is not there. And as the concentration level begins to expand and their interest grows, why, that becomes 15 minutes and 20 minutes. And so often by the end of our first book the children are practicing 45 minutes or an hour a day. From Book 2 forward I ask for an hour a day or more. And I say to them, "You're welcome to do more." I said, "I have students that do, but it is a studio where I ask for at least that. And if you are not interested or if it feels like too much for you to make this commitment, I can understand in this busy world, and I can refer you to someone else. But that would be what I would want from you in my studio." And so then they say they are or aren't, and that helps me to know their interest. I also look for how many times they come and visit my studio before I decide which people I will take off the waiting list. Then once we start, and so I'm looking for the committed parent before

we begin. I didn't used to do it that way, and it was a lot harder. But I let them know expectations. I have a studio policy that I give them. And I find that the group lessons are extremely valuable for keeping the sluggish, supposedly the sluggish parent going. Because while there is no real evaluation so to speak, they still see if their child is lagging behind the others or, it doesn't even matter so much the rate of progress, but if they see that their child might look awful when she plays and the others look beautiful, I think it's an unspoken kind of a sign for them. You know. And so I find that I have a lot of committed parents. I try to train them to know that they need to bring the camcorder and/or a notebook for taking notes. But because personalities are so different, some only half take the notes, some get here without the notebook. Some of my best friends that I've had over the years, parents that became good friends, were some of the worst, you know. And it's very, very awkward to deal with. Because you can deal with the difficult child much more easily then you can a difficult parent. And it's about the most sensitive topic I know. And I'm not sure that I have an answer for that except to suggest in some cases to have a parent meeting and just talk over some of the problems that you're seeing, and not necessarily lay the blame on the parent but maybe to talk about the problems you see at the keyboard. And then in the process of doing that you get involved so you can get in to some of the problems that they have without saying. It's very hard to be just completely direct with them.

JK: Do you have a lot of really overscheduled kids, or do you try to weed them out, like who are in every activity?

MCP: I have a lot that are busy. And as I see that happening and I see the frustration, I often have a little lecture to the child and parent about how I really do want them to do more than piano, but I think that they might consider talking about choosing maybe two of the things they do that they like the most and perhaps weeding out some of the others. I really like to think that they're doing something for their body, some physical thing. But when they're involved in multiple, it becomes impossible. And it has made a difference in a few cases. Some of the parents that came back have come back and said they took that seriously and that next year they are dropping out of this or this or this, and they're going to keep their piano and one other thing. It can become a problem. I find that because in Suzuki I usually start the 4- and the 5- and the 6-year-olds that if they're doing well, and I usually manage to make them do pretty well, that by the time other things come along, that most of them, like 95% of them, are so committed to the music and it's become so meaningful to them that I don't lose them. And if they become overcommitted, then we address it.

JK: Can you just tell me the names and ages and how long the people have been studying, the three that I'll see?

MCP: Let's see. The first one you're going to see this afternoon, she's not the first lesson, but the first part of your three, is Felicia. And she is in second grade. And she's been studying, I wish I could remember. She's in Book 2. And she's been studying 2 years, I think. And she's an early reader and early on scale development. Very, very musical little girl. Her grandparents on both sides of the family were music majors. Both parents are music majors. And she and her sister will be here. She loves piano. And she's one like her sister. They haven't been the fastest learners, but you can feel some real depth in their playing. They're not slow, but they're not some of the quickest I've taught. Then you're seeing Grace. And I just started her in the fall. She's the one I refer to that she took some lessons last year, and the parents dropped her from the teacher. They felt that the teacher wasn't... They don't know music, but they started coming and observing me. And I couldn't take them, because last fall a year of ago I wasn't taking anyone. But they watched my students, and they didn't think that Grace was getting what she should. So they just stopped her and waited for me. So I'm kind of going back over what she learned and checking things very

closely, because I believe that the beginning is the most important time. And she's an excellent little student and sits like a perfect angel too. Very pretty little girl. Both of them are adorable.

JK: How old is she?

MCP: She's first grade. So she's 6. No she wouldn't be 7, I don't think. She'd be 6. And I've taken her through—we start with right hand first—I've taken her through right hand Twinkles more quickly than I would if she were a rank beginner, and she came with a little bit more rounded, a little tighter-looking hand than I would want. That's the only thing about it that I don't like. Although when I touch it it's not tight. Her mom knows nothing, but she's bright and conscientious. And then this evening Hannah. Hannah's been studying about a year and a half. And she's in early Book 2. And she's in second grade. She's a very young second-grader. And so she, again, that's why I so much wanted you to see Ivy, because I just thought the Book 1 children were the best for you to see. And I only took three new ones this fall, and so you'll get to see Ivy and Grace, two of the three. But Hannah's early Book 2, and she's not as far along as Felicia. Felicia is some pieces ahead of her. Although Felicia is still fairly early Book 2. And she too, she's still a very beginning reader. And she's still in the Connie Starr book. And she's working on her scales. And the family, the mother, the father seems to work out of his home. But the mother doesn't, and she got a good job in Akron, Ohio, which is something like a 2-hour drive from here. And they moved this summer, and they said to me that they wanted to continue Hannah with me at least for another year, because they wanted me to leave her with a very solid foundation. And that Hannah was so attached to me and all this stuff. And so we've worked out an every other week 45-minute lesson. And this will be the first time that we've gone 2 weeks, when she comes tonight. And she's coming in from Akron. I think she probably sleeps in the car though and comes in pretty refreshed. I think she'll be all right even though it's kind of late for one so young. And she sleeps in the car on the way back home. They're even going to come up for group lessons on Saturdays. And Ivy in the morning is still very much on her Twinkles. She's just on Twinkle A, and all the basics will be there for you to see. And again, same mother. And a very, very conscientious Asian woman. I have many Asians. They seem to migrate to me and I like it, because they just have a different work ethic about them. And these little girls are just so well-behaved. It's just a real treat to work with them. And even though the mother doesn't know music and hasn't had any instruction, I get a lot of them like that. She listens to everything I do. She videos. And she's doing great. If that helps you to know all that.

JK: I think that's about it. Unless you have any other things to add.

MCP: Oh, if we talked some more things would come up. Right now I can't think of anything.

APPENDIX I

Carolyn Shaak Interview
September 22, 2006
Denver, CO

JK: Let's just start talking about the very beginning of technique and how you get Jessica to do that. [Laughs.]

CS: Actually, the *Piano Partners* books are all about technique in every single piece, like right from the very beginning.

JK: Yes. I noticed that.

CS: We think of it as being the whole arm. [Demonstrates.] So that it's not just like the fingers. They're not mashing their fingers. So the insistence on rhythm in every single piece also is common. So I would say that everything is building towards sound, and sound is always better if it's in rhythm.

JK: Okay. And what do you do at the first lesson?

CS: At the first lesson we do pretty much, it kind of depends on the age of the child.

JK: Like if they start when they're 7 or so.

CS: I could teach a child at 5 if they are ready, if they are, you know, if they're interested in it and everything. So let's say you could do always drumming and listening with the marimba and using the temple blocks and all the instruments. And I have a lot of other drums and lots of other…

JK: And you do those for the large arm movements?

CS: Yes, the large arm, and also just to isolate rhythm and realize how important it is. And that it makes sense too musically. That it's a big part of the music, and not just a pitch.

JK: Do you teach by rote then at first?

CS: Yes, but also with direction and awareness of notes and that it is a language. So then as soon as I can, if the child is really older or, you know, just very advanced, then I can do the *Reading, Writing, Rhythm* book. And in that, they get to write as well and read. And if they write it first, it seems to be that it makes a lot more sense, because they're more aware of the lines and spaces. So we start with the staff, just five lines, and then they realize that the space between those lines has a name and a use in music. So that we don't just use the lines. Because it might be to a child's mind that only you use the line or that you write on the line. Like in school, if you write on the line, it pretty much goes on top of it. But if you say to write a note on a line, it means to put it around the line.

JK: Right. Yeah.

CS: So you have to get that across, and the best way is to show them that there are numbers. The spaces are numbered. The lines are numbered. That they fill in those and then they do it all by themselves without any clues.

JK: So has Jessica started those books?

CS: Yes. Yes, she's very good at those books.

JK: But her pieces, she is just learning those by rote?

CS: The pieces then. Well, yes now. Like with "Peter, Peter," the way I start that is I tell them that their note is the first of the three black, or the first of the triplets, and then here are the twins. And I say, "Every time I play a note you play your note." So then they will [Demonstrates "Peter, Peter."], and then they will play their note after my notes. And then we change places. I play their note. They play my note. And they realize that there's a pattern, and it goes three times plus an ending. So that's beginning to show them that music has form. So then as soon as they can do that, then they've got a piece.

JK: What did you tell her about how to use her arms on that first piece?

CS: Oh, yeah, lots of things. Like, I have them do the train like chugga chugga chugga chugga [Moves her arm forward and backwards, slightly bent at the elbow, like a train wheel.] Hoo hoo. [Pulls down as if pulling the whistle on a train.] Chugga chugga. So that the whole arm is moving. And they use the pencil, of course, to show that there is no bend. And it's easier when you use the pencil to show that the whole arm is doing it. Because if they're just using the, and I don't let them do. [Plays "Peter, Peter" with just the fingers close to the keys.] They're not just trying to find the pitch. That's the whole thing. It's like how you do it is the important thing. And then, of course, in the first lesson as well, they can do their improv, and they just use one finger. [Demonstrates playing the black keys with one finger (braced perhaps), or at least just with the other fingers tucked under. Uses a forearm motion.] And I show them, like, I let them feel it. You know, I move their elbow out. And I think you noticed that I would always keep her elbow out. Because if you go in like this, you automatically get a bad position [with elbows close to the body]. And you can't, that power of the bones is not available if you roll in like that [elbow close to the body]. So then they have to do that. And then they do the writing their names with their elbow so that the whole arm is involved. [Puts her hand on her shoulder and make circles in the air with the elbow as if writing her name with the elbow.] And then in "I Love Coffee," also one finger and then when…[Demonstrates, and then plays the part that rolls with a fist up and down on the black keys.] That's perfect, because…[Shows how easy it is to make a forearm movement down with the fist with the thumb up.] And I have them do a lot of this. I say, "Make a fist," and then, "I want my dinner." [Pounds gently on the piano rack with the fist, thumb up.] [Laughs.]. Because it gets this wonderful sound right from the fist. And then, I think then they hear that. And they begin to hear it, and then they want, they covet that, and they want to do it a lot and get that sound.

JK: Posture? What do you tell them about that?

CS: I find the little button [on the back.] Some children are just terrible about this caving in, and so I have to find a button. Sometimes I just almost to sit there with my finger on the button. That one little spot will do it. It will turn them around. And sometimes it's a matter of how high they're sitting. I'm sitting too high. [Adjusts the bench.] Or too low, so I try to get the bench right for the child all the time too. And also that they have to make an L, not a C [with their forearm angle]. And in the book we have a picture of the posture which is helpful. And the arm is like this, and the fingers are like that, bent. The thumb is a sliding board [on corner]. [Shows diagram in the book.] [Fingers are naturally curved.] And then also I put a mirror. As you can tell, I'm big on

props. I have a big mirror that I can move out and they can see. Or I'll take a picture. Both ways, and then they can see how they like it, which one they like best.

JK: Okay. Fingers not too curved?

