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**THE UNIVERSITY OF OKLAHOMA
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**FIELD-DEPENDENT/INDEPENDENT LEARNER RESPONSES
TO INSTRUCTIONAL TECHNOLOGIES USED IN
COLLEGE GROUP PIANO CLASSES**

**A Dissertation
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
Doctor of Philosophy**

**By
DENNIS C. WIDEN
Norman, Oklahoma
1999**

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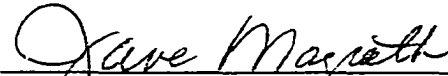
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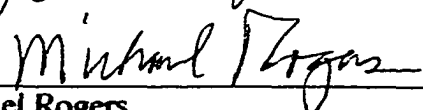
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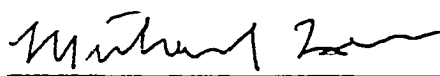
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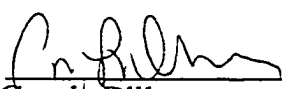
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ACKNOWLEDGEMENTS

I would like to express my sincere gratitude and appreciation to Dr. Jane Magrath and Dr. Roger Rideout, co-chairs of my dissertation committee. Their advice and guidance was invaluable throughout the preparation of this dissertation. I am also grateful to the other members of my committee, Dr. Michael Rogers, Dr. Michael Lee, and Dr. Connie Dillon, for providing me with learning opportunities at the University of Oklahoma that opened my mind to new ideas and new ways of thinking.

Finally, I am thankful for the many good friends, especially Isabel, who took the time out of their own busy lives to let me think outloud in their presence and discuss my ideas. Their constant concern and encouragement always inspired me to press on through the difficult times.

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ABSTRACT

Educational technologies have played an increasingly important role in college group piano instruction during the past three decades. Among the reported benefits have been increases in students' motivation and persistence in their learning. However, many keyboard educators have posed questions about how the use of instructional technologies affects different kinds of learners and their learning processes. The purpose of the study was to investigate how students with a specific cognitive learning style responded to the instructional technologies that were used in their group piano studies.

The study was conducted during the 1998 spring semester at the University of Oklahoma. The students enrolled in two sections of Level II Group Piano served as the population from which the study sample was selected. Following completion of an Advised Consent Form, the researcher determined that twenty-five (25) students had volunteered to participate in the study. The cognitive style of field-dependence/field-independence was chosen for use in the investigation. To measure this learning style, the *Group Embedded Figures Test* was administered to the students in the population. From the results, four (4) field-dependent and four (4) field-independent learners in the population were selected as the study sample (N=8).

Instruction during the fifteen week course was designed and conducted by the researcher. Instructional systems design (ISD) procedures were employed to (1) identify specific instructional goals; (2) develop teaching strategies; and (3) choose instructional technologies to support students' learning skills.

Descriptive data about students' general characteristics and their previous experiences in music and keyboard studies were collected using a researcher-designed Student Profile Questionnaire. Qualitative data were gathered in a series of three individual interviews conducted at five-week intervals during the course of the study. Students in the sample were asked to respond to open-ended questions about the kinds of instructional

technologies that were important to them in their learning, and how they influenced their learning processes.

To analyze and interpret the data, the researcher used (1) the characteristics of the cognitive field-dependent/independent learning style; (2) the cognitive learning theories of Brunner and Ausubel; (3) the matrix of cognitive music skills developed by Davidson and Scripps; and (4) Dillon's analytical model to identify and describe the attributes of instructional technologies. Separate interpretations of the data collected from each of the field-dependent and field-independent students in the sample were developed. The data revealed that the students within these two groups of learners responded in similar ways to the educational technologies that were used during instruction in their group piano studies. Patterns emerged in (1) the kinds of instructional technologies that students identified as important in their learning; (2) the kinds of learning skills (intellectual, verbal, kinesthetic, psychomotor, cognitive, and metacognitive) that specific technologies supported; and (3) how the technologies were used in instruction.

FIELD-DEPENDENT/INDEPENDENT LEARNER RESPONSES TO INSTRUCTIONAL TECHNOLOGIES USED IN COLLEGE GROUP PIANO CLASSES

CHAPTER I THE PROBLEM

Introduction

New educational and music technologies have played an increasingly important role in college group piano instruction during the past three decades. In addition to traditional classroom instructional tools, group piano teachers have sought innovative ways of using electronic keyboards, synthesizers, MIDI sequencers, drum machines, computers, and computer programs to increase teaching effectiveness and improve students' achievement. Articles published in professional music journals and magazines have documented the enthusiasm among many teachers for using new educational technologies in the group piano classroom. Among the benefits attributed to their use have been increases in students' enthusiasm for learning, more time spent practicing, and higher levels of achievement on some kinds of keyboard skills tests.¹

Despite these important benefits, keyboard educators continue to pose many questions about the use of new instructional technologies and their affects on individual learners and the learning process. Berz and Bowman have observed that it is not clear whether the reported increases in music learning and achievement are a direct result of the technologies themselves, or whether they are more attributable to what has been identified

¹Marienne Uszler, "The Independent Music Teacher: Practice and Preparation," *American Music Teacher* (October/November, 1996): 29.

as the “novelty effect.”²

Like their counterparts in other disciplines, keyboard educators have had to address many issues concerning the effects of using new educational technologies in the classroom. While many group piano teachers have developed creative ways of incorporating new technological tools into their teaching activities, general guidelines for designing instruction utilizing technologies to achieve specific learning goals have yet to be developed. Uszler has urged keyboard teachers to seek new ways to evaluate educational technologies and to identify their educational implications beyond seeing them as “the ultimate drillmasters, record keepers, and providers of enhanced backgrounds.”³ She has recommended that research in the field of piano pedagogy be focused on the learner and the learning process in order to address questions about how different kinds of learners respond to the use of specific technologies and the kinds of music learning strengthened by them. Similar observations have been made by authors in the field of music education. Higgins and Bork suggest that some new technologies have the potential to significantly affect the nature of the learning process itself, and that they should be viewed as more than just another set of modern presentation tools to disseminate information more efficiently.⁴ Higgins has recommended that new kinds of research designs be developed to study (1) the attributes of new instructional technologies that influence learning; (2) the design of materials and the pedagogical basis for choosing to use a specific instructional technology; and (3) the types of learners who respond to various kinds of mediated instruction.⁵

²William L. Berz and Judith Bowman, “An Historical Perspective On Research Cycles In Music Computer-Based Technology,” *Bulletin of the Council For Research in Music Education* 126 (Fall 1995): 15-28.

³Marianne Uszler, “Research on the Teaching of Keyboard Music,” in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992): 589.

⁴William Higgins, “Technology,” in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992): 480; A. Bork, *Personal Computers In Education* (New York: Harper and Row, 1985), 35.

⁵Higgins, 491.

Since the late 1970s, researchers in many fields of education have explored the relationships between the characteristics of learners and various instructional methods. Lefrancois cites the work of Cronbach and Snow as having established the fundamental principles of a body of studies known as attribute-treatment interaction research.⁶ He describes this form of research as based on the premise that, in the achievement of certain types of learning goals, some kinds of instructional methods are better for students with a particular set of characteristics, while other forms of instruction may be more effective for students with other attributes. In these studies, researchers have examined the relationships between various student characteristics (anxiety, dependence, and intellectual abilities) and different forms of instruction (lecture, demonstration, small-group interaction, computer programs).⁷ Similar kinds of research in the fields of instructional systems design and distance education have been conducted using media attribute theories. Studies applying these theories have been based on the supposition that the unique characteristics of individual technologies, and how they are used in instruction, may also interact with the characteristics of students to affect their learning.⁸ Although the findings of attribute-treatment interaction and media attribute studies have often been inconclusive, these forms of research have provided important models for researchers in music education and piano pedagogy to study similar kinds of questions.

Research designed to study the effects of instructional technologies on students' learning must begin with a clear definition and understanding of the term technology. In the fields of music education and piano pedagogy the word technology is used most often to describe the new electronic keyboard instruments, MIDI devices, and computers

⁶L. J. Cronbach and R. E. Snow, *Aptitudes and Instructional Methods* (New York: Irvington, 1977) in Guy R. Lefrancois, *Psychology for Teaching*, 6th ed., (Belmont, CA: Wadsworth Publishing Company, 1988), 324.

⁷Lefrancois, 324.

⁸Rita Richie, *The Theoretical and Conceptual Basis of Instructional Design* (New York: Nichols, 1986), 45; Michael G. Moore and Greg Kearsley, *Distance Education: A Systems View* (New York: Wadsworth Publishing Company, 1996), 55.

that have been introduced into the modern music classroom. Other definitions of technology, however, reflect a broader meaning. Higgins suggests that a better understanding can be gained by examining the two Greek words that form the term: *techne*, meaning “art,” and *logos*, meaning “discourse.” In his interpretation of technology as the “art of discourse,” the essence of the word lies in the wider concept of communication. Higgins argues that understanding “technology as communication” reveals its close philosophical relationship to the goals of all education: the communication of ideas, understanding, and information between teacher and learner.⁹ Similar interpretations of the term instructional technology have been proposed by authors in the fields of instructional systems design and distance education. Definitions formulated in these areas of study suggest that an instructional technology can be understood to be any device or media used to encode and transmit information from the teacher to the student in the educational process.¹⁰ Applying these wider conceptual understandings of the term, instructional technologies can, therefore, include such common classroom items as printed textbooks and handouts, blackboards and overhead projectors, televisions, audio- and videotapes, electronic and computer equipment and software programs, as well as perhaps the most complex instructional technology: the human instructor.

In addition to new definitions of instructional technologies, methods of analyzing the characteristics of educational technologies and identifying ways to apply them in the instructional process have been developed. In the procedures developed for use in instructional systems design, specific types of learning goals are matched with the attributes of individual instructional technologies that support the kinds of learning required to achieve the goals.¹¹ Researchers applying these techniques to design instruction with

⁹Higgins., 480.

¹⁰Rita Richie, *The Theoretical and Conceptual Basis of Instructional Design* (New York: Nichols, 1986); Walter Dick and Lou Carey, *The Systematic Design of Instruction*, 4th ed. (New York: HarperCollins Publishers, Inc., 1996).

¹¹Walter Dick and Lou Carey, *The Systematic Design of Instruction*, 4th ed. (New York: HarperCollins Publishers, Inc., 1996).

the educational tools found in contemporary group piano classrooms may uncover new information about how specific instructional technologies can be used more effectively to help students' improve their learning skills and achieve learning goals.

In studies that examine the influence of instructional technologies on students' learning, researchers must also address questions about what learning is and how it occurs. Since the early twentieth century, educators and psychologists have proposed many theories to describe and explain the learning process. In recent decades cognitive learning theories have competed with earlier behavioral models for prominence. Cognitive theories, such as those proposed by Brunner and Ausubel, have attempted to explain (1) the nature of the learning process in terms of concepts; (2) the relationships that learners establish between concepts; (3) the strategies students use to construct new knowledge; and (4) how they store new knowledge in long-term memory. Although Brunner and Ausubel generally agree that successful learning is dependent on learners' abilities to find meaning in new information and incorporate it into existing frameworks of understanding, they differ in the terms that they use to describe the cognitive processes used in learning and the instructional methods that they recommend. Brunner's student-centered discovery method of learning is contrasted sharply by Ausubel's more structured expository teaching methods and reception learning. Despite these differences, Brunner and Ausubel have suggested that reducing the overall complexity of the information that students receive during the instructional process may be central in helping learners to find meaningful relationships with which to structure new knowledge.¹²

Many music educators have been hesitant, however, to adapt cognitive learning theories for use in music teaching and research. Davidson and Scripp have described their reluctance as based on concerns about how to apply the general principles of these theories to the unique kinds of learning required of students in music studies. They have characterized many of the fundamental concepts of cognitive learning theories as being too vague and far removed from the kinds of skills that musicians use in their learning.

¹²Lefrancois, 77-101.

Davidson and Scripp have stated that the principles of cognitive learning theories must be redefined to encompass the distinctive aspects of music learning related to music production, perception, and reflection if they are to be meaningful in music research.¹³

Recent developments in the evolution of cognitive learning theories may provide a conceptual basis for applying them in the study of music learning. In addition to the types of skills related to verbal and mathematical learning, theories of multiple intelligences have expanded the concept of the mind to incorporate other kinds of learning, including those associated with music studies.¹⁴ Some psychologists and educators have also begun to speculate about the important relationships that may exist between certain kinds of cognitive skills and the areas of study in which they are used. They have argued that research on the development of cognitive skills must be conducted within the specific context in which learning takes place if the results are to be meaningful.¹⁵ Applying these concepts to the study of music learning may offer researchers in the area of piano pedagogy new ways of understanding the unique kinds of problem solving skills and learning strategies required of students in group piano classes.

Other kinds of education research have focused on studying the characteristics of different types of learners and the ways in which they learn. Educators and authors of learning style theories have suggested that some kinds of learners may have unique ways in which they perceive, interpret, and encode information during their learning processes. To identify and study the distinctive nature of the learning styles of individual students, researchers have used a variety of standardized measurement instruments. Learning style tests frequently used in education research include Canfield's *Learning Style Inventory*, the *Meyers-Briggs Type Indicator*, Kolb's *Learning Style Inventory*, and the *Group Embedded*

¹³Lyle Davidson and Larry Scripp, "Surveying the Coordinates of Cognitive Skills in Music," in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992), 392-413.

¹⁴Howard Gardner, *Frames of Mind* (New York: Basic Books, 1983).

¹⁵Davidson and Scripp, 392-393.

*Figures Test.*¹⁶

Each of these learning-style measures has been used successfully in studies throughout the fields of education. The unique dimensions of the *Group Embedded Figures Test* (GEFT), however, have offered many researchers the opportunity to study how individual students perceive and interpret information in the learning environment, and the different ways that they use their understanding to construct new knowledge. Although the GEFT was originally conceived by the authors as a measure of an individual's capacity to analyze and structure various forms of visual information, subsequent research prompted them to consider that the test may also reflect the presence of perceptual abilities in other areas that require similar analytical skills. From the results of additional research, the authors expanded the conceptual basis of the test and developed the construct of field-dependence/independence. The authors have defined this construct as "the ability to overcome embeddedness in a stimulus field through active and analytic as opposed to passive and global perception and processing of information."¹⁷ Subjects taking the GEFT are asked to find simple geometric figures embedded in more complex designs. Individuals who can easily overcome the surrounding context to find the hidden figures are designated field-independent (FI) learners. Those who experience more difficulty are identified as field-dependent (FD) learners.

In their analysis of numerous studies that used the GEFT and the results of other related research, the authors found that the test may also be strong indicators of significant differences in an individual's broader intellectual and personal functioning. Using this evidence, the conceptual basis of the learning style was expanded to include two broader

¹⁶A. Canfield, *A Learning Style Inventory Manual*, 2d ed., (Ann Arbor, MI: Humanes Media, 1980); Isabel Meyers and Katherine C. Briggs, *Meyers-Briggs Type Indicator: Form F* (Palo Alto, CA: Consulting Psychologists Press, 1976); D. A. Kolb, *Learning Style Inventory: Technical Manual* (Boston: McBee, 1986); H. A. Witkin, P. K. Oltman, E. Raskin, and S. A. Karp, *A Manual for the Embedded Figures Test* (Palo Alto, CA: Consulting Psychologists Press, 1971).

¹⁷L. J. Ausburn and F. B. Ausburn, "Cognitive Styles: Some Information and Implications for Instructional Design," *Educational Communications and Technology Journal* 26 (1978): 347.

constructs which the authors have called the “global-analytical” construct and the construct of “differentiation.”¹⁸

Recent uses of the *Group Embedded Figures Test* in the field of music education have yielded statistically significant results. In a study conducted by Ellis and McCoy, the GEFT was used to examine the effects of cognitive-style field-dependence/independence on the ability of college non-music majors to identify form in music.¹⁹ The researchers administered the *Group Embedded Figures Test* and a researcher-designed Musical Forms Test (MFT) to 119 students in a college introductory music course. An Analysis of Variance (ANOVA) revealed that field-independent students scored significantly higher ($p < .001$) than field-dependent students on the Musical Forms Test. Ellis and McCoy concluded students who were more successful in identifying embedded figures in a visual context were also more successful at perceiving themes embedded in a musical context.

To compare the combined effects of cognitive style, general college aptitude, and previous musical experience to the scores on the Musical Forms Test, Ellis and McCoy performed a multiple regression analysis. Results indicated the GEFT was a significant predictor of performance on the Musical Forms Test ($p < .0002$). The researchers determined that the GEFT accounted for 30% of the total amount of variance on the scores of the Musical Forms Test, the largest yet reported for a cognitive/musical ability correlation study. Ellis and McCoy’s study has provided evidence of strong connections between the cognitive learning style of field-dependence/independence and students’ abilities to perceive and understand musical concepts.

Use of the GEFT by researchers in the field of piano pedagogy may offer them similar opportunities to study the types of learning skills that are unique to keyboard studies. Students in group piano classes are frequently asked to analyze the harmonic,

¹⁸H. A. Witkin, P. K. Oltman, E. Raskin, and S. A. Karp, *A Manual for the Embedded Figures Test* (Palo Alto, CA: Consulting Psychologists Press, 1971), 3-4.

¹⁹Mark C. Ellis and Clair W. McCoy, “Field-Dependence/Independence in College Nonmusic Majors and Their Ability to Discern Form in Music,” *Journal of Research in Music Education* 38(4) (1990): 302-310.

melodic, and rhythmic aspects of printed musical exercises and scores, and to translate their understanding of these concepts into specific actions on the keyboard. The ease with which students are able to recognize and understand such things as notes groupings, fingering patterns, and hand positions in the music that they learn may directly affect their success in learning keyboard and musical concepts, as well as the practice strategies they develop. Although many group piano instructors instinctively choose effective teaching strategies that improve their students' abilities to recognize meaningful patterns in keyboard music and apply them in their practice, it is still unclear how instructional technologies can be used to strengthen students' learning of these kinds of skills to achieve performance goals.

Studying how instructional technologies may influence the learning of different kinds of students in group piano classes requires the coordination of procedures and information gained from the research in other areas of study. By expanding the base of knowledge from which researchers in the area of piano pedagogy can draw, new kinds of questions can be formulated and explored. Research designs that combine the results of studies on instructional technologies in the fields of distance education, instructional systems design, and current knowledge about learning and learning styles may result in a greater understanding of the learners in group piano classes and their learning processes.

The Rationale

The National Conference on Piano Pedagogy has recognized that the use of new instructional technologies will continue to impact keyboard studies at all levels during the coming decades.²⁰ Leaders of the conference have encouraged researchers to study ways of analyzing new technologies and their effects on learners and the learning process.

Research on the use of instructional technologies has been conducted in the field of music education since the 1950s, with related studies appearing in piano pedagogy in the

²⁰Richard Chronister and Thomas McBeth, *National Conference on Piano Pedagogy: Proceedings and Reference* (Princeton, NJ: The National Conference on Piano Pedagogy, 1987, 1989).

1970s.²¹ Investigations in these areas, however, have focused primarily on the technologies themselves, examining their capacity to teach as well as traditional instructional methods. Researchers have concluded that no significant differences occur in the amounts of learning or levels of achievement among students in settings where technologies have been used compared to those in which they have not.²² While using new kinds of instructional technologies in music instruction may not increase students' abilities to learn, little is known about how they affect the learning process of individual students, or the kinds of music learning strengthened by them.

Traditional music research designs have been described as being inadequate to address these kinds of questions. Researchers in the fields of music education and piano pedagogy have recommended that new research designs incorporating qualitative procedures be developed to study the role that instructional technologies play in the learning experience of different kinds of learners. From the information gathered in these kinds of studies, some authors have predicted that music teachers will be able to formulate more effective teaching strategies using instructional technologies to support the learning processes of their students.²³

Purpose of the Study

The purpose of this study was to investigate how field-dependent/independent learners in college group piano classes respond to the uses of various instructional technologies in their studies.

²¹William Higgins, "Technology," in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992): 491; Uszler, "Research on the Teaching of Keyboard Music," 590.

²²Gordon Solomon and Howard Gardner, "The Computer as Educator: Lessons From Television Research," *Educational Researcher* 15(1) (1986): 14.

²³Higgins, 491; William L. Berz and Judith Bowman, "An Historical Perspective On Research Cycles In Music Computer-Based Technology," *Council For Research in Music Education* 126 (Fall 1995): 15-28.

Limitations of the Study

This study was limited to the analysis and interpretation of the information gathered from the field dependent/independent learners enrolled in the two sections of Level II Group Piano (MuTe 1321) offered at the University of Oklahoma during the 1998 Spring semester. No attempt was made by the researcher to generalize the significance of the interpretations of the data and the conclusions reached in the study to a larger population of students.

Instructional Systems Design procedures were employed by the researcher to provide a framework for the development of the teaching strategies and the choice of educational technologies used in instruction. However, neither the Instructional System Design procedures nor their relevance in college group piano instruction were assessed. Similarly, course content, instructional materials, and the instructional goals provided by the authors of the textbook used in the study were not evaluated.

Organization of the Study

Chapter II contains a review of related literature. Books, journal articles, and dissertations supporting the purpose and design of the study are examined. Chapter III consists of a description of the methodology used by the researcher to implement the study. Included in this chapter is an explanation of the procedures used to collect and analyze data, as well as a discussion of how Instructional Systems Design procedures were applied to develop teaching strategies and choose technologies to support instruction. Chapter IV contains a presentation of the data gathered from questionnaires and individual student interviews. Chapter V consists of an analysis and interpretation of the data. Chapter VI includes a summary of the study, conclusions, and recommendations for further research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The study of the instructional technologies used in educational settings has been the subject of many books, articles, and dissertations in the fields of music education and piano pedagogy. The published and unpublished documents that support the purpose and design of this study have been presented in the following four categories: (1) uses of technologies in music education and piano pedagogy; (2) technology research in music education and piano pedagogy; (3) cognitive learning theories and uses of the *Group Embedded Figures Test* in music education research; (4) instructional systems design; and (5) qualitative research in music education.

Uses of Technologies in Music Education and Piano Pedagogy

Technological innovations of the twentieth century have led to the development of new kinds of musical instruments and educational tools. Interest among music educators in using new technologies in music instruction can be traced to the early 1950s.¹ Articles published throughout the 1950s and 1960s demonstrated the ability of many music teachers to find creative ways of using new technologies to support music teaching and learning.