CS: Right. I try to not, I say, "Don't be rigid." So whenever they get, because when they get like this there is more tension. [Shows very curved fingers.] So if we just make a dog house and come up, and the side has to be strong.
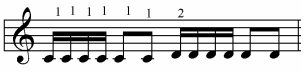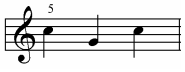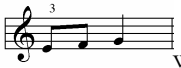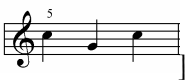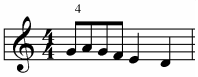
JK: What do you do about the collapsing joints?
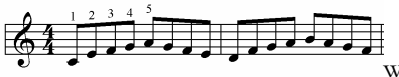
CS: Okay. Yeah. We have some little exercises that they have to do. [Demonstrates flicking each fingertip with the thumb as if a flicking a bug.] To get that. Some people I know do this, you know they put the finger behind it. [Demonstrates the thumb pressing on each finger's nail joint on the top of the finger.] Maybe that calls attention to it. Yes. But I don't know. You can't really play like that. So, it's an ongoing thing. [Laughs.]

JK: That's for sure. Do they have footstools at home?
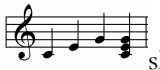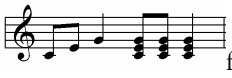
CS: Yes, most of them do. And some of them just put phone books.

JK: Okay, so you start with the arm, and it's pretty loose. How do you go from that to their fabulous finger technique? [Laughs.]

CS: Well, let's see, in the *Partners* books they have all those. [Plays  in a C five-finger pattern.] That helps to set the hand, and then I think the one thing we try to do is to build on concepts. Like for instance, if we have "*Frere Jacques*" and then we have that with right hand. And then the left hand. And then with the C G. [Demonstrates playing CGCG accompaniment.] And then with the chords. [Demonstrates playing the melody in the right hand with triads in the left hand.] So they also are listening to the partner playing sometimes. That's why it's great to have a parent who can really play with them. If not, then you have to play a lot with them so that they hear. And then, the next thing would be the partner plays the round. And then in Book 3 they play the round by themselves. So that you take one simple idea and then just keep it going and keep building until you, and then you can transpose it and you know. And then I think too is that the left hand parts, like in the last piece in the *Piano Partners* Book 1, is called [inaudible]. [Demonstrates right hand  with large rotation.] And so here is "Ring the bells" [sings and plays]. It's a Russian song. You can imagine that this is a response to all the bells ringing in Moscow. [Plays the song.] So like this. [Demonstrates  walking in toward the fall board with the phrase with forward moving and upward rolling wrist.] They have to play it using, moving in toward the fall board. [Plays with lots of rotation and wrist phrasing choreographed to the small phrase.] And then the left hand. It would be easy not to do the left hand, because it's so tricky. [Plays left hand melody while the right hand has blocked chords.] So you watch every move they make literally, you know, and see if they are doing the right posture and the right, the right movement for every passage. Because this is an easy given one [the rotating ]. [Plays  with a choreographed, circular movement.] It's

like "turn around the corner" [sings and plays] so that idea of…whatever that instrument is. Protractor. Or we often call it too the Hanon egg [Plays  with circles]. Imagine an egg right here, and then you go up and over the egg. [Demonstrates an egg near the hand, and the hand is going around the egg.] So that's really good too to get the rolling toward the thumb and under away from the thumb.

JK: Lots of circles and lots of rotation.

CS: And lots of moving in. [Plays  slowly with down up wrist movement on each note and chord.] [Plays  fast around circle of fifths.] I think too that you have to combine all of these things together. Like I think theory, so that when they get to a Haydn piece and you do have seventh chords and you have an augmented sixth, that it's not like, "What are you talking about?" Because otherwise, when you start right in the very beginning with chords and names of chords and, like, value of chords and beauty of chords and flavor of chords, so like when they go from major to minor. That's not a big deal to play it, but to respond to it is emotionally important.

JK: How early do they play chords?

CS: Yes, they play in the first book. So they have that.

JK: How long does it usually take them to get through the first book?

CS: That is so a personal thing, you know. It's really hard to say. I mean, you could do it in 2 months if you really wanted to. Many times there is a duet here, and you'd think that maybe the child would always play the melody and the partner would play the other, but I don't see it that way. Because I think that if the child learns, like in "Skip to my Lou" [plays simple chordal accompaniment between hands], she learns that first, she's already heard it. [Plays "Skip to my Lou" melody.] Then there's already the foundation rhythmically, harmonically, and melodically, because she didn't have to have any guesswork. She's already going to figure that out by the time she's heard it a lot. So we often do the bottom part first. Yeah.
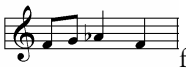
JK: Do they start non-legato?

CS: Oh yeah, like this. [Plays with one finger with the other fingers tucked under with forearm motion on black and white keys chromatically like in "I Like Coffee."] Definitely. Oh yeah.

JK: Do you make a distinction between the whole arm and the forearm?

CS: I guess so. Maybe I don't use that word, but I think that if it's… I don't know. I don't know how to answer that, because it seems like we just do what the music requires. If it's loud you might need to have the whole arm. Yeah.
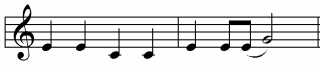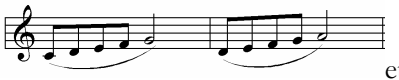
JK: Do you do the wrist like this? [Wrist movement to make a hand stroke.]

CS: No. Well, actually we shake out a lot, and the way I look at it is—that's a very good point to make—is that when you're doing staccato there seemed to be wrist there. But it's because you're here and you bounce back. [Demonstrates playing staccato and bouncing back away from the note, not starting with the wrist up and bouncing toward the note and back up.] So it's actually, it's a coming back to position is like the key itself. It wants to get back there with the rest of the guys. So here you are, you go down, and then it just bounces back up. [Plays a loose hand staccato, but from a level wrist, not a raised wrist.] And you can see Leah when she plays, she could be high if she needed to have high over the keys to get that non-legato. [Demonstrates  fast and non-legato, with a slight wrist motion and moving forward in toward the fall board.] And it almost seemed like she was staccato, but it wasn't lifting the wrist. I think that's the danger, if you have come here and lift it, then you can get in trouble.
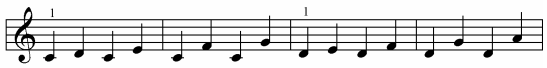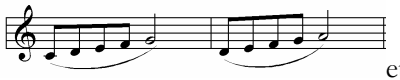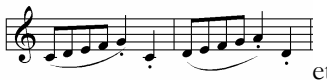
JK: How about finger staccato?

CS: Finger staccato. Yeah, well that's that. [Demonstrates a scratching, plucking motion.] It's just kind of like a little pull back, right. If you need it for the music, you can certainly use that.

JK: How do you introduce legato?

CS: With the, through the music, let me see. Even in "Skip to my Lou." [Demonstrates  with legato between the E and G.] But the basic one is this [Demonstrates  etc. Plays it moving forward into the fall board with one motion.] That's the first step. I'll say to them, "Play it in a group." "All the way to 5." [Lyrics to the five-finger pattern.]

JK: How do you fix it if their fingers are not even?

CS: Oh, they have to listen until they get them even. [Laughs.]. All of these things are reflected in this *Technique Book*. There's, of course in the *Piano Partners*… [Plays  etc. with large rotation.] And then, like here's "Down the Garden Path," but we had that in legato. [ etc. walking forward on five-finger patterns.] So all we're doing is… [Plays  etc. walking forward on five-finger patterns.] But I really saw a need for getting down… [Plays  very fast with one motion moving down and to the left with the wrist.] So that they have the clarity of listening for that. And if the ear wants it, the child will try to get it. I mean, Kevin sounded really pretty good on that where it was clear. So let's say when they have… [Plays Kabalevsky Op. 27, No. 13.] I love giving that one because it also has the left hand. It's just really a great piece for that. And so this was one that came out of that need along with that concerto, you know, [Haydn C Major] to have that clarity. But I think all of the

pieces in the *Partners* books have technique as sort of the root. [Laughs.] The root. And as well as the *Events* pieces, because here's what happened with the *Events* pieces. Let's say kids do the *Partners* books, but those still seem kind of folk songs many times, you know. They need a piece where they really feel and sound like a pianist. So we looked through all the repertoire, and it is so hard to find music that satisfies that need for not only the child but for the family. I mean, here they maybe bought a new piano, they've already invested a year of lessons, and, you know, maybe they can't play much more than, you know, a folk song. Okay so, my husband Bernie started working on these pieces, and he never signed them. He didn't tell the kids that he had written them when he gave them out. So he just handed them out. And many times years later they would find out he had written them. But they would love them and they would play them all over. Like this one. [Plays "Spanish Dance." Plays with a lot of rotation and wrist gestures but also with good finger action. Circles plus rotation.] So now they've, I've had students who just eat that up. I mean, you know, they would play it just all the time, day in and day out for the longest time. And like in here, the "Melody in A" has the Alberti bass, but it also has a little twist to it that makes it seem like so much more important than just a little piece. [Plays "Melody in A."] They just love that music, you know.

JK: You did the balance between the hands and playing up and then down?

CS: Yes, the balance. [During a lesson she had had a student play one hand up on the rack and the other hand on the piano to practice balance between hands.] And then the heavy silver in one hand and the light plastic in the other. [Had used silverware to demonstrate in a lesson.]

JK: Do you have any other ways that you usually tell them?

CS: Let me see. Yeah. To get the balance, it's mainly because they don't have enough coordination. I think they would really like to, so I make them play the left hand staccato. [Demonstrates.] And if they can do one hand connected and the other hand, they have enough technique to play the coordination. And then I tell them that no one ever paid money to hear the Alberti bass. [Laughs.]
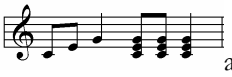
JK: That's very true. [Laughs.] It seems like you're really careful at the beginning, then.

CS: Very careful. Like…[Plays "My Pony," which has mixed articulation.] I hold them to that *tenuto* sign. [Laughs.] Definitely.

JK: Now for Jessica, how long has she been playing?

CS: We had just the summer. I think she started like in the end of June or the first of July.

JK: So where is she in the book?

CS: All right. She is over here to…her last piece we had… Her last main piece was the Major Chord Circle, which reminds me to tell you that I think that it is a crime that teachers do not teach the circle of fifths all the way through. [Plays  around the circle of fifths very fast.] Because the kids love it. They can do it. There's no problem. And they have a concept. They can play it in any piece in any of those keys. So it just makes you travel through the whole Western world of music.

JK: Does she read those pieces out of there, or…?

CS: She does somewhat, yes. She does somewhat. But I wouldn't just say, "Okay. Go home, and by yourself figure this thing out."

JK: So you help her in the lesson?

CS: I help a little bit, yeah. Like you know what I think is very useful, is like when she learns "Lightly Row," is to play, to show that the chords are in a pattern. So like if they have I-IV-I-V-I [plays], that they can kind of like get rid of that in their mind. They know that. Then they can read this [right hand]. And another thing I do a lot of lot of in reading is those magnetic boards. I love that. Because if you just start off with… [Goes to get a magnetic board]. You start off with the one note. I tell them, "Okay. So this is the G clef. So here's this little birdie, and then when he got stronger and he wanted his freedom, so he flew out of that nest. And since this is G, and this is called G, any of these is going to be G." Now they have that here [in their book], but it's good to reinforce everywhere you can. So then we just, all these little birds came out of the nest. So then you have all only Gs. So how hard is that? Right? So then you can do…[Moves around the magnets up and down a 2nd from the G and sings.] Just the bare bones simple, simple. And then from there you can go [seconds expanding out] and so on. Then you can start seeing patterns that emerge. There's what song? Oh, you just wrote "*Frere Jacques*." So then things like that. And then I let them make up a song and I play it. And I make rhythms to it, you know. So then you can do the chords. Like here you have Monday Wednesday Friday [Makes the magnets in skips]. Every other note. And over here make a snowman [chord]. And you have…[Plays a triad and the beginning of "Blue Danube Waltz."] [Laughs.]