Increased awareness of the educational potential of new technologies prompted the Music Educators National Conference (MENC) to sponsor *The National Conference on the Uses of Instructional Media in the Teaching of Music* in Washington, D.C. in 1965.

¹William Higgins, "Technology" in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992): 480-481.

Committees were formed at the conference to evaluate available information about new technologies, and to make recommendations for using them in music instruction.²

As a result of their studies and discussions, leaders of the conference identified six technologies they believed could significantly impact music education in the succeeding decades: (1) film and television; (2) new audio devices; (3) teaching machines; (4) programmed instruction; (5) electronic devices; and (6) print-based programmed instructional materials.³

Following the conference, music educators began to compile bibliographies of existing articles and studies on the use of new technologies in music education. Rogers and Almond published a comprehensive bibliography of studies applying new technologies in programmed instruction in music theory, the psychology of music, and instrumental studies to 1967.⁴ A similar annotated bibliography of the uses of technologies in programmed music instruction from 1952-1972 was compiled by Carlson and Williams and published by the MENC in 1978.⁵

Throughout the 1970s, music educators continued to explore ways of using new instructional technologies in their teaching. Innovative uses of reel-to-reel and audio cassette tapes, film strips, prerecorded films, and television courses to support instruction in ear training, sight singing, music theory, music history, and music appreciation have been well documented by Higgins.⁶

²Edward Maltzman, *Proceedings of the National Conference on the Use of Educational Media in the Teaching of Music* (Washington, D.C.: Music Educators National Conference, 1965).

³Higgins, 480.

⁴Karen Rogers and F. Almond, "A Bibliography of Material on Programmed Instruction in Music," *Journal of Research in Music Education* 18 (1970): 56.

⁵J. C. Carlsen and D. B. Williams, *A Computer Annotated Bibliography: Music Research in Programmed Instruction, 1952-1972*, (Reston, VA: Music Educators National Conference, 1978).

⁶Higgins, 480-590.

The development of digital computer technology offered additional opportunities for music educators to enhance their teaching with new instructional tools. The first electronic digital computer, ENIAC (Electronic Numerical Integrator and Computer) was created at the University of Pennsylvania in 1942. Despite its significance, the size, expense, and complexity of the technology hindered the development of practical educational applications. Further research and refinements of computer technology in the succeeding decade, however, resulted in the appearance of the first marketable digital computer by the Remington Rand Corporation in 1951. Since that time music educators have played an increasingly active role in developing computer applications for use in music studies.

In an early article, Deihl and Radocy described the impact that computer-assisted instruction could have on the teaching of music theory, aural skills, and musical styles. They predicted that a monitor, a computer processing unit, and a keyboard would be the tools of future musicians, and that these would revolutionize how music is performed, composed, taught, and studied.⁷

Two landmark issues of periodicals dedicated to the uses of technologies in music education were published in 1971.⁸ The January 1971 issue of *The Music Educators Journal* contained eleven articles: eight concerning programmed learning, films, television, and sound reproduction, and three on the uses of computer technologies. The first issue of *Educational Technology*, published in August 1971, contained seven articles on uses of television, films, and teaching machines, and three concerning the uses of computers. While the majority of articles in these periodicals focused on the technologies identified at the 1965 MENC conference, each contained articles about the uses of computers in music education for the first time.

⁷Ned. C. Deihl and Rudolph. E. Radocy, "Computer-Assisted Instruction: Potential for Instrumental Music Education," *Bulletin for the Council for Research in Music Education* 15 (Winter 1968): 1-7.

⁸David Swanzy, "Changes in Computer Technology in Music Education: Looking Back Twenty Years," in the *Proceedings of the 68th Annual Meeting of the National Association of Schools of Music* (October, 1992).

By the early 1970s, music educators at many large research universities were exploring the uses of computer-mediated instruction in music. In 1971 an IBM 1500 computer was used at the University of Pennsylvania to help students develop aural and visual skills to recognize rhythms, phrases, and articulations in music. At about the same time, the development of the PLATO system at the University of Illinois resulted in interactive computer technology that included a touch-sensitive screen, keypad, and random-access to various audio devices. Computer programs using the PLATO system were developed to help teach students about the musical concepts of note reading, rhythm, and the use of common musical symbols.⁹

Stanford University introduced the first computer system intended for regular use in music instruction in 1973. Programs were developed to assist music students in theory and aural skills studies. Unique aspects of this new system included its ability to evaluate student responses to questions and provide immediate feedback, as well as provide multiple paths of learning to accommodate different styles of learning. A similar system was created at the University of Delaware in the following year. The Graded Units for Interactive Dictation Operations (GUIDO) offered a complete computer-assisted learning program in ear training and music theory.¹⁰

Despite the early enthusiasm of some educators for using computers in music instruction, the profession as a whole was slow to accept their use in the classroom. In 1975 Jones investigated the status of computer-assisted instruction in music education. He discovered that only twenty-three of the 429 colleges and universities surveyed in the United States were actively using computers in music instruction. From the results of interviews and questionnaires, Jones cited four reasons why music educators were

⁹Ned C. Deihl, "Computer-assisted Instruction and Instrumental Implications for Teaching and Research," *Journal for Research in Music Education* 19 (Fall 1971): 299-306.

¹⁰Kenon D. Renfrow, "The Development and Evaluation of Objectives for Educating Graduate Piano Pedagogy Students to Use Computer and Keyboard Technology" (Ph.D. diss., University of Oklahoma, 1991): 31-35

reluctant to use computer-assisted instruction in their programs: (1) the high costs of acquiring and maintaining computer equipment; (2) lack of knowledge among teachers and students about how to use computers; (3) lack of course materials and user-friendly programs; and (4) the absence of research on the effectiveness of using computers in music instruction.¹¹

The creation of the microprocessor in 1975 reduced the size and cost of computers, making the technology more accessible to music educators. The Apple Computer Company introduced a small affordable computer for use in education in 1977. This was followed in 1981 by the marketing of the first personal computer intended for general use by International Business Machines (IBM). The success of the IBM computers prompted smaller computer companies to adopt their operating system and produce a variety of other easily affordable personal computers.

Continued advances in computer technology and operating systems resulted in the development of a Graphical User Interface (GUI) by Apple Computer Company in the early 1980s. The menu-driven and mouse-supported Graphic User Interface (GUI) expanded computer applications to include graphics, which made them more intuitive for the user. In 1984 the Apple Macintosh computer was produced and has since competed with IBM personal computers for use in music and other educational applications.

The increased use of computers in music education since the mid-1970s has led to the formation of many organizations to help teachers understand computers and their educational uses. The National Consortium for Computer-Based Musical Instruction (NCCBMI) was founded in 1975 as a forum for the exchange of ideas and information about computers and computer-based music instruction. In 1985 the NCCBMI changed its name to the Association for Technology in Music Education (ATMI) and has continued to provide important information and services to music educators on the uses of computers in

¹¹ Morgan J. Jones, "Computer-assisted Instruction in Music: A Survey with Attendant Recommendations" (Ph.D. diss., Northwestern University, 1975).

music teaching.¹²

The number of music educators actively involved in writing new computer programs has increased in the last two decades. To help music teachers evaluate the growing number of music computer programs available to them, the Music Educators National Conference (MENC) and the Association for Technology in Music Instruction (ATMI) regularly publish current information and reviews of new computer products and software. Similarly, the Music Teachers National Association (MTNA) publishes reviews of new music education software in its bimonthly journal, *The American Music Teacher*, as well as *A Guide to Music Instructional Software*, currently in a third edition.

One of the most important developments in the evolution of music technologies was the formulation of the Music Instrument Digital Interface (MIDI) Protocol Specifications. Prior to its creation, music instruments were produced with electronic and digital technologies unique to each manufacturer. In 1981, Dave Smith of Sequential Circuits, I. Kakehashi of Roland Corporation, and Tom Oberheim of Oberheim Circuits met during the June meeting of the National Association of Music Manufacturers (NAMM) to discuss ways that instrument manufacturers might standardize their uses of electronic technologies so that different companies' instruments might work together. Following their meeting, Smith wrote the proposed standardization protocol and presented it to the members of the Audio Engineering Society in November of 1981. At the January 1982 meeting of the NAMM, the Yamaha, Korg, and Kawai corporations supported the adoption of the MIDI specification. Following small modifications and refinements to the original program, the final version of the *MIDI 1.0 Detailed Specification* was released to the general public in August 1983.¹³

The MIDI protocol permitted instruments of various manufacturers to interact with one another using a single digital language. Though not required to do so, designers of the

¹²Kenon D. Renfrow, "The Development and Evaluation of Objectives for Educating Graduate Piano Pedagogy Students to Use Computer and Keyboard Technology" (Ph.D. diss., University of Oklahoma, 1991).

¹³Joseph Rothstein, *MIDI: A Comprehensive Introduction* (Madison, WI: A-R Editions, Inc., 1992): 8-11.

MIDI protocol also included a program to generate data about the production of the sounds themselves. The program yielded such information as (1) identifying pitches; (2) the beginnings and endings of sounds; (3) attack velocities affecting dynamics; and (4) special effects (sustaining notes and pitch bend). This addition to the standard MIDI specifications offered musicians the new opportunities to study and analyze specific aspects of musical performances.

MIDI also created an important link between electronic musical instruments and digital computer technologies. The convergence of computer and electronic musical technologies led to the development of new kinds of musical instruments and computer programs with a host of potential applications in music education. Detailed accounts of the development and uses of digital pianos, electronic keyboards, sequencers, drum machines, computer hardware, and software programs in music studies have been described in Renfrow, Young, and Skroch.¹⁴

Since the adoption of the MIDI standard, music publishers and individual authors have produced many educational programs and materials combining MIDI and computer technologies. MIDI disks of sequenced accompaniments for use with class and private piano methods, general music textbooks, as well as computerized games, tutorials, interactive CD-ROMs, and videodisks have been developed for all levels of music studies. Books and articles also have been published by professional musicians and music educators explaining the concepts of MIDI and how it can be used in music teaching.

To support music teachers seeking to understand and use MIDI technologies, instrument manufacturers and music publishers has developed a variety of educational programs. In an article published in the October/November 1993 issue of *The American Music Teacher*, Renfrow identified and described the programs offered by Debut Music

¹⁴Kenon D. Renfrow, "The Development and Evaluation of Objectives for Educating Graduate Piano Pedagogy Students to Use Computer and Keyboard Technology" (Ph.D. diss., University of Oklahoma, 1991); Barbara G. Young, "The Use of Computer and Keyboard Technology in Selected Independent Piano Studios" (D.M.A. document, University of Oklahoma, 1989); Diana Skroch, "A Descriptive and Interpretive Study of Class Piano Instruction in Four-Year Colleges and Universities Accredited by the National Association of Schools of Music With a Profile of the Class Piano Instructor" (Ph.D. diss., University of Oklahoma, 1990).

Systems, the Kawai America Corporation, Korg USA, the Roland Corporation US, the Wurlitzer Company, and the Yamaha Corporation of America.¹⁵

Historical time lines of the development of music technologies indicate that keyboard instruments have often been the focus of technological experimentation and innovations.¹⁶ Although some examples of the application of electrical technologies to keyboard instruments can be found in the 19th and early 20th centuries, Benjamin Miessener is credited with creating the first electric piano in 1932.¹⁷ Miessener's invention led to the subsequent development of the first electronic piano laboratories in the 1950s. Skroch cites the electronic piano laboratory marketed by the Wurlitzer Company of Illinois, and installed at Ball State University in 1956, as the first of its kind in the United States and the model for the creation of similar laboratories at other colleges and universities.¹⁸

Authors of many articles and studies in the field of piano pedagogy have traced the use of electronic keyboard technologies in group piano studies.¹⁹ Their work has revealed

¹⁵Kenon D. Renfrow, "More Than Marketing: Educational Offerings of Electronic Keyboard Manufacturers," *American Music Teacher* (October/November 1993): 16-20.

¹⁶William Lee, *Music in the 21st-Century: The New Language* (Miami, FL: Belwin Mills Publishing Corp., 1994): 145-173.

¹⁷*Ibid.*

¹⁸Skroch, 37.

¹⁹Barbara Ann Locke, "The College Piano Class: Status and Practices of Group Piano Instruction at Selected Universities in Arkansas, Louisiana, Mississippi, Oklahoma, and Tennessee" (Ph.D. diss., University of Southern Mississippi, 1986); Bonnie Gunther, "The Electronic Lab," in *Creative Piano Teaching* by Yvonne Enoch and James Lyke (Champaign, Ill: Stipes, 1977): 235-243; Carl E. Eberhard, "The Electronic Piano Laboratory," *Educational Technology* 11 (August 1971): 19-20; Guy Duckworth, "Survey Results (Trends in Class Piano Practices at the College Level)," *Music Educators Journal* 54 (November 1967): 25; Marjorie Oldfield, "Group Piano Survey," *Piano Quarterly* 101 (Spring 1978): 35; E. Grace Osadchuck, "Class Piano Instruction in Junior Colleges Accredited by the North Central Association of Colleges and Schools" (Ph.D. diss., University of Oklahoma, 1984); Dwight R. Pounds, "A Comparison of the Achievement in Basic Piano Skills Attained by Students in Electronic Piano Classes with Achievement by Conventional Piano Classes in Group Instructional Situations" (Ph.D. diss., Indiana University, 1975).

a mixture of attitudes and concerns among instructors using electronic keyboard laboratories. Goltz found that most group piano instructors agreed that electronic piano laboratories were a cost-effective and efficient way of teaching the functional keyboard skills of sight reading, harmonization, transposition, and improvisation. Others, he discovered, remained skeptical of the value of electronic instruments in teaching technique and critical listening skills. Goltz reported that concerns among group piano teachers were related to the lack of information and research on the efficiency of various class sizes, and the specific teacher preparation needed to use the electronic piano laboratories effectively.²⁰

Since the mid-1970s other kinds of instructional technologies have been introduced into college group piano classes. Audio cassette tapes, television, overhead projectors, metronomes, filmstrips, videotapes, keyboard visualizers, digital sequencers, and computers are now widely used to support instruction. In an article published in 1976, Lancaster was among the first in the field of piano pedagogy to recognize the importance of using a variety of technologies to support learning in group piano classes.²¹ Lancaster urged teachers to explore creative ways of using audio-visual technologies, but emphasized that the application of all types of technologies in group piano instruction must be accompanied by an understanding of students' individual learning styles and characteristics.

Others in the field of piano pedagogy have since echoed Lancaster's ideas and recommendations. In the past two decades, many authors have offered suggestions on how to expand traditional teaching methods with new technologies. They have provided important evidence of the impact of technologies on students' motivation, descriptions of personal techniques of applying various technologies in their teaching, and the development

²⁰Jack Delbert Goltz, "A Survey of Class Piano Laboratories" (Ph.D. diss., Florida State University, 1975).

²¹E. L. Lancaster, "Audio-Visual Programming for the Piano Class," *Clavier* 15 (May/June 1976): 28-33.

of effective teaching strategies.²²

Technology Research in Music Education and Piano Pedagogy

William Higgins' comprehensive review of the technology studies in the field of music education since the 1960s has confirmed the existence of a growing body of research on the uses of new music and other instructional technologies in music instruction.²³

Early studies investigating the uses of teaching machines, filmstrips, and motion pictures to teach music fundamentals to college music majors and prospective elementary teachers indicated that they increased students' understanding of information and promoted the development of positive attitudes toward the use of technology in music learning.²⁴

Uses of television in music instruction have been traced to the late 1950s. The rapid development of television technologies at that time prompted many music educators to view television as holding the promise to expand the classroom to reach more students and to provide more uniform music instruction. Grants from educational foundations, governmental offices, and regional development organizations in the 1960s encouraged

²²Frederick Bianchi, "Buyer's Guide to Electronic Keyboards," *American Music Teacher* 39 (December/January 1989/90): 12-13, 68; Sandra Bowen, "Electrify Your Students!" *Electronic Music Educator* 1 (March 1989): 1-4; Virginia Campbell, "Help! I've Been Amped," *Clavier* 25 (September 1986): 26-29; Nancy Cree, "New Tools, Traditional Goals," *Clavier* 27 (January 1986): 42-44; Mary Jane De Genero, "Piano Teachers in a New Age," *Electronic Music Educator* 1 (December 1988): 1-4; Mary Gae George, "Teaching with Technology," *Music and Computer Educator* 1 (February 1990): 9-10; Kenon D. Renfrow and E. L. Lancaster, "Using Digital Pianos, Synthesizers, Sequencers, and Related Equipment in Piano Teaching," *Clavier* 30 (May 1991): 30-31; Sam Holland, *Teaching Towards Tomorrow* (Loveland, OH: Debut Music Systems, 1993); Joy Carden, *A Piano Teacher's Guide to Electronic Keyboards* (Milwaukee, WI: Hal Leonard Publishing Co., 1988).

²³Higgins, 480-497.

²⁴W. I. Rasmussen, "An Experiment in Developing Basic Listening Skills Through Programmed Instruction" (Ph.D. diss., University of Southern California, Los Angeles, 1966); W. H. Sanders, "The Effect of Computer-Based Instructional Materials on a Program for Visual Diagnostic Skills Training of Instrumental Music Educational Students" (Ph.D. diss., University of Illinois, Urbana, 1980); M. Greenburg and D. R. Huddleston, "A Program for Developing Aural Discrimination of Instrumental Tone Colors Using a Videosonic Teaching Machine," *Journal of Research in Music Education* 19(1) (1971): 51-61.

many music educators to develop new instructional materials using television. Subsequent studies were conducted to evaluate the effectiveness of using television in general music education and early childhood music studies.²⁵ Although new ways of using television in music instruction were developed, an evaluative study by Carpenter in 1966 concluded that its true potential had not been fully explored. He observed that “many telelessons appeared to the viewer as if a television camera simply had been transported to the back of the classroom.”²⁶

Videotaped recordings of teachers to replace or supplement regular classroom music instruction were produced in the 1970s. Studies by Miller and Williams explored the effectiveness of videotaped instrumental instruction.²⁷ Stuart developed a multimedia approach, using videotapes, recordings, and slides to supplement text materials and class discussions in music teacher training courses.²⁸ He found that audio-visual supplements to regular instruction produced increased learning and contributed to the development of more effective rehearsal skills among student conductors. Similar studies were conducted throughout the 1980s investigating uses of video recordings to provide feedback to student teachers for self-analysis and the modeling of desired teacher behaviors.

Initial studies of the effectiveness of computer-based music instruction were

²⁵C. Allen, *Instructional Television in Music Education* (Bloomington: National Center for School and College Television, 1966); K. J. Glenn, “The Potential Use of Television for Early Childhood Music Education” (Ph.D. diss., University of Michigan, Ann Arbor, 1972).

²⁶T. H. Carpenter, “An Analysis of Past, Present, and Potential Uses of Instructional Television in the Teaching of Music” (Ph.D. diss., Boston University, Boston, 1966), 10.

²⁷V. K. Miller, “Simulation: Embouchure Instruction by Videotape. A Pilot Study Using Simulation As a Technique to Determine the Ability of Instrumental Music Majors to Analyze Woodwind Embouchure Problems” (Ph.D. diss., University of Oregon, Eugene, 1973); E. C. Williams, “The Use of Videotape in the Solution of Selected Problems in Oboe Playing: A Field Study” (Ph.D. diss., University of Illinois, Urbana, 1978).

²⁸M. Stuart, “The Use of Videotape Recordings to Increase Teacher Trainees’ Error-Detection Skills,” *Journal of Research in Music Education* 27(2) (1979): 14-19.

conducted at Stanford University in 1967, and at Pennsylvania State University in 1969.²⁹ Results of these early investigations were promising and prompted further studies at other large research universities during the 1970s. Growing interest in using computers in music instruction and their increased affordability led to the creation of computer laboratories at many colleges and universities throughout the country. The development of music computer laboratories, such as the one established at Illinois State University in 1980, has been described discussed by Williams and Schrader.³⁰

In 1987 Bresler conducted a qualitative investigation of the use of computers in music theory studies at the introductory level.³¹ The results of his study indicated that computers had a substantial impact on the learning of students who had the ability to self-diagnose learning problems; were analytical thinkers; had systematic work habits; and long concentration spans. Adams studied the use of computer HyperCard and interactive video programs in the teaching of tempo markings, dynamics, articulations, special effects, and form to high school wind instrumentalists.³² Rees and Atwater each developed self-instructional video discs and studied their effectiveness in presenting performance problems to be analyzed visually and aurally by music education students. Both researchers found

²⁹R. L. Alvin, "The Development of a Computer-Assisted Music Instruction System to Teach Sight-Singing and Ear-Training" (Ph.D. diss., Stanford University, 1967); W. E. Kuhn and R. L. Alvin, "Computer-Assisted Teaching: A New Approach to Research in Music," *Journal of Research in Music Education* 15 (1967): 305-315; Ned C. Diehl and Rudolf. E. Radocy, "Computer-Assisted Instruction: Potential for Instrumental Music Instruction," *Bulletin of the Council for Research in Music Education* 15 (Winter 1969): 1-7.

³⁰D. B. Williams and D. L. Schrader, *The Development of a MicroComputer-Based Music Instruction Lab* (A paper presented at the NCCBMI/ADCIS National Conference, Arlington, VA, 1980).

³¹L. Bresler, "The Role of the Computer in a Music Theory Classroom: Integration, Barriers, and Learning" (Ph.D. diss., Stanford University, Stanford, 1987).

³²S. Adams, "The Development of a Computer-Based Interactive Multimedia Program for Teaching Interpretive Aspects of Woodwind Instrument Notation" (Ph.D. diss., University of Southern California, Los Angeles, 1989).

that the use of interactive video was as successful as traditional methods in teaching prospective teachers to identify and solve performance problems in their students' work.³³

Keyboard educators have been active in investigating the uses of new educational technologies since the 1970s. Erling's study, testing a design for using instructional television in first semester college group piano classes, was among the first to appear in the piano pedagogy research literature.³⁴ Subsequent studies by Goltz, Lo, and Giles helped to establish a basis for technology research in the field.³⁵

The majority of the technology studies in the field of piano pedagogy, however, have occurred since the creation of the MIDI specifications in 1983.³⁶ Young's review of the books and articles published before 1990 revealed the intense and growing interest among keyboard educators in understanding new technologies and how they could be used in private and class instruction.³⁷ She found that most publications fell into three categories: (1) descriptions of new technologies and glossaries of related terms and concepts; (2) testimonials of the positive effects of using new technologies and suggestions for their use in teaching piano; and (3) discussions of the issues and concerns about how new technologies might affect traditional teaching methods and performance goals.