JK: Now she's in the middle of the second book, but she played a lot of songs today from the first book too. So does she keep playing all the songs for a long time? All the songs?

CS: Yes, all the songs. For a long time. Because you get more fluency. It becomes easy, and she can teach it to somebody then. And if you teach it to somebody, then you know it. And you can do with the left hand, or you can transpose it.

JK: So at home she plays through all the songs all the time?

CS: She does. They're all supposed to review. [Laughs.] That's my dream. [Laughs.]
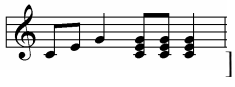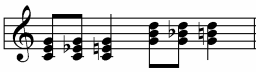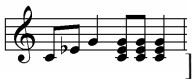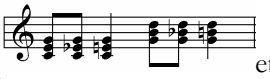
JK: Well, it shows. She can play anything! Let's talk a little bit about parents: parental commitment and who you take and what you expect and how long they practice. Things like that.

CS: Well, often parents will say, "How much do you expect them to practice." And I say, "Well, I don't have any set amount. I just want you to do whatever I say on the assignment. And I'm not sure how long that'll take." So I wouldn't be unreasonable, and I wouldn't want to give than too less. And then you just see from week to week if that was too much or too little. But I find that if they do a lot of review, then that tends to add to the time, and that's better for their hands and better for their technique. And so the longer you can keep them there the better. But if they don't review, then they're done in no time flat. [Laughs.] And then see there again, like with the "Romanian Dance," here is this "Romanian Dance," which is then in the book transposed to all the keys. Then in the book "Marching" is transposed. Then it says continue. So it will start them off, and then it will say continue.

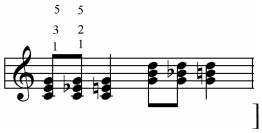
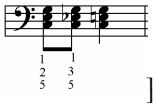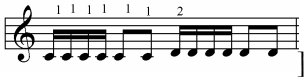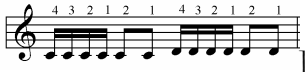
JK: So the circle of fifths comes in very handy. [Laughs.]

CS: [Laughs.] Very handy. They better know that. See, there is "Romanian" in E, B, Gb, and Db.
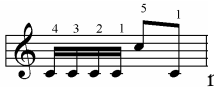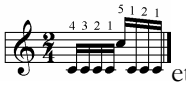
JK: Do they usually read it. Oh wait, no they don't…

CS: Well now, because they're going to continue [the book just has the first part written out], but I think the connection is there. I really think that they see it. And there are enough pieces in this book that are in C and easy keys. And then they can actually, if they want, sometimes I have them read …[plays]. I even have them do it on the black keys. But then they can move it up. Let's see if there's anything else in here. Then from the major [Plays ], then we do major minor major [ continuing around the circle of fifths] and that sort of thing. And then [], but that step in there is good, because [ etc.].

JK: Do you have the 2nd finger on the minor?

CS: They can. They can do it with any of the fingers. I have a choice in here [*Technique Book*]. Yes, so alternative fingerings, 3 2 3, [Plays ] or in the left hand, 2 3 2 [Plays ]. Whatever. I don't think it makes any difference. There's Kevin again. [Shows his picture in the book.] [Laughs.] And then the idea of building on one concept. So we have [plays ]. That's very simple and goes into… []. And so it's like "Throw it out the window." Get rid of the energy. And so we use the darts [to throw from the arm]. That's a pretty popular game.
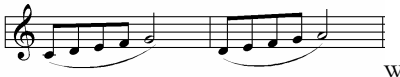
JK: I was surprised at how well she could do that with changing fingers.

CS: Yeah. Wasn't that something? Because it's like, get rid of it, don't keep it, out of here. [Shakes her hand like shaking the tension out, so the repeated notes come from a loose throw of the hand.] And then [plays  moving up by step hands together in contrary motion] and then… [plays  etc. hands together in contrary motion]. And you know, I tell them that even someone who is not trained in music can hear all those notes. I mean, you don't have to be a musical genius to hear all that. So then if they can hear it, so can other people. Then they don't think it's much of the mystery then.

JK: How do you introduce scales the first time you introduce scales technically?

CS: We do that chromatic scale. [Plays a chromatic scale in contrary motion starting from the outer reaches of the keyboard and moving toward center and then back out.] Let's see, sometimes I do tetrachords. [Demonstrates.] If I'm in the mood to do it, we'll do that. And I think that's a cool way to do it. But you know what, many times I'll do, if they've done Jingle Bells or [Plays part of a piece with a scale]. I'll just have them play the scale and I'll say, "Okay, let's count how many notes in the scale. Okay. And how many fingers do you have?" And we want to end up here, so what do we have to do there [to find fingering. Demonstrates the scale in fingering groups]. Now I've noticed that when I've sat up close to Alicia de Larrocha in concert, that she barely ever plays a true legato. [Plays a non-legato scale.] It's what my husband called "legato bounce." And it carries in the hall so effectively. Even if the passage sounds, that's where that illusion thing comes in. The passage sounds so connected. But it's not really. Because she's making it, she would be making it almost detached and it would sound legato. But it was a very singing sound, very carrying tone. All those wonderful Spanish pieces she played, you know. She barely ever… [Demonstrates overlapping legato.] It was not the old, traditional, overlapping legato. Although you have to do that sometimes. So I think... I know Dorothy Taubman has a wonderful way of doing this. [Demonstrates scale with rotation.]

JK: Do you teach that?

CS: I've always liked that. It's very good where you go way over. But she also has them go in. [Demonstrates  walking in toward the fallboard.] And, you know they're very good. We've always had that, always thought it was good to present that you're going into the garden. And here's a little girl on the diagonal walking right in through the gate. ["Down the Garden Path" is the title of a technique exercise where the student walks the hand and wrist forward on the ascending five-finger patterns.] And so then if you do put it in a group, it gives you, you know, a good motive. You see, I think the mind has to have the intent. It's not just that the whole body plays the piano. I know Rubinstein said you play from the big toe up, and I agree with that. But the mind also has to have the intention, I think. And that's why I like to use a lot of props. For one thing, it gets them off of the bench. And if you have a kid sitting there doing the drudge lesson, for, I mean, that's why you can only teach half an hour. Because they just sit there, and then their mind starts traveling. So if they get up, and they do a few jump ropes, and they look at a few things, they're able to go back and then really hear it again. Especially if you've given them some concept like Kansas and Colorado [referring to feeling a topographical map of Colorado to teach dynamic shape from Kevin's lesson]. That has always worked with me for dynamics. Yeah, that's a good one. Because they know their states. [Laughs.]

JK: Especially if they're in fourth grade, or fifth grade, is it, is that when they have to do that project? [Laughs.]

CS: That's right. [Laughs.] That's right. Now one of the most favorite pieces in this book, do you know these pieces?
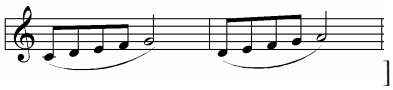
JK: No.

CS: Well, of course "Skeleton Bones" is a winner because of Halloween. [Plays a rotation piece. The rotations are small but clearly evident, as is the walking in and out toward and back from the fallboard.] Isn't that cool?

JK: One more question about scales. Thumb, what do you tell them about the thumb going under?

CS: Yes. If they're high enough, they can go down. It's almost like that. [Demonstrates a thumb passing under with a little rotation to help and a little lifting of the wrist and then down for the thumb.] Or in a fast passage, they need to shift [groups of three and four]. That's why I think the clusters are good. Yes, because then if you're really fast, you can just do that. And then, like we have all of those, we have this thing in here called the measured scale. And that's very good, because they have to be high. You see, they're two inches above. [Plays scales in quarter notes with the fingers two inches above the keys with loud sound and some Taubman rotation. The finger before the thumb is with a high wrist so the thumb can get under.]

JK: I wondered what that meant.

CS: Very slowly. Sometimes if you've only done this [Plays ], it's not enough to get the sound. It has to be a follow-through so they get enough sound. [Wrist and forearm movement rolling up on each note along with the rotation and fingers two inches above the keys. However, other fingers are allowed sympathetic movements.] It's just for practice. It's something they're never going to play this way. And then an inch and a half for two octaves, and then one inch for three octaves, and then half an inch for four octaves.

JK: The thumb goes under gradually? Or does it go under right away?

CS: It just moves on over as the hand, because we've always done…[Thumb moves over as the hand walks in a diagonal into the fall board.] like walking anyway, you know, so it always with the…

JK: Staccato. Anything exciting to stay about staccato?

CS: Well, I think that we start with staccato, you know, like in detached.

JK: I would think that's non-legato.

CS: Non-legato. Well, yeah, let's see. The pieces. Let me think. Well this one, I think…[Plays "My Pony."] So I think the pieces will. Let's see what else is staccato in here. Oh, yeah, like this one. [Plays a piece.] The staccato comes through there. And look at this one. I think that the pieces really require, you know… Oh, but this is a cute one, the "Czech Dance." It has other names in other books. [Plays a song with very relaxed technique and a sharp sound and sings the lyrics. Right hand melody, left hand chords first, then the hands are switched.] [Laughs.]

JK: Do you talk at all about alignment?

CS: Oh, all the time. All the time. One piece [moves her arm in and out as one unit liked with the train chugga chuggas.] Oh, yes. Absolutely.

JK: So they're not like this? [Demonstrates lateral twisting of the wrist.] Oh no, never never never [no twisting of the wrist laterally.]

JK: And when they do a five-finger pattern [plays a five-finger pattern], is the arm aligned behind the finger that is playing?

CS: The arm behind the finger. Yes, yes. Let's see. Now in this book [*Technique Book*] we have the principles. And, "Arm behind each finger," [she reads]. And I have them walk all the time. They have to walk and realize that the body is attached here. [Stands up and demonstrates that the body is over the feet, not one foot out from the body.] And you can't walk at all if the body is like this. So the arm has to be behind the finger, because it's the same idea.

JK: Okay. Let me get my list to be sure I'm not skipping anything.

CS: I'll play you this pretty one called "Appalachian Air and Dance." [Plays piece.] That's hard. I got lost in the middle. This one ends with Colorado Mountain [Plays the rhythm at the end of the piece, ]. [Laughs.] That's in Book 3.

JK: Yes. [Laughs.] Now you were talking before about Kevin and how you're trying to get his fingers…What would be ideal for him?

CS: Well, I think just little by little with a lot of these, you know, even in here [Demonstrates], like the pieces will help him get the position like all those things like the head and all those things [to fix his hand position].

JK: So not flat and flapping around.

CS: Right.

JK: So closer to the keys?

CS: Well, yeah, I guess closer. But I think it's just like a matter of control, because I think he probably would like to, but he just can't because he just doesn't have, and maybe the more he stays with his *Technique Book* exercises, that he will probably improve that. Yes. I think so.

JK: How do you introduce dynamics?

CS: Well, through mood a lot. Well, let's see. I think if they're, you know, if they're playing an exuberant piece. [Laughs.] That was so cute she didn't know what that meant [referring to Leah in her lesson].

JK: I wonder if she'll look it up?

CS: Yeah, I do too. If they're playing a piece like that then, and they're playing mousy, then it wouldn't make any sense. So it kind of comes from the music. Like I don't think that you just have to say, "Okay, this says play *forte* and you do it." Because the music doesn't seem to require it, then it's really artificial. But like here [demonstrates] he has to do that, and even in here [demonstrates]. But you saw the little, the dolls [*matrushka* dolls used in Jessica's lesson to represent dynamics] as they got big, so I do have to encourage them to put a *crescendo* in.