³³F. J. Rees, "A PLATO-Based Videodisc Self-Instructional Program for Directing the Development of String Vibrato Technique," *Journal of Educational Technology Systems* 14(4) (1986): 283-296; D. Atwater, "The Development of Computer-Based Videodisc Courseware for Teaching Visual Diagnostic Skills of Selected Problems in Trombone Performance" (Ph.D. diss., University of Illinois, Urbana, 1990).

³⁴Billie Ray Worthington Erlings, "A Design for Employing Instructional Television in the First Term of Functional Piano, Developed in a Comprehensive Musicianship Program" (D.M.A. document, University of Oregon, 1970).

³⁵Jack Delbert Goltz, "A Survey of Class Piano Laboratories" (Ph.D. diss., Florida State University, 1975); Lawrence Naai-Lei Lo, "The Effects of Visual Memory Training on the Ability to Memorize Music Within Class Piano Instruction" (Mus.Ed.D. diss., Indiana University, 1976); Allen L. Giles, "Teaching Beginning Piano to Adults by Television" (Ph.D. diss., Columbia University, New York, 1981).

³⁶Renfrow, 41.

³⁷Young, 11-37.

Other researchers have investigated the attitudes of keyboard teachers concerning new technologies, how they were being incorporated into curriculums, and the need for new kinds of research in the field. Renfrow studied the development of objectives for educating piano pedagogy students on how to use computer and keyboard technologies in their future teaching activities.³⁸ He found that most teachers agreed that new technologies would play an increasingly important role in future keyboard studies at all levels. He determined, however, that there was little agreement on what should be included in keyboard technology classes, or on how to teach students to use new technologies.

From interviews and questionnaires, Renfrow concluded that teachers often felt overwhelmed by the rapid pace in the development of new technologies, and they had too little time to understand them fully before being faced with newer, more complex technologies. He recommended that (1) a series of on-going summer workshops or seminars be developed to provide intensive training to keyboard teachers on the uses of new technologies; (2) piano pedagogy curriculums include courses that require students to demonstrate knowledge of the hardware components of new technologies, as well as their educational applications; (3) liaisons between the music industry and music educators be established to encourage the study and uses of new technologies, and (4) technology specialists be included on pedagogy faculties to keep abreast of new technologies.³⁹

Studies have also been conducted to establish profiles of music educators who use technologies in their teaching. Uszler cites a 1994 survey developed by the MTNA National Advisory Committee on Technology to explore current interests and uses of new technologies among keyboard teachers. Responses to questionnaires sent to 1,000 independent teachers revealed that most teachers using technologies were over 40 years old, but that the majority of responses came from teachers between the ages of 51 and 60. From analysis of the data researchers were unable to determine clear reasons why older teachers responded more positively to the use of new technologies than their younger

³⁸Renfrow, 140-148.

³⁹Ibid., 161-162.

colleagues. Researchers concluded that older teachers may have greater financial resources with which to access new technologies, or that they may have had more opportunities to attend workshops and seminars on their use in teaching.⁴⁰

Since the early 1970s formal studies of many aspects related to group piano instruction can be found in the piano pedagogy research literature. Only a small number of these investigations, however, have addressed questions about the effective use of new technologies in class piano teaching.⁴¹ Skroch reviewed the existing studies and articles documenting the uses of instructional technologies in group piano instruction from the early part of the twentieth century to 1990. Her descriptions of (1) the use of wooden and paper keyboards in public school piano classes of the 1920s and 1930s; (2) the development of electronic keyboard laboratories since the 1950s; (3) the use of a variety of audio-visual aids since the 1970s; and (4) the contemporary applications of new MIDI technologies, indicate a long history of applying new instructional tools to help students succeed in class piano studies.⁴²

Although much has been written describing the uses of new technologies in music education and piano pedagogy, formal investigations remain only a small part of the total bodies of research in both fields. Critics have suggested that the lack of research may be due to two reasons: (1) the rapid evolution of new technologies has not allowed researchers time to fully understand them before new generations of technologies are developed; and (2) many researchers have chosen to participate in their development and experiment with the possibilities of new devices, rather than studying the effects of their application.⁴³

⁴⁰Marianne Uszler, "The Independent Music Teacher: Practice and Preparation," *American Music Teacher* (October/November 1996): 20.

⁴¹Erlings; Goltz; Lo; Giles; Mary Ann Ranney, "A Study of the Systematic Use of Multi-Sensory Communication in College Piano Classes" (D.M.A. document, University of Colorado at Boulder, 1986).

⁴²Skroch, 36-44.

⁴³Higgins, 490; Uszler, 589-590.

Cognitive Learning Theories and Uses of the Group Embedded Figures Test in Music Education Research

During the twentieth century, educators and psychologists have proposed a number of theories to describe the nature of the learning process. Learning theories have sought to understand and explain the learning process in terms of the kinds of changes that occur in learners as a result of experiences. Although learning theorists often differ in the concepts and terms that they have used to describe the learning process, their theories can be classified into two groups: behavioral and cognitive.⁴⁴ Behavioral theories, such as those developed in the works of Watson, Guthrie, Thorndike, and Skinner, have focused on definitions of learning based on learners' visible responses to specific kinds of stimuli in the learning environment. Because these theories are concerned with the observable relationships between physical events, they do not address, or speculate about, what may occur in learners between certain kinds of stimuli and their responses to them.⁴⁵

Cognitive theorists have attempted to describe and explain the unobservable mental processes that learners use to organize and process information, make decisions, and store knowledge. Cognitive theorists have often viewed learners as complex information processing systems that create new networks of knowledge when they find meaningful associations between existing knowledge and new information and experiences. Cognitivists have suggested that all forms of knowledge can be divided into two broad categories: declarative knowledge (facts learned and past experiences) and procedural knowledge (knowing how to do something), and that learners form concepts, or ideas, from the relationships they find in their perceptual experiences. To explain the learning process, individual theorists have developed a variety of metaphors and terms (ie. schema,

⁴⁴Guy R. Lefrancois, *Psychology for Teaching*, 6th ed., (Belmont, CA:Wadsworth Publishing Company, 1988), 11-12.

⁴⁵John B. Watson, "Psychology as the Behaviorist Views It," *Psychology Review* 20 (1913): 157-158; Edwin R. Guthrie, *The Psychology of Learning* (New York: Harper & Brothers, 1935); Edward L. Thorndike, *Selected Readings From a Connectionists Psychology* (New York: Appleton-Century-Crofts, 1949); Burrhus F. Skinner, *Science and Human Behavior* (New York: Macmillan, 1953).

scripts, and frames) to describe the ways that learners structure and organize new concepts.⁴⁶

Among the important cognitive learning theories have been proposed are those by Brunner and Ausubel. Although their theories share many fundamental principles, the authors differ in their explanations of the learning process, the terminology they use to describe learning, and the instructional methods that they recommend. Brunner has proposed that learning results when learners perceive and process information to form categories, or concepts, that are based on the similarities they discover between existing knowledge and new information and experiences. Brunner has used the term conceptualization to describe the categorization process and the rules that learners develop to define concepts, as well as the coding systems they use to organize them. He has explained that conceptualization enables learners to find relationships between categories and create hierarchies of concepts to store in long-term memory. In his theory, Brunner has suggested conceptualization serves five important functions in the learning process: (1) to reduce the complexity of the environment; (2) to permit the recognition of objects and experiences because of their similarities; (3) to reduce the necessity for constant learning; (4) to provide direction for further activity and learning; and (5) to permit learners to find relationships between objects and events.⁴⁷

To implement the principles of his learning theory, Brunner has recommended that instruction be based on discovery learning. In this approach, students are not given information about a specific subject in its final form, and are required to structure it themselves by discovering relationships that exist between concepts. Although less teacher involvement is implied, Corno and Snow have explained that teachers using discovery methods of instruction serve as guides and mediators by adapting teaching to the needs

⁴⁶Lefrancois, 79-81.

⁴⁷Jerome S. Brunner, John J. Goodnow, and G. A. Austin, *The Study of Thinking*. (New York: John Wiley, 1956); Jerome S. Brunner, "The Act of Discovery," *Harvard Educational Review* 31 (1961a): 21-32.

of individual learners.⁴⁸ Brunner has stated that discovery learning leads to the formation of more generic categories of knowledge and coding systems that permit a greater degree of transfer and retention of knowledge, as well as increases in motivation and the development of problem-solving skills in the learner. Brunner has described four conditions in learners that enhance their abilities to make discoveries in their learning: (1) set (a learner's predisposition to look for relationships between pieces of information in solving problems); (2) need state (the level of interest or alertness of the learner); (3) mastery of specifics (the amount of previous knowledge and information the learner possesses); and (4) diversity of training (the variety of experiences that the learner has had in learning).⁴⁹

Brunner has recommended that educators develop spiral curriculums in which the general principles of a specific subject reoccur throughout the educational experiences of learners in increasing complexity to allow them to refine their understanding by discovering new relationships and expanding concepts. To support his recommendations, Brunner has explained that students proceed through three developmental stages in their learning based on the ways that they are able to perceive and process information: enactive (sensory-motor); iconic (concrete imagery); and symbolic (abstract representations). He has suggested that teaching methods that follows these natural stages of learning permit learners to discover and rediscover relationships and concepts using different kinds of learning skills. Brunner has also noted the importance that audiovisual aids play in discovery learning by providing learners with direct and indirect learning experiences that improve their abilities to form concepts.⁵⁰

⁴⁸L. Corno and R. E. Snow, "Adapting Teaching to Individual Differences Among Learners," in M.C. Wittrock, ed., *Handbook of Research and Teaching*, 3d ed., (New York: Macmillan, 1986), 605-629.

⁴⁹Jerome S. Brunner, "The Act of Discovery," *Harvard Educational Review* 31 (1961a): 21-32.

⁵⁰Jerome S. Brunner, *The Process of Education* (Cambridge, MA: Harvard University Press, 1961b); Jerome S. Brunner, *Toward a Theory of Instruction* (Cambridge, MA: Harvard University Press, 1966).

Ausubel has proposed a cognitive theory of learning to explain and describe what he has termed the “laws of meaningful classroom learning.”⁵¹ In his theory, Ausubel has focused on explaining the mental processes that learners use to create cognitive structures during meaningful verbal learning. Ausubel has applied the term subsumer to describe the concepts, or categories of knowledge, that learners form in organizing information, and subsumption as the process they use to find new meanings and incorporate them into existing structures of knowledge. Ausubel has further identified two forms of subsumption that he believes occur in the learning processes: derivative subsumption (incorporating new information into existing categories of knowledge), and correlative subsumption (extending existing categories of knowledge to include new meanings). Ausubel has described cognitive structures of knowledge as hierarchical in nature, and that they begin with the most general and inclusive categories, or concepts, of understanding and proceed to increasingly more detailed and complex ones. He has advocated that teachers use expository, or didactic, instructional methods to prestructure materials and present them in relatively final form to the student during the learning process. Ausubel has described this form of learning as reception learning.⁵²

To facilitate reception learning, Ausubel has recommended that teachers employ advance organizers prior to instruction. He has argued that organizers containing complex sets of ideas and concepts serve to provide learners with a strong framework to organize new information and increase recall. Ausubel has explained that two types of advance organizers can be applied in the instructional process: expository organizers, to be used when completely new kinds of information are presented for which no cognitive structure yet exists in the learner; and comparative organizers, to be used when new information contains similarities to existing frameworks of knowledge.

⁵¹David P. Ausubel, *The Psychology of Meaningful Verbal Learning* (New York: Grune & Stratton, 1963) in Guy R. Lefrancois, *Psychology for Teaching*, 6th ed., (Belmont, CA: Wadsworth Publishing Company, 1988), 85.

⁵²Lefrancois, 85-96.

Ausubel and Robinson have agreed that Brunner's discovery learning methods do have some advantages in some kinds of learning that involve testing (1) the meaningfulness of students' learning; (2) students' problem solving abilities; (3) the transfer of learning; and (4) motivational levels of students. They have asserted, however, that discovery learning is generally an inefficient use of instructional time, and that students past the age of eleven or twelve already possess enough background information to form new concepts using reception learning instructional methods.⁵³

Studies designed to compare the effectiveness of discovery-learning and reception learning instructional methods, have often yielded inconsistent and inconclusive results. Lefrancois has noted that in these studies researchers have used differing criteria in their attempts to evaluate the effectiveness of the two instructional approaches. While some researchers have studied the speed of learning, others have examined such things as retention, transfer of learning, and motivational changes in learners. Lefrancois has also stated that the results of these studies have been difficult to interpret because of uncontrollable variables, such as differences between teachers and classes of students.⁵⁴

In a study of advance organizers, Mayer concluded that the most effective organizers were those that (1) allowed the learner to find all or most of the important relationships in the material to be learned; (2) describe clear relationships between familiar and less familiar material; (3) are relatively simple to learn and use; and (4) can be used in a range of learning situations.⁵⁵ In a meta-analysis of studies before 1980 on the use of advance organizers in reception learning, Luiten, Ames, and Ackerson found that advance organizers were generally effective for students at all grade and ability levels, and that

⁵³David P. Ausubel and F. G. Robinson, *School Learning: An Introduction to Educational Psychology* (New York: Holt, Rinehart & Winston, 1969), 483-485.

⁵⁴Lefrancois, 97.

⁵⁵R. Mayer, "Can Advance Organizers Influence Meaningful Learning," *Review of Educational Research* 49 (1979): 371-383.

their helpfulness increased with time.⁵⁶ In a similar review of studies on the uses of advance organizers prior to 1984, Grippin and Peters found that approximately half of the studies indicated that the use of advance organizers made a significant difference in learning outcomes, while a similar number of studies had concluded that learning was as effective without them. In their analysis, the authors suggested that the contradictory results may have been attributable to the ways that different researchers defined the term “organizer,” and the ways that they used them in their studies.⁵⁷

Despite the differences in their learning theories, Brunner and Ausubel have described learners as active participants in the educational process who process information to structure new knowledge based upon its relationships to existing understanding. They have proposed theories of learning and specific instructional methods that they believe help learners to organize information, develop meaningful concepts, improve transfer and retention of learning, and increase motivation.

The authors of cognitive learning theories and the researchers who have applied them in their work have provided educators with many ways to describe and understand the learning process and the diverse skills that learners apply in their intellectual development.⁵⁸ Davidson and Scripps have noted, however, that music educators and researchers have been reluctant to apply the principles of cognitive learning theories to music teaching and research. They have characterized many of the concepts described by cognitive learning theorists as too broad and distant from the language and practice of

⁵⁶J. Luiten, W. Ames, and G. Ackerson, “A Meta-Analysis of the Effects of Advance Organizers On Learning and Retention,” *American Educational Research Journal* 17 (1980): 211-218.

⁵⁷P. C. Grippin and S. C. Peters, *Learning Theories and Learning Outcomes* (Lanham, MD: University Press of America, 1984) in Guy R. Lefrancois, *Psychology for Teaching*, 6th ed., (Belmont, CA: Wadsworth Publishing Company, 1988), 97.

⁵⁸Jean Piaget and B. Inhelder, *The Psychology of the Child* (New York: Basic Books, 1969); L. Vigotsky, *Mind in Society* (Cambridge, MA: Harvard University Press, 1978); K. Fischer, “A Theory of Cognitive Development: The Control and Construction of Hierarchies of Skill,” *Psychological Review* 87(6) (1980): 477-531 in Lyle Davidson and Larry Scripps, “Surveying the Coordinates of Cognitive Skills in Music,” in *Handbook of Research on Music Teaching and Learning* (New York: Shirmer Books, 1992), 392.

music to be meaningful in studying the kinds of learning required in music studies. However, Davidson and Scripp have cited two important developments in the evolution of cognitive learning theories in the past two decades that may provide a conceptual basis for adapting them to the study of music learning: (1) expansions in the concept of the mind to include other kinds of intelligences, including musical; and (2) the importance of conducting research in the context of the environment in which students learn. In light of these developments, Davidson and Scripp have suggested that the broad concepts of cognitive learning theories can be redefined to address the unique types of thinking related to musical production (composition, performance, and improvisation), perception (discrimination and monitoring skills), and reflection (critical thinking skills). They have recommended that the first step must be to identify the specific kinds of learning and cognitive skills that are included in each of these areas. Although they acknowledge that many of the general concepts of cognitive learning theories (ie. kinds of knowledge, transfer, retention, problem solving, and critical thinking) are relevant to the general understanding of music learning, Davidson and Scripp have urged music educators and researchers to take care in adapting them to identify music cognitive skills. They have asserted that any list of specific music cognitive skills must be derived directly from the processes related to musical and artistic learning and development.⁵⁹

From the results of existing music education research, Davidson and Scripp have proposed a matrix of interrelated cognitive skills that they believe may explain the unique dimensions of music learning (Figure 2-1). In their model they have combined the concepts of knowledge situated in performance (procedural knowledge) and knowledge situated outside of performance (declarative knowledge) with the specific kinds of skills associated with music production, perception, and reflection.⁶⁰ Although Davidson and Scripp have described the unique sets of music cognitive skills that fall into each of the cells of their matrix, they have maintained that these skills are neither separate nor isolated

⁵⁹Davidson and Scripps, 392-333.

⁶⁰*Ibid.*, 398-397.

from one another. They have proposed that groups of music cognitive skills combine and interact in a variety of ways during music performance and learning. Davidson and

		Ways of Knowing		
		Expressed through Production	Expressed through Perception	Expressed through Reflection
Types of Knowledge	Situated Outside Performance	Creating procedures or structuring knowledge to produce musical scores demonstrating musical concepts or describing theoretical and/or analytical models Representation as Production	Recognition/discrimination of musical elements, dimensions, or forms outside of performance Representation as Production	Identifying solutions to problems or forming critical judgments through critiques, interpretive metaphors, and practice strategies Representation as Reflection
	Situated In Performance	Demonstrating how a set of actions can be executed, interpreted, or created Production in Performance	Imitating or monitoring a set of actions while performing. Perception in Performance	Transforming a set of actions by reordering or reconfiguring the expressive nuances of the music while performing Reflection in Performance

Figure 2-1. Davidson and Scripp's Matrix of Cognitive Skills in Music.

Scripp have explained that, while the connections between sets of cognitive skills may be strong in the musical thinking of mature musicians, they have noted that these links in immature and inexperienced musicians may be less dynamic. To study the growth of different types of music cognitive skills, Davidson and Scripp have recommended that researchers "explore the origins of musical actions and thoughts, and to follow their development as they interact with training."⁶¹

To explain the conceptual basis of their matrix, Davidson and Scripp have cited numerous studies and other publications in the field of music education since the 1970s that have provided strong evidence of the existence of groups of interrelated cognitive

⁶¹Ibid., 397.

skills specific to musical performance and learning.⁶² Based on the results of these studies and publications, Davidson and Scripp have described the significance of their matrix:

The framework supports not only a comprehensive view of musical cognition skill development but also a broader view of musical development through the coordination and integration of separate yet essentially webbed constellation of independent cognitive skills. More than simply distributing research in musical development, this framework provides essential links for connecting understanding of musical development to continuing musical practice.⁶³

In addition to studying the learning process and the kinds of skills that learners use to achieve instructional goals in different areas of study, researchers have also sought to understand learners' perceptions and how they affect learning. Interest in how individuals perceive information can be traced to the Greeks and Romans, who used auditory, visual, and kinesthetic techniques to teach reading and writing. Similar interests in learning and learner perceptions can be found in the works of Rousseau, Pestalozzi, and Montessori.⁶⁴ Sanders attributes the first formal studies of learning and perceptual modalities to Sir Francis Galton. In an 1883 study of verbal and visual thinkers among

⁶²T. Wolf, "A Cognitive Model of Musical Sight-Reading," *Journal of Psychological Research* 5 (1976): 143-171; Donald A. Schon, *The Reflective Practitioner: How Professionals Think In Action* (New York: Basic Books, 1983); S. E. Trehub, B. A. Morrongiello, and L. A. Thorpe, "Children's Perceptions of Familiar Melodies," *Psychomusicology* 5 (39) (1985): 39-48; J. Bamberger, "Cognitive Issues in the Development of Musically Gifted Children," in R. Sternberg and J. Davidson, eds., *Concepts of Giftedness* (Cambridge: Cambridge University Press, 1986); J. Sloboda, *The Musical Mind: The Cognitive Psychology of Music* (Oxford: Oxford University Press, 1985); K. Swanwick and J. Tillman, "The Sequence of Musical Development: A Study of Children's Composition," *British Journal of Music Education* 3 (3) (1986): 305-339; R. Uptis, "Children's Understanding of Rhythm: The Relationship Between Development and Musical Training" (Ph.D. diss., Harvard University, Cambridge, 1985); M. L. Serafine, *Music As Cognition: The Development of Thought in Sound* (New York: Columbia University Press, 1988); L. Davidson and L. Scripp, "Young Children's Musical Representations: Windows on Music Cognition," in J. Sloboda, ed., *Generative Processes in Music* (Oxford: Oxford University Press, 1988d); L. Davidson and L. Scripp, "Tracing Reflective Thinking in the Performance Ensemble," *The Quarterly* 1 (1 & 2) (1990); L. Davidson and L. Scripp, "Framing the Dimensions of Sight-Singing: Teaching Towards Musical Development," *Journal of Music Theory Pedagogy* 2(1) (1988): 24-50.

⁶³Davidson and Scripp, 410.