JK: Do the parents practice with them?

CS: Some more than others. Yes, it just depends. I don't really know exactly. I think that some parents actually do from the kitchen. Which is probably not as good as being right with them. But you know if they have 10 children, why then…[Laughs.] They're going to have to give a little bit there, so. We've had the parent's groups in the past that were wonderful. And the parents would stay in those groups for years. They just didn't want to leave, because they were kind of like support groups. They could come and talk about the kids or their problems, or, you know, other things too. So the parents got to be a unit. And just as strong as the kid's group was strong. And I know that the children that have had the group, and I'm sure you've found this too, is that they have a lot of allegiance to that group. And when they come back years after they've been here, they'll say "How is so and so doing?" You know, and "Did they keep up with their piano?" And things like that. And that's just like it's a close friend. And they knew them so well because they made music together. And the parents feel that way about each other too. So they feel very, very close to each other because of that connection, you know.

JK: What kind of different things do you do in the group and private? I know I'll see it, but just…

CS: Well, they perform for each other, and then we can have games, board games. And we have more ensemble and more togetherness at the keyboard. And then, and then they can do some writing and then comparison. And sometimes we'll have them make up a little passage and then take a few measures, and everybody makes up their own ending to it. Then they can compare how it sounds.

JK: Kevin, you can tell he loves piano. Like, is he an outstanding lover of piano, or is he just a normal kid in your studio?

CS: I think he's pretty much normal. Yeah.

JK: How much do you think he practices every day?

CS: I don't know. I just wonder about that. I think that if he has, I really think that if he has something coming up that he really wants to play well for, he'll practice a little extra. But I think he's a pretty, I think he's fairly steady and seems conscientious, yeah.

JK: And Leah, do her parents push her?

CS: Well, I wouldn't know push, because I think that she really loves it. I don't think that they work too hard on her.

JK: She must practice quite a bit.

CS: She practices. Yeah, she practices a lot more. And there again, I think that if she had something, she didn't even know she's playing this Sunday. [Laughs.] Oh well, talk about her mind being elsewhere.

JK: How old is Leah?

CS: She's 10.

JK: She's 10. And Kevin is?

CS: Nine.

JK: Nine. And Jessica is 6?

CS: Yes.

JK: I need to change tapes and then I'll ask you about your training. [Changes tapes.]

CS: [Plays a piece.] That was in Book 1.

JK: Wow.

CS: Those kids can play that. It sounds. You know that's why, I don't know, that was always the review that the books got, that they sound hard, but they're not as hard as they sound. And that's what, what we really wanted. We wanted something to just thrill a child. Music should be thrilling above all.

JK: Okay, from when you were little.

CS: Well, I've been very lucky because, when I was born down in Jacksonville, Florida, and then we didn't have a piano. But we moved to Asheville, North Carolina when I was four, or late threes, and it was a furnished house we rented there, and it had a piano in it. So I got to just start picking up the songs that my neighbor played piano, and her window was here, and my window was here, and her piano was here, and my piano was there. So then, her songs, and she was kind of like, she played a lot, so then I started playing her songs in the same key. So then they knew that I had a good ear, because I could play that and match her pitches and her tunes. So then when I was six they started me with lessons. And the teacher was simply a dream. She wouldn't let me, she let me play some songs by ear, but she also made me read music. And so the songs that were my reading pieces, which I do also. If it's a reading piece I don't show them. I don't show it, I don't let them hear it at all. And so I learned to read, and if I had a good lesson, then she had a grand piano and she had a piano roll, and she would just let me hear a piano roll. [Laughs.] So that was a big enticement. And then I moved to Charleston, South Carolina. And it was a very musically oriented town, so I had a lot of different teachers. But I had a lot of good teachers. And, you know, then I got to play a lot and perform a lot, and you know, symphony. I'd get to play with the orchestra. So it was a very good setting, you know, for any kid who liked piano, because it just had lots of opportunities. You know, they'd even get kids from all the teachers together in a music store, and then they'd put on an ensemble concert, you know, for all the kids who were interested. And that was that group thing again. That really kept it going for me. And then I went to the University of South Carolina and studied with a man who had not only studied with Joseph Lhevinne but also with Edwin Hughes. So he got, I had Leschetizky and the Russian school. So I had a little bit of both. And I went there 3 years and then had a Fulbright and went to Italy and studied there a year. And then went to New York and studied with Hughes again, Edwin Hughes. And then I guess that was, then I got the job at Illinois [University of Illinois at Urbana-Champaign]. And then I got married and moved to Carbondale, Illinois where my husband was working. And then we moved out here. So he was at DU for 6, 7 years, and we'd give a concert every year, two pianos. But we decided, he decided that he would rather, you know, start writing books and have our own studio rather than do the college thing so much, because he felt like he didn't have enough time to do both. You know, and then by then our girls were getting up, so that we could have, you know, the combination lessons, you know. He wanted to try those ideas out. So we had a wonderful time. Until 1999.

JK: Okay. I think that we got through all my questions in record time [Laughs.].

CS: Yes. That's wonderful. [Laughs.]

JK: Thank you.

CS: Sure.

APPENDIX J

Coding Chart and Sample

The following color-coded symbols were used to organize the notes from all sources and transcriptions according to the Elementary Level Technical Concepts.

Category	**Technical Concepts**
I. Philosophy	**PQ** - Philosophy of technique. **PT** - Philosophy of teaching.
II. Basic Components	**P** - Posture. **HP** - Hand position. **T** - Tone production through key depression. **PM** - Use of playing mechanism: Muscles, body, ear, torso, shoulder and upper arm, elbow and forearm, wrist, hand, fingers, thumb, feet, and breathing. **R** - Relaxation. **M** - Mind/Body relationship.
III. Exercises	**G** - Gymnastic exercises. **EX** - Exercises. **E** - Etudes.
IV. Movement at the Keyboard	**PM** - Physical Movement. **LM** - Lateral Movements. **HE** - Hand Expansion. **KT** - Keyboard topography.
V. Fundamental Forms	**FFP** - Five-finger patterns. **R** - Rotation. **S** - Scales. **C** - Chords (triads and inversions).
VI. Basic Musical Inflection	- Articulation: **ANL** non-legato; **AL** legato; **AS** staccato; **AM** mixed articulation. **R** - Rhythm. **D** - Dynamics and tonal control: *pp* to *ff*, *crescendo*, *diminuendo*, accent, tonal control, including balance of voices in one hand and between hands. **TQ** - Tone quality. **T** - Tempo.

Coding Sample

The following is an example of the coding from a section of the Interview with Carolyn Shaak.

JK: Let's just start talking about the very beginning of technique and how you get Jessica to do that. [Laughs.]

PQ CS: Actually, the *Piano Partners* books are all about technique in every single piece, like right from the very beginning.

JK: Yes. I noticed that.

T CS: We think of it is being the whole arm. [Demonstrates.] So that it's not just like the fingers. They're not mashing their fingers. **R** So the insistence on rhythm in every single piece also is common. So I would say that everything is building toward sound, and sound is always better if it's in rhythm.

JK: Okay. And what do you do the first lesson?

CS: At the first lesson, we do pretty much, it kind of depends on the age of the child.

JK: Like if they start when they're seven or so.

PT CS: I could teach a child at five if they are ready, if they are, you know, if they're interested in it and everything. **R** So let's say you could do always drumming and listening with the marimba and using the temple blocks and all the instruments. And I have a lot of other drums and lots of other…

JK: And you do those for the large arm movements?

CS: Yes, the large arm, and also just to isolate rhythm and realize how important it is. And that it makes sense too musically. That it's a big part of the music, and not just a pitch.

PQ JK: Do you teach by rote then at first?

APPENDIX K

Gymnastic Exercises

The following exercises, found in the sources discussed in Chapters IV and V, are of two types. Those marked **MP** are Movement Preparation exercises that help students feel certain movements or prepare for certain techniques. Those marked **SM** are exercises for building Strength and Mobility in the playing apparatus. Also see Macklin's (1927) book, which provides a list of gymnastic exercises that is not reprinted in this Appendix.

Weight and Leverage

MP *Bodily sensations of weight and leverage.* Push around pieces of furniture of widely differing degrees of heaviness with the tips of the fingers (Ching, 1946).

MP *Difficulty related to weight and leverage.* Lift a reasonably heavy object standing at varying distances from it. Notice the different degrees of ease or difficulty (Ching, 1946).

MP *Weight related to tension.* Carry a heavy object for a few moments. Then let it go and continue to walk. Notice that you will automatically release some of the tension in your legs (Ching, 1946).

- Now pick up the object again and try not to allow any increase in tension in your legs. This is difficult (Ching, 1946).
- Next try to prevent any relaxation of tension when you drop the object (Ching, 1946).

MP *Weight alone can produce tone.* Take the weight of about a pound and hold it over the piano, just touching the tops of the keys without depressing them. Let go of the weight. A soft quality of tone will result (Ching, 1929).

- Repeat with the forearm lying across the surface of the keyboard (Ching, 1929).

MP *Pressure touch vs. hitting the key.* Put a thin lathe about an inch wide and long enough to cover five or seven black keys across the keys, which exaggerates the key resistance by five or seven times. Hit the lathe in the middle of its length using a percussive touch with one finger. Even when hitting quite hard, no tones will sound. Next, place the fingertip on the lathe and use a pressure touch instead. It will not be difficult to sound the notes with one finger (Matthay, 1939).

MP *Muscular support vs. weight.* Place your arm on a kitchen scale without pressing on the scale. If you are supporting your arm by your own muscular system, the balance will register nothing. Take away this muscular support and allow your arm and shoulder to be perfectly loose. The balance will register the weight (Ching, 1929).

MP *Muscular support vs. weight.* Place your 3rd finger on a kitchen scale, and relax the muscles of the arm so the whole weight of the arm is registered. Support the arm by partially relaxing the muscles (Ching, 1929).

MP *Muscular energy vs. weight.* Sit at a table with your whole arm raised about a foot above the table. Steady the arm, then completely relax the muscles and allow it to drop freely to the table with weight.

- Repeat with the forearm (elbow resting on the table), hand (forearm resting on the table), and fingers (hand resting on the table) (Ching, 1929).
- Repeat using a sharp, muscular blow of the playing unit instead of weight (Ching, 1929).

MP *Activity.* Lie on your back and play the piano on the underside of a table, producing various types of tone. It is possible to produce all the same sounds that you can produce when playing on the top of the same table, because activity, not weight, creates piano tone (Fraser, 2003).

MP *Weight, mass, and leverage of the key.* Take the edge of the key between two fingers and wiggle it up and down, sensing the mass, width, depth, and length of the key. Compare the white and black keys. Preserve this sense of each key as a thing possessing mass and weight when playing at a fast tempo (Fraser, 2003).

MP *Weight, mass, and leverage of the key.* Cradle your left wrist with your right hand fingers, and let the left arm be totally relaxed. Jog the limp arm up and down to judge its weight.

- Then, with the right hand, joggle a piano key as if judging its weight. The looser and more relaxed the arm, the more exactly you can feel the weight of the key.

- Then play half-staccato chords with this feeling of jiggling to ensure that all notes sound equally and that the dynamics and tone are controlled. Feel like the hammer is attached to the key (Fraser, 2003).

Tension, Relaxation

MP *Balancing a down feeling with an up feeling.* Walk across the floor stamping your feet vigorously. Now walk on tiptoe noiselessly. Notice how the entire body naturally pulls up with each step so as not to make a sound as each downward step is counterbalanced by an upward pull (Bernstein, 1991).

SM *Conscious relaxation and tension.* Lie on the floor and attempt to release as much bodily tension as possible. Induce tension and relaxation in the following joints consciously. Once you are able to induce a contraction in a muscle, you will be able to relax it consciously (Bernstein, 1991).

SM *Jaw.* Clench your jaw and teeth and pull your lips together. Relax the jaw and move it up and down several times. Slightly part your lips (Bernstein, 1991).

SM *Shoulders and neck.* Force your shoulders up toward your ears and lock your arms. Now drop your shoulders, and allow your arms to hang freely. Sit tall, and gently lift your sternum (Bernstein, 1991).

SM *Shoulder.* Have an assistant attempt to move your upper arm up and down. If there is no resistance, the arm is free. Next, make the shoulder tense. Your assistant should not be able to move the upper arm. Experiment with various degrees of tension in the shoulder (Ching, 1946).

SM *Elbows.* Press your elbows against your body, locking your forearms and elbow joints. Relax your elbow joints. Move your forearms up and down freely from the elbows (Bernstein, 1991).

SM *Elbows.* Have an assistant hold your forearm and upper arm and move the forearm up and down. If there is no resistance, the forearm is free. Next make the elbow tense. Your assistant should not be able to move the forearm. Experiment with various degrees of tension in the elbow (Ching, 1946).

SM *Wrists*. Make a tight fist, and feel the tension in the forearm muscles with the other hand. Now relax, and feel your flexible forearm muscles with the other hand. Wave goodbye from the wrist joint (Bernstein, 1991).

SM *Fingers*. Point the 2nd finger, and wave it from the knuckle joint while feeling the forearm muscles with the other hand. Then wave with all 10 fingers at once (Bernstein, 1991).

SM *Feet and legs*. Sit in a chair with feet flat on the floor or supported by a footstool. Press your ankles and knees together, feeling the tension in your thighs and hip joints. Now separate your ankles and knees a few inches, relaxing them (Bernstein, 1991).

SM *Combinations of tension and relaxation*. Practice each combination of tense and free joints below, maintaining the tension with as little conscious effort as possible. Vary the degrees of tension. Alternate periods of tension with periods of relaxation with the goal of gradually increasing the length of time the tension can be maintained before the onset of fatigue (Ching, 1946).

Table 75

Combinations of Tension and Relaxation

	Knuckle and Finger	**Wrist**	**Elbow**	**Radio-ulnar**	**Shoulder**
Combination 1	Tense	Free	Free	Free	Free
Combination 2	Tense	Tense	Free	Free	Free
Combination 3	Tense	Free	Free	Tense	Free
Combination 4	Tense	Tense	Free	Tense	Free
Combination 5	Tense	Tense	Tense	Tense	Free
Combination 6	Tense	Tense	Tense	Tense	Tense

SM *For tension in the wrist, knuckles, and finger joints with a free elbow*. Place the tips of the fingers together and squeeze the tips together. While squeezing, make gentle up and down motions of the

forearm. Keep the elbow free while the tension remains in the wrist, knuckles, and finger joints (Ching, 1946).

SM *For tension in the hand and a relaxed elbow.* Hold a small object such as a small ball or a penny in the palm of the hand. The fingers should be kept straight and stretched out. While holding the object, make gentle movements of the forearm in correct playing posture (Ching, 1946).

SM *Tension in the fingers with a relaxed wrist*. Press the tips of the fingers against the tip of the thumb, or grasp a small object between the tips of the finger and the thumb. Maintain this pressure while making slow and free movements of the hand from the wrist joint (Ching, 1946).

Tempo

MP *Fast playing requires tension.* Hold your slightly bent arms in front of you with palms facing away from your body. Keep arms and wrists as relaxed as possible and fingers slightly taut. Wave your hands up and down 10 times from the wrists, as if waving goodbye at a slow and easy pace. Repeat faster, and notice that it is easier to wave faster with increased tension (Bernstein, 1981).

- Repeat waving with the whole arm. Tighten the shoulders or waistline as the speed increases for ease (Bernstein, 1981).

MP *Fast playing requires tension.* Walk slowly across the room. Notice the sensations in the body. Now walk faster. Notice that contract automatically to the degree necessary for bodily stabilization (Ching, 1946; Bernstein, 1981).

MP *Fast playing requires smaller movements*. Practice making vertical movements of the hand or forearm at various speeds of repetition. Notice the sensations of difficulty when you make the movements both fast and large (Ching, 1946).

MP *Fast playing requires smaller movements.* On the keyboard cover, place the finger pads on the surface of the keyboard cover with the fingers gently taut. Set the metronome to ♩=100. Play notes with a springing wrist from whole notes to 16th notes. Notice that as the notes get faster, the fingertips draw closer to the keyboard cover (Bernstein, 1991).

MP *Fast playing requires smaller movements*. Lay the right hand on a table palm down. Move your 2nd finger in an arc as far to the left of the thumb as possible. This creates an arc resembling a windshield wiper. Bring the 2nd fingertip to the highest possible point in space at the midpoint of the arc. The thumb stands up at the midpoint of the arc. Experiment with how much movement comes from the thumb and how much comes from the arm. Notice that when playing faster, the elbow naturally minimizes movement to increase efficiency (Fraser, 2003).

Legato

MP *Weight for legato*. Have the child sit on the floor in front of the piano and play a five-finger exercise on the keyboard. Ask the child to notice the downward drag or pull of the arm. Apply to the piano (Ching, 1962).

MP *Weight release in legato*. The teacher plays on the child's forearm with continuous forearm and hand pressure while the fingers move up and down. The child's arm is removed at times to see if the teacher's arm falls freely (Ching, 1962).

- Switch parts, with the child playing on the teacher's arm (Ching, 1962).
- Repeat with the child playing the right hand on his/her own left arm (Ching, 1962).

Staccato

MP *Even staccato passages*. Practice staccato passages on a table (Ching, 1956 *Amateur*).

Scales

MP *Arm controls the hand*. Fold the forearm up by touching the hand to the shoulder, and pantomime a scale moving along the keyboard with the top arm. Gradually assume playing position. About halfway down the scale, let tone production take place with the hand still acting as an extension of the upper arm (Whiteside, 1969).

Dynamics and Tonal Control

MP *Necessity of firm joints in control of dynamics*. Clench the pencil firmly in the hand with a clenched fist and thumb up. With the eraser end of a pencil, play five repetitions of one note, obtaining a well-graded *crescendo* over the five notes from *pianissimo* to *fortissimo*. With the pencil, there is no

give in the joints of transmission, and it is easier to control tone with a pencil than with a finger. Repeat with the fingers (Ching, 1946).

MP *Tension related to dynamics.* Set the metronome at 60. Sit in a chair. With the left hand, grasp one book and place it on your right hand palm. Balance it for eight ticks. On the ninth tick, place the second book over the first. Continue adding one book every eight ticks. Now reverse the process. Attend to the increase and decrease in tension in the hand and arm. This exercise demonstrates the increased muscular tension needed to play different dynamics. One book is equivalent to playing *piano*, two books is *mezzo piano*, etc. (Bernstein, 1981).

MP *Louder playing requires larger motions.* Make a moderately rapid series of blows with your fist on a table. Notice the size of the movement you intuitively make. Then make the blows more forceful. Notice that the tendency is to make the size of the movement larger. Then, as you make the blows even more vigorous, notice a tendency to make use of a larger part of the body (Ching, 1946).

MP *Quiet movements require smaller movements*. Next make a series of very gentle, quiet movements, but make them large. Notice the sensations of awkwardness and lack of proper control (Ching, 1946).

MP *Tonal control.* Practice on a table. Make all the thumps made by the fingers feel even and smooth. Spend a few minutes in every practice period practicing this way before playing on to the piano (Ching, 1956 *Amateur*).

MP *Tonal control through stopping due to resistance instead of muscular force.* Make a series of vigorous forearm movements against your knee and bring them suddenly to a stop at a fixed point about half an inch above your knee. Repeat, but this time let the movement be stopped mechanically by contact with your knee. Notice the improvement in control when you allow the movement to be stopped by the knee (Ching, 1946).

MP *Control of key depth*. Depress a key and insert a match, cut into a wedge shape, into the gap between this key and its neighbor, well toward the back of the key. Choose a finger, and make

forearm movements as if you are trying to produce sound from the key. Continue each movement until you actually feel the sensation of immobility at the moment of finger-key contact. As soon as the sensation is felt, stop exerting a downward force of movement. Rest for a moment on the key as if you are holding the note and repeat. Notice the sensations resulting from this exercise for many grades of dynamic levels (Ching, 1946).

- Contrast the right sensations with the wrong ones. Wrong sensations can be obtained by repeating the above exercise with the key at its ordinary level. Make the forearm movements, but try to stop them so early in the key depression that no sound at all is produced, for superficiality of touch (Ching, 1946).
- Play a passage on the fallboard two or three times to practice getting the fingers all to play with the same depth (Ching, 1946).

MP *To increase* forte. Reach under the piano and use free, energetic movements to rap the sounding board with your fingertips. Return to the keyboard and see how much you can expand the volume of your *forte* by striking the keys in this way (Fraser, 2003).

Movements at the Keyboard

MP *Leaps*. Practice making movements of the whole arm from the shoulder joint between small pieces of paper laid out on the floor at various positions (Ching, 1962).

- Place the hand over a table with the 3rd finger touching the surface. Keeping the finger firmly anchored, and swing the arm outwards away from the body and then back toward the thumb. The outward swing is more pronounced than the inward swing. This is used in scales and other lateral movements (Last, 1980).

MP *Keyboard topography and arm alignment.* Place the 2nd and 3rd fingers on two adjacent white notes with the wrist level with the keyboard. Reach forward to touch the surface of two adjacent black keys. Let the wrist glide up slightly above the bridge. Roll back and forth, touching the white keys and black keys alternately. Keep the elbow in line with the 3rd finger. Keep the hand straight with no ulnar deviation (Bernstein, 1991, pp. 51-52).

SM *Arm mobility*. For a student who has an immobile arm, bunch the fingers and thumb together and stand up on fingers 2 and 3. The wrist will be high with the elbow hanging down low and inside. Swing the elbow back and forth, noticing how the wrist and elbow make a half circle (Fraser, 2003).

SM *Arm mobility*. Sit with your hands in your lap. By means of the upper arms, swing your hands:

- Forward, palms down (inhale).
- Wide apart, palms up (exhale).
- Together, palms down (inhale).
- Onto your lap (exhale).
- Repeat several times until your arms roll forward, backward, apart, and together from the shoulder joint. Keep the shoulders down. Be aware of the large muscles in your hips, torso, back, shoulders, and upper arms (Bernstein, 1991).

Rotation

MP *Rotation*. Place a fist on the table. It will naturally rest on the 5th finger. Turning the palm down creates tension. Swinging out toward the 5th finger creates relaxation (Last, 1980).

MP *Forearm rotation*. Pretend you are turning a key in a lock. Turn it from side to side, noticing that your elbow remains stationary (Bernstein, 1991).

SM *Forearm rotation*. Line up your 3rd fingers with your forearm. Release arm weight onto your 5th fingers on a table. Supinate until the palms are almost completely facing up with 5th fingers grounded on the table. Roll from side to side on your 5th fingers. Elbows should not move (Bernstein, 1991).

SM *Forearm rotation*. Let the hand hover just above the fallboard, and rotate the forearm back and force with a loose and fluttering hand. Continuing to rotate, lower the arm gently until the thumb and 5th finger begin to slap the fallboard lightly. Slowly begin to increase the distance between the thumb and 5th finger from the palm, not the fingers. Leave the fingers loose and flopping. Feel

the triceps muscle flapping and completely relaxed. The elbow moves slightly in the opposite direction from the hand (Fraser, 2003).