⁶⁴Grace M. Fernald, *Remedial Techniques in Basic School Subjects* (New York: McGraw-Hill, 1943), 27; Paul D. Sanders, "An Exploratory Study of the Relationship Between Perceptual Modality Strength and Music Achievement Among Fifth-Grade Students" (Ph.D. diss., University of Oklahoma, 1991), 1.

scientists and nonscientists, Galton observed that scientists more often preferred verbal information, while preferences for visual information were strongest among nonscientists.⁶⁵

Since the early 1980s, researchers in many fields of education have expanded the scope of their investigations to reflect a changing perception of learners. Traditional views of students as sample populations with group characteristics from which the results of studies can be generalized are being replaced by new definitions of learners as dynamic individuals with unique characteristics that interact in distinctive ways with their learning environment. Among these investigations are studies based on learning styles, or learning style preferences (LSP). Learning style preferences are the unique ways that individual learners receive information and respond to instruction.⁶⁶ Keefe has described learning style as the “cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact and respond to the learning environment.”⁶⁷ In addition to having a general style of learning, Kephart has suggested that each individual may also have a preferred channel, or mode, of receiving information (auditory, visual, or tactile-kinesthetic) that is particularly efficient and effective in their learning.⁶⁸

Review of the research on perceptual modality preferences indicates that initial studies often yielded nonsignificant results.⁶⁹ Advocates of the study of students' modality

⁶⁵Sanders, 11.

⁶⁶Diane Billings, “Learning Style Preferences and Distance Education: A Review of Literature and Implications for Research,” in *Distance Education Symposium: Selected Papers, Part 2*, (University Park, PA: The Pennsylvania State University, 1991): 1-12.

⁶⁷James W. Keefe, “Learning Style: An Overview,” *Student Learning Styles* (Reston, VA: National Association of Secondary Principals, 1979): 57.

⁶⁸Newell C. Kephart, *The Slow Learner in the Classroom*, 2d ed., (Columbus, OH: Charles E. Merrill, 1971): 79.

⁶⁹Sanders, 12-13.

preferences argued that the nonsignificant results of these studies could be attributed to the lack of standardized tests to measure modality strengths and preferences and their possible developmental nature. Later studies reported significant relationships between students' perceptual modality preferences and methods of instruction.⁷⁰ Although some controversy still exists about matching teaching styles with learning styles, researchers have found when learning styles and teaching strategies match, learning achievement and satisfaction are improved, and learning may be more effective and efficient.⁷¹

Music educators have also studied the modality preferences among music students. Landis and Carder have cited the works of Dalcroze, Kodaly, and Orff, as music educators often using teaching techniques designed to appeal to the visual, auditory, and kinesthetic learning preferences in their students.⁷² Studies of rhythmic perceptions through various modalities were conducted by Rosenbusch and Gardner, and Amos.⁷³ The effects of

⁷⁰Beatrice J. Farr, "Individual Differences in Learning: Predicting One's More Effective Learning Modality" (Ph.D. diss., Catholic University of America, 1970); Joseph M. Wepman and Anne S. Morency, "Perceptual Development and Learning: An Experimental Study on Modality Reading Instruction" (Washington, D.C.: U.S. Department of Education, 1975); Lucille Laye Mozingo, "An Investigation of Auditory and Visual Modality Preferences for Teaching Word Recognition Skills to Students Classified as Auditory or Visual Learners" (Ph.D. diss., University of South Carolina, 1978); Marie Antonetti Carbo, "An Analysis of the Relationships Between the Modality Preferences of Kindergartners and Selected Reading Treatments As They Affect the Learning of Basic-Word Vocabulary" (Ed.D. diss., St. John's University, 1980).

⁷¹R. Dunn, J. S. Beaudry, and A. Klaves, "Survey on Research on Learning Styles," *Educational Leadership* 46(6) (1989): 50-58; R. Partridge, "Learning Styles: A Review of Selected Models," *Journal of Nursing Education* 22(6) (1983): 243-48; T. Loesch, and R. Foley, "Learning Preferences Differences Among Adults in Traditional and Nontraditional Baccalaureate Programs," *Adult Education Quarterly* 38 (1988): 224-33.

⁷²Beth Landis and Polly Carder, *The Eclectic Curriculum in American Music Education: Contributions of Dalcroze, Kodaly, and Orff* (Washington, D.C.: Music Educators National Conference, 1972), 7-10, 152-61.

⁷³Marcia Harmon Rosenbusch and D. Bruce Gardner, "Reproduction of Visual and Auditory Rhythm Patterns by Children," *Perceptual Motor Skills* 20 (May 1968): 1271-76; Thomas Earl Amos, "Perceiving Musical Rhythm in Different Sense Modalities" (Ph.D. diss., University of California, 1986).

kinesthetic reinforcement in music learning were investigated by Boyle and Cheek.⁷⁴

To study learners' abilities to understand and interpret information, researchers in music education have often used standardized perceptual tests, such as the *Group Embedded Figures Test* (GEFT).⁷⁵ The GEFT was originally conceived as a measure of an individual's ability to identify specific elements within a more complex field of visual information. In the development of the test, however, research conducted by the authors indicated that performance on the GEFT was also related to an individual's abilities to disembed information in other kinds of perceptual tasks (aural, kinesthetic). From the results of these studies the construct of field-dependence/independence was developed. Additional studies using the GEFT revealed that the capacity to disembed information in perceptual tests was also strongly connected to similar cognitive skills used in non-perceptual problem-solving tasks. To encompass the larger cognitive/intellectual functioning that could be inferred from using the GEFT, the authors expanded the fundamental concept of the test to include a broader construct that they have termed the global-articulated dimension. The authors have explained that individuals identified as field-dependent tend to perceive the structure, or organization, of a field of information as a whole and as it is given to them, ie. globally. In contrast, individuals determined to be field-independent perceive and experience fields of information as being structured and comprised of distinct component parts, ie. articulated. In interpreting the results of the GEFT to study the constructs of field-dependence/independence and global/articulation, the authors have cautioned that these cognitive dimensions are not totally separate nor mutually exclusive. They have maintained that the scores on the GEFT for any large group of individuals fall along a continuum. They have asserted that any assessment of a person's

⁷⁴John David Boyle, "The Effect of Prescribed Rhythmical Movements on the Ability to Sight Read Music" (Ph.D. diss., University of Kansas, 1968); Helen Yvonne Cheek, "The Effects of Psychomotor Experiences on the Perception of Selected Musical Elements and the Formulation of Self-Concept in Fourth-Grade General Music Student" (Ph.D. diss., University of Michigan, 1979).

⁷⁵H. A. Witkin, P. K. Oltman, E. Raskin, and S. A. Karp, *A Manual for the Embedded Figures Test* (Palo Alto, CA: Consulting Psychologists Press, 1971).

cognitive functioning based on the use of GEFT must be made from the perspective of the individual.⁷⁶

From the evidence collected in other studies, the authors of the GEFT have suggested that the global-articulated dimensions may also be part of an even broader aspect of psychological functioning based on the concept of differentiation. Included in this larger area are differences in an individual's body concept and concept of self. In their explanation of the tendency toward more or less differentiation in body concept, the authors of the GEFT have cited evidence demonstrating that individuals who are field-independent and who have a more articulated cognitive style are also more likely to have a more articulated body concept, ie. they experience the body as comprised of separate but interrelated parts that function together to form a whole structure. Conversely, field-dependent individuals have been described as tending toward a more global, or unified, body concept. Similar kinds of differences have uncovered between individuals related to their self-concept. Persons who are field-independent and who have a more articulated cognitive style are more likely to have developed a stronger sense of inner-self and separate identity in which their needs, feelings, and perceptions are separate and distinct from those of others. Individuals who are field-dependent with a more global perspective have been described by the authors as more influenced by external sources in the development of their attitudes, feelings, and self-concept.⁷⁷

During the past two decades, researchers in the field of music education have used the *Group Embedded Figures Test* to study the interactions between the cognitive learning style of field-dependence/independence, student characteristics, and instructional methods. Huang investigated the relationships between field-dependence/independence and prior achievement with two types of instructional methods used in ear training. Seventy-eight (N=78) undergraduate music students enrolled in an aural skills course at the

⁷⁶Ibid., 4-8.

⁷⁷Ibid., 8-10.

University of Iowa were randomly assigned to two groups for a period of six weeks. One group received drill and practice instruction using audiotapes in a standard ear training laboratory setting. The second group received interactive drill and practice instruction using a computer-based ear training system. The perceptual task identified by the researcher was to recognize the sound of the four basic kinds of triads (major, minor, diminished, and augmented). The *Group Embedded Figures Test* and a pretest were administered before instruction. After six weeks of instruction, a posttest was given, followed by a retention test at the end of the semester. An analysis of the data indicated that interactions between field-dependence/independence and students' prior achievement were not statistically significant. However, similar tests to determine the interactions between field-dependence/independence and instructional methods produced significant results on the posttests and retention tests. The researcher concluded that knowledge of students' scores on the GEFT may be useful to instructors in determining the most effective kinds of instructional methods and and practice media for individual learners.⁷⁸

A similar study by King investigated the relationships between field-dependence/independence, instructional approaches, and students' achievement in rhythmic reading. Two high school band programs using different instructional methods to teach music reading were selected for the study. In one school, 114 students ($N=114$) in the instrumental program received instruction using an arithmetical approach. Students in the program were taught to recognize mathematical relationships between the durational values of individual notes. In the second school, 134 students ($N=134$) received instruction using a musical approach. Students were asked to focus on grouping notes or finding patterns according to musical rather than arithmetical principles. Following administration of the GEFT, one field-dependent and one field-independent group of students from each school were selected as the study sample. Following the instructional period, students' rhythmic reading achievement was measured using the Watkins-Farnum Performance Scale. In the analysis of the data, six comparisons were made using the

⁷⁸Huang, Ray-Far, "Interaction of Field-Dependence and Prior Achievement With Instructional Treatments in Music Ear Training" (Ph.D. diss., University of Iowa, 1982).

group means with level of significance set by the researcher at .016. The relationship between field-dependence/independence and rhythmic reading achievement were examined by contrasting field-dependent and field-independent students between the two samples and within each sample. The researcher reported that field-independent students scored significantly higher than field-dependent students regardless of the instructional approach that they had experienced. Using similar comparative procedures, the researcher also examined the relationship between the two instructional approaches and students' rhythmic reading achievement. All three comparisons resulted in no significant differences between students' rhythmic reading achievement and the instructional methods used.⁷⁹

Schmidt examined the relationship between field-dependence/independence and the achievement of college freshmen in an aural training course.⁸⁰ He reported field-independent students scored significantly higher than field-dependent students in a test that included melodic interval identification, chord-type identification, and melodic dictation. Schmidt also noted that field-independent students earned higher course grades than their field-dependent classmates. An investigation of fourth-grade general music students by Schmidt and Lewis reported that field-independent students scored consistently higher than field-dependent students on the meter and tempo sections of the *Music Aptitude Profile* and the rhythm section of the *Intermediate Measures of Music Audiation*.⁸¹ Heitland's study of music aptitudes and different learning styles concluded that the cognitive learning style of field-dependence/ independence appeared to influence the auditory learning of 316 nonmusic majors. Field-independent learners' scores correlated significantly with their

⁷⁹Dennis Wilford King, "Field-Dependence/Field-Independence and Achievement in Music Reading" (Ph.D. diss., University of Wisconsin-Madison, 1983).

⁸⁰C. P. Schmidt, "The Relationship Among Aspects of Cognitive Style and Language-bound/Language-Optional Perception to Musical Performance in Aural Discrimination Tasks," *Journal of Research in Music Education* 32 (1984): 159-168.