SM *Forearm rotation.* Rotate the forearm on its own axis, either with hand closed or open, always remembering that the chief rotating muscle is in the upper arm. The elbow should be free from stiffness and fixation (Fielden, 1949 *Science*; Gát, 1958/1980).

SM *For Fink's Primary Movement 4, Rotation of the arm and shoulder girdle*. Stand with the arms hanging loosely. Center the arms over the straight 2nd and 3rd fingers, which are pressed lightly together and pointed toward the floor. Extend the outside fingers away from the center. Set up a loose, even rotation cycle of pronation and supination. Increase the speed gradually from mm=88-160 over several days, with pronation on the beat and then with supination on the beat. The movements become smaller as the tempo increases (Fink, 1992).

SM *For Fink's Primary Movement 2, Arm extension pronation for speed and accuracy of arm movements.* Allow the arms to hang freely, elbows slightly bent and hands forming loose fists, with the thumbs pointing downward. Extend the arms downward with the thumbs pointing and pushing toward the floor and arms twisting inward while pronating until the elbows lock, at which point the shoulders begin curling inward, and the palms face first backward and then outward. Next, relax and untwist the arms (supinate). Practice this pronation/supination cycle rhythmically. Repeat the cycle with arms forward at shoulder height and then at various angles, remembering that normal playing takes place at about a 35º angle (Fink, 1992; Fielden, 1949 *Science*).

SM *Arm rotation.* Standing erect, make fast and vigorous rotary movements of the upper arm. Notice that the faster the movement the greater the tension (Ching, 1946).

SM *Wrist rotation.* Hold the arm out straight, and turn the hand in the wrist joint in a rotating manner on its own axis. Do this with the hand closed or open (Fielden, 1949 *Science*).

- Repeat with the elbow bent (Fielden, 1949 *Science*).

Body and Torso Exercises

SM *To achieve a well balanced torso.* Sit on the floor cross-legged. The weight of the torso is balanced on the ischial bones, and the thighs are freed from pressure (Whiteside, 1969).

SM *Free body warm-up.* Walk in place for 5 minutes while swinging the arms forward and backward and breathing. This prevents damage to the muscles by increasing their temperature before stretching (Csurgai-Schmitt, 2002).

SM *To increase circulation in the upper body and arms and to free the shoulders and upper torso.* Swing the upper torso right and left, allowing the arms to swing freely. Keep the feet in place. Breathe in while going one direction and out in the other direction (Csurgai-Schmitt, 2002).

SM *Back stretch.* Bend the knees slightly, and curl forward with the spine. Rotate shoulders forward, and grasp the left forearm with the right hand, pulling the left hip away and increasing the stretch (Csurgai-Schmitt, 2002).

Head Exercises

SM *Head mobility.* Standing erect, make slow movements of the neck and head forwards, backwards, sideways, and in a circle. The neck movement should play a prominent part (Ching, 1946; Csurgai-Schmitt, 2002). Practice with your eyes closed while sitting with arms relaxed in your lap. Tracing a circle with your chin can help get the right motion (Bernstein, 1981).

SM *Neck relaxation.* Stretch the head to the right and left on the spinal axis (Csurgai-Schmitt, 2002).

Shoulder Exercises

MP *Balance of the whole arm at the shoulder joint.* Move a straight arm forward and upward until it reaches a 45° angle. Prepare your shoulder muscles so that when an assistant applies the slightest pressure to the upper arm from in front, it will overbalance the arm, making it fall of its own inclination back to your side (Ching, 1929).

SM *Shoulder strength and mobility.* Standing, let the right arm hang freely by the side of the body, and keep the shoulder muscles relaxed. Lift the arm until it is parallel to the ground pointing to the

right with the hand at the height of the shoulder. Then relax the arm and let it fall loosely to its original position. Repeat while sitting (Fielden, 1949 *Science*; Clark, 1992).

- Repeat, but instead of allowing the arm to fall loosely, force it down vigorously by the contraction of the muscles under the shoulder (pectoral and dorsal muscles) (Fielden, 1949 *Science*).
- Variations on the above exercises. Raise your arm in front of the body and to the rear. Also, practice:
    - With the whole arm rigid and straight.
    - With the hand relaxed, hanging from the wrist.
    - With the hand clenched.
    - With fingers fully extended.
    - With forearm held loosely, arm being bent at elbow (Fielden, 1949 *Science*).

SM *Chest and shoulder stretch.* Place your right arm bent at the elbow flat against a doorjamb and in line with the body. Extend the other foot forward. Move the body forward through the doorway, feeling a stretch in chest and shoulder. Repeat at several heights of the doorjamb. Finish with a fully extended arm, feeling the stretch in the armpit (Csurgai-Schmitt, 2002).

SM *Shoulder mobility*. Lift your shoulders as high as possible, hold them for a moment, and then let them fall (Fink, 1992).

SM *Shoulder mobility*. Standing erect, make fast and vigorous circular movements of the each arm in turn clockwise and counterclockwise from the shoulder, keeping your arms straight (Ching, 1946; Csurgai-Schmitt, 2002).

SM *Shoulder mobility*. Standing erect with arms at shoulder height, make fast and vigorous horizontal movements from the shoulder joint one arm at a time. Make the range of movements as great as possible (Ching, 1946; Csurgai-Schmitt, 2002; Gát, 1958/1980).

SM *Shoulder mobility.* Standing erect, make slow movements of the shoulder girdle forwards, backwards, sideways, and in a circle (Ching, 1946; Fink, 1992; Csurgai-Schmitt, 2002; Gát, 1958/1980).

SM *Shoulder mobility.* Lift a straight arm up and overhead (Csurgai-Schmitt, 2002). Lower and repeat with varying force. Repeat moving the arm sideways away from the body. Concentrate on the sensations in the shoulder joint (Ching, 1946).

SM *Shoulder mobility.* Drop your shoulders and move forward with a gentle pressure. Hold them in this position for four counts. Then move them backward and hold them there for four slow counts. Do this 10 times, and repeat faster (Bernstein, 1981, p. 175).

SM *Shoulder mobility.* Swing the right arm up while the left arm bends and touches the right shoulder. Reverse directions (Gát, 1958/1980).

SM *Shoulder mobility, Fink's Primary Movement 3.* Stand with your arms hanging loosely at your side with your hands forming loose fists. Firm the wrists and elbows just enough to keep the arms moving as a unit. Swing your arms backwards and forwards like a pendulum, gradually increasing the range until your hands reach over your head in front. The shoulders remain down and released to the outside. Make the downward pull of the cycle the primary action and the upswing the follow through. The shoulder movements should be relaxed. Occasionally stop to hold your arms horizontally in front and in back for a count of 10 (Fink, 1992). Experience an awareness of the length of the arms (Clark, 1992). Make smaller circular movements also (Gát, 1958/1980).

SM *For shoulder mobility and the release of tension in the neck, head, and shoulders.* Combine the pendulum swing with a pronation/supination cycle, linking pronation to the downward pull of the pendulum swing and supination to the upward follow through (Fink, 1992).

SM *Shoulder strength.* Exercise with Indian clubs (Ching, 1946).

SM *Shoulder strength and hand relaxation.* With the backs of the hands facing each other, raise your arms in front of your face. As your hands arrive in front of your face, the fingers begin to rise so that as the arms stretch upward, the fingers point upwards. The arms make large circles, and then

the palms revolve forwards and face inwards by the time the circle is at its lowest point (Gát, 1958/1980).

SM *Shoulder and trunk strength.* With elbows raised out to the side, make elbow circles generated by the shoulder girdle 10 times in each direction. Work for increased speed, range, and dexterity (Fink, 1992).

SM *Shoulder and arm strength.* Hold a tie between your hands extended outward with palms down, and swing the arms overhead and behind the body and back. Repeat with palms in the upward position (Csurgai-Schmitt, 2002).

SM *Shoulder strength and flattening shoulder blades.* Do push ups against the piano while standing up. Keep your body straight and your heels on the floor (Csurgai-Schmitt, 2002).

SM *Shoulder relaxation.* Keeping your head erect, hunch your shoulders toward your ears. Hold them there for four counts. Then drop the shoulders and allow the arms to hang down for four counts. Repeat 10 times slowly and 10 times faster (one count up and one count down). Practice standing as well as sitting (Bernstein, 1981; Csurgai-Schmitt, 2002).

Upper arm exercises

MP *For sensing the proper motion for Ching's Oblique Whole Arm Touch.* Place the tips of fingers 2 and 4 on your leg. Fingers are straight and the hand and wrist are slightly raised in order to not be in contact with the leg. Place a pencil under the fingertips of fingers 2 and 4. Roll the pencil back and forth a small amount (Ching, 1962).

MP *Upper arm roll preparation.* Place your left hand 3rd finger on C. Slide the finger away from the body along the surface of the key until the fingernail touches the fallboard. Rest the base of the palm on the surface of the keys. Roll the knuckles forward using the upper arm. Keep rolling until the entire top side of the 3rd finger, all the way to the knuckle, is resting against the fallboard. Roll back again toward the body (Bernstein, 1991).

MP *For feeling the pull of the upper arm in tone production.* Fold your forearm by touching your hand to your shoulder. Then sense the action when striking the keyboard *fortissimo* blows with the elbow.

This is a pull downward that results in the elbow moving downward as it swings through the circular arc with the body (Whiteside, 1969).

MP *Arm controls hand.* With your hand touching your shoulder so that your forearm is folded up, place your elbow on a table, and treat the table as the keybed. Make various kinds of figures on the table with the elbow, maintaining constant contact with the table (Whiteside, 1969).

MP *Arm controls hand.* Make a slow, serpentine, or figure-8 line in the air with your arm extended forwards. Imagine pointing to an object far away. Lengthen the arm (Gát, 1958/1980).

SM *Arm strength.* Standing erect, raise your right elbow away from your body to a position slightly above the level of the shoulder. Clench the fist. Now strain the arm vigorously in the direction of the left knee. Raise the elbow again and repeat a number of times (Ching, 1946).

SM *Arm strength.* With palms up and fingers extended, bend your forearm, keep the upper arm motionless, and relax your wrist. Stretch out again with the palms directed backwards. Return to the bent position, then stretch with the palms facing forward, etc. (Gát, 1958/1980).

SM *Arm strength.* Let your arm hang loosely from your shoulder, palm to the front. Contract the biceps, bringing your hand to your shoulder. Relax the muscle, and let the forearm fall again in a relaxed state. Repeat, but with the back of the hand facing the front (Fielden, 1949 *Science*).

- Repeat with the arm at shoulder height and the arm parallel to the ground with the palm up. Contract the biceps, bringing hand to shoulder. Relax the biceps, the forearm naturally remaining in the same position (Fielden, 1949 *Science*).
- Repeat with the palm facing the ground when the arm is extended (Fielden, 1949 *Science*).
- Repeat the above exercises, but with a vigorous straightening of the arm using the triceps (Fielden, 1949 *Science*).
- Repeat holding dumbbells (Ching, 1946).
- Variations on the above exercises:
    - Hand relaxed.

- Hand rigid in line with the forearm.
- Fist clenched (Fielden, 1949 *Science*).

SM *Arm strength.* Standing erect, hold your arm in playing posture. Hold a bucket containing rocks by the hand with the palm downwards. The bucket should be made as heavy as possible consistent with the ability to practice the exercise without real strain. Rotate your forearm to the right and back again a number of times (Ching, 1946).

- Repeat holding the bucket with the palm of the hand up (Ching, 1946).

SM *Arm and finger strength with a loose elbow.* Grab your teacher's arm and pull the arm toward you while the teacher resists. Do not stiffen the elbow, but let the power come from the fingers and upper arm. The less stiff you are, the greater muscular power is available (Fraser, 2003).

Forearm Exercises

MP *Forearm movement.* Let your upper arm hang vertically. Make a fist with the thumb upwards. Make blows on a table of every force and size using a movement of the forearm. There should be no movement in the upper arm, hand, or body. Keep the wrist tense and the elbow free (Ching, 1946).

- Repeat the exercises above with the hand in playing position. Be sure that the wrist, knuckle, and finger joints do not give when the fingertips come into contact with the surface of the table, no matter how hard the blow (Ching, 1946).

MP *Balance of the forearm at the elbow joint.* Rest your elbow lightly on a table with the forearm raised and the hand hanging loosely at the wrist joint. Prepare your elbow joint so that a slight tap applied by an assistant from behind to the forearm just below the wrist would be sufficient to overbalance the forearm and make it fall of its own weight on the table (Ching, 1946).

SM *Forearm movement.* Make circles with the forearms while the upper arm hangs limply from the shoulder (Gát, 1958/1980).

- Repeat, making circles with the elbow and wrist simultaneously (Gát, 1958/1980).

SM *Forearm stretch and return of finger flexors to full length.* With palms facing forward and fingertips touching a chair, lower your palm toward the chair surface. Do not push past the point of comfort. Rotate the right hand counterclockwise from a 6-o'clock position completely around to a 6-o'clock position (Csurgai-Schmitt, 2002).

SM *Forearm stretch.* Stand in front of a chair with your arms hanging in front of your body, palms facing toward the body, and fingertips touching the chair. Lower the back of the hand toward the chair surface. Do not push past the point of comfort. If you feel little or no tightness or stretch in this position, curl the fingers into the hand while stretching (Csurgai-Schmitt, 2002).

Wrist and Hand Exercises

MP *Arm and wrist breathing.* Imagine an air hole under your wrist. Any down forearm motion becomes an out-breath, all rising motion an in-breath. Experience the forearm as a lung. Be subtle with the wrist movement. The smaller the wrist's breathing movement, the softer the arm muscles. The elbow relaxes and glides in rather than out to the side (Fraser, 2003).

MP *Bridge formation.* Place your right palm on your left thigh. Keep your fingers flat. Place a pencil under the bridge of your right hand, tucked securely under the 5th finger knuckle. Gently pull up with the pencil to create an arch with the bridge (Bernstein, 1991).

MP *Bridge formation.* Place your hand on a five-finger pattern with three black keys in the middle. Place the eraser of a pencil underneath the 2nd finger knuckle. Gently pull up with the pencil to arch the hand (Bernstein, 1991).

MP *Hand strength and elbow function.* Place the flattened fingers 2, 3, 4, and 5 with the tips bunched together on a flat surface with the thumb stretched out. Press firmly while drawing the fingers and thumb towards each other. The motion is similar to picking up a piece of tissue paper. The wrist comes straight up while the elbow falls slightly forward and in.

- Repeat this motion at the piano, grabbing an octave (or smaller interval) and trying to shake the piano. The elbow continues to relax and fall in, as stiffening the elbow will only weaken the structure (Fraser, 2003, p. 106).

MP *Hand stroke*. Rest your forearm on a table. Place a small object about an inch high under the forearm just behind the wrist. Rest the weight of your arm on the table and the small object, and play a series of fairly quick, repeated staccato notes softly and loudly. The hand moves up and down from the wrist joint while the forearm remains still. The weight of the forearm is continually supported by the small object on the table. All touch is a downward operation. Upward movements are involuntary (Ching, 1929).

- Repeat with your forearm supported muscularly. Your shoulder and elbow must be perfectly balanced. (Ching, 1929).
- Repeat at the piano with your forearm supported just behind the wrist with a walking stick (Ching, 1929).
- Repeat without the walking stick (Ching, 1929).

MP *Balance of the hand at the wrist joint*. Rest your elbow on the table with your forearm slightly raised and your hand lying loosely at the wrist. Raise the hand at the wrist to make a straight line with the forearm. Make your wrist rigid so that it would not move if a person tried to push the hand down.

- Repeat, making your wrist balanced so that your hand is nearly falling but not quite, only enough upward force is exerted to keep it in position. Close your eyes and have an assistant lightly tap your knuckles from behind without your knowing exactly when this is going to happen. Your hand should overbalance and topple forward (Ching, 1929).

SM *Wrist mobility*. Rest your elbow on a table with your forearm extended and your palm flat on the table. Lift your hand from the wrist joint, keeping your forearm flat on the table. Relax your hand and let it fall limply on the table (Fielden, 1949 *Science*).

- Exercise. Repeat, forcing your hand down on the table. (Fielden, 1949 *Science*).
- Exercise. Repeat, flexing your fingers slightly as in playing (Fielden, 1949 *Science*).

SM *Wrist strength*. Hold a bucket containing a light weight with your palm facing down. Raise and lower the bucket by means of movements of the hand and the wrist joint (Ching, 1946).

- Repeat with your palm facing upward (Ching, 1946).

SM *Wrist mobility*. With the hand in playing posture, make rhythmic up and down movements of your hand from the wrist joint with varying degrees of force, size, and speed of repetition. There should be no separate movements of the fingers. As far as possible, prevent movement of the forearm at the elbow joint (Ching, 1946).

SM *Wrist mobility*. Make rhythmic side to side movements of your hand from the wrist joint, with varying degrees of force, size, and speed of repetition. Prevent any other movements from occurring (Ching, 1946; Gát, 1958/1980).

SM *Wrist mobility*. Make circular hand movements in both directions at varying speeds. Prevent reactionary movements of the forearm (Ching, 1946; Gát, 1958/1980).

SM *Bridge and wrist mobility*. Place the tip of the 3rd finger of your right hand against the palm of your left hand. Move the forearm in such a way that the bridge passively moves while the rest of the joints and the wrist are immobile. Repeat with wrist movements (Gát, 1958/1980).

SM *Bridge strength and for overcoming double jointedness*. Squeeze a rubber ball in your hand (Ortmann, 1929).

SM *Bridge strength*. A common error is to raise the wrist instead of the hand knuckles. Lay your hand on the keyboard and mash your fingers into the keys with a collapsed bridge. Move your wrist forward. The wrist rises while the hand knuckles collapse even more. This is the wrong way (Fraser, 2003).

- Repeat, but have the thumb and 2nd finger stand up as if they were two legs. Make all the effort come from the 2nd finger. As your 2nd finger pulls itself into standing position, notice that the wrist does not go too far up, and the elbow relaxes and falls in and forward (Fraser, 2003).

SM *Bridge strength.* Depress five consecutive notes and keep them depressed. With the other hand, press downwards on the high bridge of the playing hand. Do not allow the knuckles to give way (Ching, 1946).

- Repeat, pressing at the wrist (Ching, 1946).

SM *Bridge strength.* Place the tips of your fingers and thumb on your thighs. Gradually increase the downward pressure as smoothly as possible. Do not let the arch of the hand or the wrist give way. Reverse this process, and produce a smooth decrease of pressure. Vary the length of time over which you make the gradations of pressure (Ching, 1946).

SM *Bridge strength.* Play a note with your thumb, and exert as much weight as possible. Do not let the space between the thumb and 2nd finger collapse. Activate your thumb muscles as much as possible by pressing on the hand structure (Fraser, 2003).

SM *Bridge strength.* Play an octave (or smaller interval) with the center part of your hand dropped onto the keyboard so that the middle keys are felt with your palm. Try to draw the tips of the thumb and 5th finger close together. They won't move because of holding onto their keys, but this effort will activate the grasping function between the thumb and 5th finger, resulting in the bridge rising and creating an arch (Fraser, 2003).

SM *Bridge and joint strength.* Press your fingertips to a wall, keeping the palms and wrists as far from the wall as possible. Lean into the wall and try to move it with your fingertips. The joints should not collapse. Notice weak spots in the skeletal alignment, especially in the thumb. Try pushing the wall with the thumbs alone. A certain adjustment in the shoulder can help align the hand joints (Fraser, 2003).

- Now stand at the piano and put your right hand over C E F G A. Find the same feeling of structural solidity and power that was felt at the wall. The wrists will be somewhat high. Now find the same feeling when sitting (Fraser, 2003).

SM *Hand strength.* Grasp one forearm with the other hand and squeeze firmly to feel the hand's strength (Fraser, 2003).

SM *Hand strength.* Twist a necktie as if wringing out a washcloth. Twist both away from and toward your body (Csurgai-Schmitt, 2002).

SM *Hand structure.* Place your fingertips on a table close together but not touching with a high wrist. Increase the pressure on the table without destabilizing the hand structure. Feel the triceps involved to the point where you almost rise off the bench. Then move your arm and wrist around without disrupting the hand. The bulk of the pressure remains concentrated on the fingertips (Fraser, 2003).

SM *Hand structure.* Stand on one finger so firmly that all the other fingers dangle from your hand. Wiggle and flutter the fingers. Then the next finger drops with no pressing, allowing you to control the degree of attack exactly. This then becomes the standing finger (Fraser, 2003).

SM *Hand structure.* Stand your thumb on a table, and stretch the other fingers to the ceiling. Press on the thumb, and slowly bring the 2nd finger down and play, keeping the pressure. This helps to incorporate the element of grasping into the playing. Release the 2nd finger back to open position (Fraser, 2003).

SM *For naturally stiff hands.* Press forcefully at the joint beyond the point of maximal flexion to extend the range of motion. Do this exercise regularly and carefully, and do not force it too far or too suddenly (Ortmann, 1929).

SM *Hand mobility.* Hold one end of a necktie in your hand and let the remaining material dangle toward the ground. Use your fingers to gather the material into your hand. Do not rotate the wrist. Drop the tie down and shake the wrist as if the tie was a yo-yo. (Csurgai-Schmitt, 2002).

Finger Exercises

MP *Finger shape and finger lightness.* Hold your hand in playing position on a table. Make the fingers passive. Use a finger from your other hand to flip the tip of this passive finger. Feel the light and empty feeling. Leaving the finger this loose when you play will help it keep its natural shape (Fraser, 2003).

MP *Natural finger movement with strong hand structure.* Imagine that there is a string wrapped around your finger just above or below the mid-joint. The string is gently pulling the relaxed finger upward. Hold onto a note with the thumb and lift your arm slightly as the string lifts the finger. As the finger falls back into the key, the arm floats down too. The thumb area is so strong that the fingers and hand can relax, making incredible delicacy and strength possible at the same time (Fraser, 2003).

MP *Using small vs. strong finger muscles.* Place your hand in playing position on a table. Tap the table lightly with one finger. When using the small muscles, there will be no action at the knuckle. Now press on the table and notice the marked reaction at the wrist and knuckle upward. You are now using the strong muscles of your finger. The strong muscles are used to play keys. The small muscles are used to hold down notes once they are sounded (Matthay, 1932).

MP *Finger stroke.* Rest your forearm on a table and curve your fingers normally. Press firmly with the thumb and lift the 2nd finger. Let it strike repeatedly, making a *crescendo* and *diminuendo.* Do not change the curvature of the finger. Then press the 2nd finger while striking with the 3rd finger, etc. Then press the 2nd finger while striking with a straight thumb. Sympathetic movements of the non-working fingers are acceptable but should be reduced to a minimum. The non-working fingers should be held just above the surface of the table (Ching, 1946).

MP *Finger stroke.* Sit at a table with your forearm and hand resting on the table. Play a five-finger exercise, keeping your forearm and hand resting on the table. Play *forte* and *piano*. When playing *forte*, be careful that the arm does not be come rigid. Notice the sensations of the fingers and knuckles. (Ching, 1929; Gát, 1958/1980).

- Repeat at the piano with a walking stick supporting the weight of your hand and arm. The stick should support the entire weight of your hand and arm, but they should not press on it. The tips of the fingers rest lightly on the surface of the keys. Play five-finger exercises and then scales, and try to reproduce the physical sensations felt at the table (Ching, 1929).

- Repeat without the walking stick, using your muscles to support the weight of the arm. For louder tone, the energy of the hand must be used in conjunction with the fingers (Ching, 1929).

MP *Continuous pressure transference*. Sit away from the keyboard in piano playing posture. With the self-supported arm poised in the air, make five repeated movements of the 5th finger as if playing five repeated notes with a *crescendo* from *pianissimo* to *fortissimo*. Now sit at a table, and place the tip of the 2nd finger on the table. Press downwards on this finger with the hand and forearm. Your finger is curved, and your wrist is low. While maintaining pressure on the 2nd finger, make the five repeated movements of the 5th finger again. Notice the considerable increase in control (Ching, 1946).

MP *For feeling continuity in finger pressure.* Play a five-finger pattern on your thighs with increasing and decreasing pressure. Transfer this to the keyboard, noticing the *crescendo* and *diminuendo* (Ching, 1946).

SM *Finger and hand massage*. Massage your fingers using a hand washing motion and kneading individual fingers. Begin with the thumb and gently press from the base to the tip of the finger, holding a few moments in each position. Stop at the base of the nail and press, and then pull the end of the finger. Apply pressure along the entire line of the muscle (Csurgai-Schmitt, 2002).

SM *Finger action.* Bend your wrist in a relaxed manner. The fingers are relaxed. Suddenly spread the fingers wide and swing the hand upwards, and then release. The spreading movement is initiated by active finger work. Do this exercise with the palm facing both up and down (Gát, 1958/1980).

- Reverse the motions (Gát, 1958/1980).

SM *Finger warm-up.* For cold hands and fingers, swing your arms across your chest, rub your hands together, and wash your hands in warm water (Ortmann, 1929).

SM *Finger stretch.* With your palm turned upwards with softly bent fingers, stretch the fingers backwards, moving the thumb away from the palm so that the palm part of the bridge is lifted as high as possible. Then repeat, combining with rotation of the forearm (Gát, 1958/1980).

SM *For Fink's Primary Movement 7. Finger mobility and equalization of hands.* Hold your hands at chest level with palms facing each other about a torso-width apart. With hands in extended position, pull the fingers into palm position, and then retract them to the claw position, then unfold the fingers back to palm position, then return to extended position. Work calmly and patiently, beginning slowly with as little tension as possible (Fink, 1992).

- Repeat, holding the thumbs still.
- Repeat, holding fingers 2, 3, 4, and 5 still while moving the thumb.
- Repeat, holding fingers 1 and 2 still while moving fingers 3, 4, and 5.
- Repeat, holding fingers 3, 4, and 5 still while moving fingers 1 and 2 (Fink, 1992).

SM *Finger mobility.* Gently stretch each finger in all directions. Stretch the thumb away from the hand. (Csurgai-Schmitt, 2002; Gát, 1958/1980).

SM *Finger mobility.* Move each finger laterally and separately (Gát, 1958/1980).

SM *Finger mobility.* Make circles with each finger (Gát, 1958/1980).

SM *Finger mobility.* With stretched fingers, bend the thumbs and fingertips toward each other until the tips are bunched together and the palms are hollow. Flatten and hollow your palms 10 times (Bernstein, 1991).

- Repeat, bending from the mid-joints. The thumbs will flex from the nail joint (Bernstein, 1991).

SM *Finger mobility.* Vigorously bend and extend your fingers from the knuckle joints. Try to make the tips of the finger reach a point as near the wrist as possible, but do not bend the wrist. The knuckles should bend before the other finger joints. When extending the fingers, begin the

extension from the finger joints. The final extension should take the fingers as far backwards as possible (Ching, 1946; Gát, 1958/1980).

- Repeat, bending from the mid-joints. (Ching. 1946; Gát, 1958/1980).
- Repeat, with the fingers straight. This works the section nearest the knuckle joint (Ching, 1946).

SM *Finger mobility*. Clench your hand into a fist vigorously with the thumb outside the fingers and stretched well across to the 5th finger. Feel the contraction of the *lumbricales* in the palm. Open the hand outward (Fielden, 1949 *Science*). Make the action of opening the main activity with the inward movement being a preparation for the outward movement (Gát, 1958/1980).

SM *Finger mobility*. Stroke the fleshy part of the first joint near the palm with your fingertips. Then strike the center of the palm, then the part near the wrist, and then again in the center. The fingers should not be squeezed against each other (Gát, 1958/1980).

SM *Finger mobility*. Have the 2nd and 4th fingers touch each other alternately above and below the 3rd finger. Repeat with 3rd and 5th fingers above and below the 4th finger (Gát, 1958/1980).

SM *Finger mobility*. Stretch the 5th finger, moving its tip down the palm surface as if caressing the palm. Repeat with the other fingers (Gát, 1958/1980).

SM *Finger mobility*. Clench your hand into a fist. Then, instead of relaxing, extend the fingers backwards to make a concave hollow at the bridge joint. Repeat with the fingers spread out or close together. Always bring the thumb back with the fingers (Fielden, 1949 *Science*).

SM *Finger mobility*. Draw a square or triangle on the table with a pair of fingers by opening and closing them (Gát, 1958/1980).

SM *Finger mobility*. Take any two adjacent fingers of one hand and any two alternating fingers of the other and place their tips together. Then swing the intervening finger of the hand which has the alternate fingers. This swinging movement should be done with the full length of the finger, working from the knuckle joint where the finger joins the hand. The finger moves freely and easily in both directions (Fielden, 1949 *Science*).

SM *Finger mobility in a lateral direction.* Vigorously open and close your fingers sideways. Make the movements as large as possible (Ching, 1946, Fielden, 1949 *Science*).

SM *Finger mobility in a lateral direction.* Hold down two notes with fingers 1 and 5. Repeat one finger moving up and down by steps on the keys between the held ones. Focus on the look and feel of the movements (Ching, 1946).

SM *Finger joint differentiation.* Hold the fingers in a straight line with the back of the hand. Flex the first phalanges from the knuckle joint, leaving the 2nd and 3rd phalanges relaxed as far as possible. You should feel it in the *lumbricales* region of your palm. Relax (Fielden, 1949 *Science*).

- Repeat, but flex and extend 2nd and 3rd phalanges. It is best to do this with fingers 2, 3, and 4 together and finger 5 separately. The thumb should be relaxed (Fielden, 1949 *Science*).

SM *Finger shape.* Drum your fingers on a desk when bored (Fraser, 2003).

SM *Finger shape.* Make circles between your thumb and each finger (Gát, 1958/1980).

SM *Taut Fingers.* Hold up your right hand opposite to your chin with your thumb nail facing you. Keep the fingers slightly curved. Cover the nail of each finger with the corresponding fingertips of your left hand. As the left hand fingers gently bear down, press up against them with the fingers of the right hand. Move the fingertips up and down against the left hand fingers. The taut fingers should be elastic and flexible, not stiff (Bernstein, 1981).

SM *Firm finger joints.* Play with supported nail joints by bracing the thumbs under the other fingers and playing with arm drops (Bernstein, 1991).

SM *Firm finger joints.* Hang your mid-joint 2nd finger from a pencil. Pull up on the pencil and down with your finger. Hang there motionless for the count of 10. Repeat with fingers 3, 4, and 5 (Bernstein, 1991).

- Repeat hanging from your nail joints (Bernstein, 1991).

SM *Fingers and arm working together.* Hold your arm in midair and wiggle your fingers. Then move out and in like a boxer jabbing while still wiggling your fingers. Notice that it is easier to wiggle when your arm is in motion. The arm and fingers work in tandem (Fraser, 2003).

SM *Finger coordination.* Let pairs of fingers touch each other, like fingers 2 3 and 4 5 or fingers 2 3 alone (Gát, 1958/1980).

SM *Finger coordination.* Make circles with the 2nd and 3rd fingers in opposite directions. Repeat with other pairs of fingers (Gát, 1958/1980).

5th Finger Exercises

SM *5th finger mobility.* Places the tips of fingers 2, 3, and 4 on the end of your thumb, keeping the knuckles of all phalanges bent. Move your 5th finger backwards and forwards, keeping it straight throughout (Fielden, 1949 *Science*).

SM *5th finger strength.* Press the tip of the 5th finger vigorously into the palm of your hand. Maintain the pressure for about 2 seconds. Release the pressure on repeat (Ching, 1946).

SM *5th finger strength.* Place your fist palm down on C#. Anchor the thumb so it will not move. Press the pad of the straight 5th finger onto a black key and draw it towards you. The top knuckle of the 5th finger and the whole outside of the hand should stand up, and the elbow rises slightly. This activates and strengthens the whole outer ridge of the hand, which is where much of the 5th finger strength originates (Fraser, 2003).

4th Finger Exercise

SM *4th finger mobility.* Place tips of fingers 2 and 3 on the end of the thumb, and move the 4th finger back and forth. The 5th finger should be allowed to swing freely (Fielden, 1949 *Science*).

Thumb Exercises

SM *Discovering the full arc of the thumb.* While banding the other four fingers into one unit that holds notes down, move your thumb slowly through its whole arc of movement (Fraser, 2003).

SM *Thumb mobility.* Hold your hand with the fingers extended. Bring the thumb across the palm, reaching toward the root of the 5th finger. Relax (Fielden, 1949 *Science*).

- Repeat, but bring your thumb back vigorously (Fielden, 1949 *Science*).
- Repeat both exercises above with your fingers clenched (Fielden, 1949 *Science*).

SM *Thumb mobility.* Make a triangle or square shape with your thumb while the other fingers are held straight (Gát, 1958/1980).

SM *Thumb mobility.* Glide your thumb along each finger as if caressing it (Gát, 1958/1980).

SM *Thumb mobility.* With your hand in the playing position, make vigorous vertical movements of the thumb. Keep the movements as close to the strictly vertical as possible (Ching, 1946).

SM *Thumb mobility.* Make vigorous side to side movements with your thumb. Make the range of movements as great as possible (Ching, 1946).

SM *Thumb mobility.* Drop on white key thirds in palm position with fingers 1 and 2. Collapse these two fingers diagonally forward to claw position, integrating this change of position with diagonally forward-moving forearms. Move back and forth between palm position and claw position until it becomes loose and pliable and the arm and finger movements feel fully integrated (Fink, 1992).

SM *For correcting a collapsing thumb mid-joint.* Grasp the mid-joint of your thumb and stretch the palm bone back to its limit. Let go of the mid-joint and force the palm bone's own extensors to hold the mid-joint in place. Repeat several times, increasing the time span but not to the point where fatigue accumulates (Fink, 1992).

SM *Thumb joint differentiation and thumb mobility.* Place both hands in extended position. While holding the palm bones firmly back, flex the mid- and nail joints of both thumbs to claw position. Alternate the two positions (Fink, 1992; Gát, 1958/1980).

SM *Thumb strength.* Stand your thumb on a table and stretch the other fingers to the ceiling. Let the weight press on the thumb. Find a position where the joints do not collapse. Exerting extra pressure will show where structural weaknesses in the alignment exist (Fraser, 2003).

SM *Thumb Agility for Scales.* Rest four fingers on a table. Tap with the thumb in a rhythm the teacher claps (Last, 1954).

APPENDIX L

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