⁸¹C. P. Schmidt and B. E. Lewis, "Field-Dependence/Independence, Movement-Based Instruction and Fourth Graders' Achievement in Selected Musical Tasks," *Psychology of Music* 15 (1987): 117-127.

scores on six music aptitude tests.⁸²

Olson reported that a strong negative relationship between music students' scores on embedded figures tests and their ability to remember and identify the formal aspects of musical compositions.⁸³ In Olsen's study a composition was chosen to be used in the class lectures of a college introductory music course. In addition to extensive class discussions that focused on various details of the composition, all students were encouraged to listen to the composition independently. Olsen found that field-dependent students were more successful in retaining the shape of the composition than field-independent students. Olsen speculated that this may have resulted from the sheer memorization of information presented in extensive class discussions.

Ellis and McCoy conducted a similar study to examine the effects of cognitive-style field dependence/field-independence on the ability of college nonmusic majors to identify form in music.⁸⁴ The researchers administered the *Group Embedded Figures Test* and a researcher-designed Musical Forms Test (MFT) to 119 students on a college introductory music course. An Analysis of Variance (ANOVA) revealed that field-independent students scored significantly higher ($p < .001$) than the field-dependent students on the Musical Forms Test. A Chi-square analysis of test responses indicated that field-independent students were significantly more successful in identifying theme and variations, ground bass, minuet and trio, rondo, and sonata-allegro forms than the field-dependent students in the same class. The only exception was the ability of students to identify the form of the fugue. From their findings, Ellis and McCoy concluded that students who were more

⁸²K. W. Heitland, "Cognitive Styles and Musical Aptitudes: An Exploratory Study" (Ph.D. diss., Indiana University, 1988).

⁸³I. Olson, "Perceptual Field-Dependence/Independence Correlates of Listening Skills and Attitude Set," (Indianapolis, IN: Paper presented at the National Biennial In-Service Conference of the Music Educators National Conference, April 1988).

⁸⁴Mark C. Ellis and Clair W. McCoy, "Field-Dependence/Independence in College Nonmusic Majors and Their Ability to Discern Form in Music," *Journal of Research in Music Education* 38(4) (1990): 302-310.

successful at identifying embedded figures in a visual context were also more successful at perceiving themes embedded in a musical context.

To compare the combined effects of cognitive style, general college aptitude, and previous musical experience to the scores on the Musical Forms Test, Ellis and McCoy performed a multiple regression analysis with the Musical Forms Test as the dependent variable, and with the *Group Embedded Figures Test* scores, composite scores of from *The American College Testing Assessment*, and level of previous experience as independent variables. Results indicated that the GEFT was a significant predictor of performance on the Musical Forms Test ($p < .0002$). The researchers also reported that the GEFT accounted for 30% of the total amount of variance on the scores of the Musical Forms Test, the largest yet reported for a cognitive/musical ability correlation study.

While the learning experiences of field-independent students may not be affected by such things as teacher characteristics, presentation styles, and learning activities, Ellis and McCoy concluded that the learning and achievement of field-dependent students may be greatly dependent on these and other variables. In designing instruction for field-dependent learners in similar college introduction to music courses, the researchers recommended that teachers include: (1) visual representations of form; (2) written listening guides detailing the important formal characteristics of specific compositions used as examples in class lectures; (3) singing themes; and (4) selecting variations on a familiar melody to introduce theme and variations.

Technology and Instructional Design

Many fields of education have developed bodies of research examining the uses and effectiveness of technologies in educational settings. No discipline, however, has contributed more to the understanding and uses of instructional technologies than the field of distance education. Throughout its century-long history, research questions in distance education have been closely linked to the uses of communication and instructional technologies to provide educational experiences to students who are separated from teachers by distance, time, or both. Because students and instructors are not together in the

same classroom at the same time, some form of communication technology is required to deliver instruction and provide a means for interaction throughout the educational experience. As a result, researchers in distance education have been able to conduct extensive studies of the uses of instructional technologies in a variety of educational settings.⁸⁵

Many of the research questions that have guided distance education research on the uses of instructional technologies in the educational process have been devised to examine (1) the effectiveness of various instructional technologies compared to traditional methods of instruction; (2) the characteristics of students who respond well to mediated instruction; (3) ways of analyzing and methods of selecting media to use in delivering educational experiences; and (4) the design of mediated instruction. Studies comparing mediated instruction with traditional methods have firmly established that there are no significant differences between learning in traditional face-to-face educational settings and those mediated by technologies. Moore and Kearsley state:

Given the evidence of the research..., it seems more reasonable to conclude that (1) there is insufficient evidence to support the idea that classroom instruction is the optimum delivery method; (2) instruction at a distance can be as effective in bringing about learning as classroom instruction; (3) the absence of face-to-face contact is not in itself detrimental to the learning process; and (4) what makes any course good or poor is a consequence of how well it is designed, delivered, and conducted, whether the students are face-to-face or at a distance.⁸⁶

Investigations measuring the effectiveness of individual technologies in a given learning environment have determined that uses of a specific instructional technology are not accurate predictors of students' success or achievement. Moore suggests that more valuable research questions are those related to understanding the characteristics of students who learn best in a mediated environment using a particular medium, and the kinds of

⁸⁵Michael G. Moore and Greg Kearsley, *Distance Education: A Systems View* (New York: Wadsworth Publishing Company, 1996), 2.

⁸⁶*Ibid.*, 65.

information that can be communicated better using a particular technology in contrast to another.⁸⁷

In their search for answers to these kinds of questions, researchers have sought to develop ways to analyze the nature of instructional technologies and how they might be selected to achieve specific educational goals. Wagner and Reddy, and Norenberg and Lundblad have stated that the selection of instructional technologies for use in the classroom must be guided by sound pedagogical principles.⁸⁸ Dutton and Lievrow argue that uses of educational technologies vary in their applications in different educational environments and for specific learning tasks. They maintain that choices of media for use in instruction must be content-driven rather than technology-driven.⁸⁹

Media attribute theories suggest individual instructional technologies use different kinds of media (print, audio, visual, kinesthetic, multi-media) that filter information in ways that can effect learning for different types of learners.⁹⁰ Dillon has offered an analytical model that distinguishes between the characteristics of the delivery system and the types of media that each kind of technology uses to encode and transmit information.⁹¹ Each of these two features of a particular technology are then evaluated according to the

⁸⁷Ibid.

⁸⁸E. Wagner and N. Reddy, "Design Considerations in Selecting Teleconferencing for Instruction," *American Journal of Distance Education* 1(3) (1987): 49-56; C. D. Norenberg and L. Lundblad, *Distance Delivery of Vocational Education: Technologies and Planning Matrixes* (St. Paul, MN: Minnesota R & D Center for Vocational Education, 1987), 56.

⁸⁹W. Dutton and L. Lievrow, "Teleconferencing As an Educational Medium," in L. Parker and C. Olgren (eds.), *Teleconferencing and Electronic Communications* (Madison, WI: University of Wisconsin-Extension, Center for Interactive Programs, 1982): 113.

⁹⁰Rita Richie, *The Theoretical and Conceptual Basis of Instructional Design* (New York: Nichols, 1986), 45.

⁹¹Connie Dillon, "Identifying and Analyzing Attributes of Technologies," (lecture given at the University of Oklahoma, Norman, OK, October 7, 1996).

four principal attributes of access, bandwidth, interactivity, and interface. These, in turn, are further defined by questions to determine the relative presence or absence of such things as realism, pacing, feedback, and branching capabilities. Essential to the use of Dillon's model is an understanding of the abstract and concrete dimensions of the terms used in the analysis process. The following is a brief description of the primary terms used in her model:

Delivery System. The means by which information and/or data is displayed, transported, or transmitted. This category isolates the physical characteristics of a technology: analog or digital; land-based systems requiring a direct connection (i.e. telephone lines, cable, fiber optics); sky-based, over-the-air broadcast systems (i.e. satellite, microwave, television, radio); pick-up-and-carry systems (i.e. mail, audio- and videotapes and cassettes, computer programs and disks, traditional and electronic text books, film projectors, and overhead projectors).

Media. The forms in which information and data are encoded, recorded, and displayed to the learner: audio (sound and/or voice); visual (analog or digital, full-motion video, photographs, charts, graphs); text; multimedia.

Accessibility. The cost or availability of delivery systems, the ease of use, and the amount of training or knowledge needed to use the system or media.

Bandwidth. In analog transmissions, bandwidth is the physical place on the spectrum of energy in which the carrier waves are located that are characteristic of each mode of delivery; in digital transmissions, bandwidth represents the speed of the delivery of information. In more abstract terms, bandwidth is the amount and richness of the information being transmitted, and the amount of social presence, or intimacy, permitted by the system or media.

Realism. The relative abstractness or concreteness of the learning environment or information being transmitted.

Interactivity. The perceived immediacy and system responsiveness (synchronous-asynchronous); communication patterns (one-to-one, one-to-many, many-to-many); pacing; feedback capabilities that can reinforce learning; the ability to sustain levels of motivation.

Interface. The ability of the delivery system or the media to provide access to information, branching options, and accommodations for differences in students' learning styles.

Other ways of analyzing and selecting technologies for use in instruction have been offered by authors and researchers in the field of Instructional Systems Design (ISD). Theories of instructional systems design have been based on the premise that similar types of learning occur in all areas of study, and that instructional goals should be defined as observable learning outcomes.⁹² From these fundamental principles procedural methods for designing instruction have been developed by Dick and Carey; Briggs, Gustafson, and Tillman; Gagne, Briggs, and Wagner; and Leshin, Pollock, and Reigeluth.⁹³

Although the procedures vary slightly between authors, the instructional design process includes a series of interlocking stages that include: (1) performing a needs analysis to identify learning goals; (2) conducting an analysis of learners and learning contexts; (3) creating performance objectives in the form of observable learning outcomes; (4) developing learning assessment instruments; (5) developing instructional strategies; (6) selecting and developing instructional materials; and (7) evaluating the instructional plan as a whole. An integral part of these procedures is the selection of technologies that can be used to support instruction. During the development of teaching strategies, instructional technologies are analyzed to identify their characteristics and the kinds of learning (verbal, intellectual, psychomotor, and attitudinal) they will support. If it is determined that a technology should be used, one is selected by matching the nature of the technology with the types of learning that will be required of students to achieve the instructional goal. Consequently, the uses of instructional technologies are determined within a pedagogical framework for designing effective instruction.

⁹²W. Dick and L. Carey, 10-12.

⁹³Leslie J. Briggs, K. C. Gustafson, and M. H. Tillman, *Instructional Design: Principles and Applications*, 2d ed. (Englewood Cliffs, NJ: Educational Technology Publications, 1991); Robert M. Gagne, Leslie J. Briggs, and E. D. Wagner, *Principles of Instructional Design*, 2d ed. (New York: Holt, Rinehart & Winston, 1988); C. B. Leshin, J. Pollock, and C. M. Reigeluth, *Instructional Design Tactics and Strategies* (Englewood Cliffs, NJ: Educational Technology Publications, 1992).

Qualitative Research in Music Education

Throughout the history of music education, research designs have been dominated by the use of procedures derived from scientific models of inquiry. Many researchers have applied quantitative methodologies to study the relationships between many facets of music teaching and learning achievement. Since the late 1970s, however, researchers in music education have increasingly turned to the use of qualitative procedures to study learners' educational experiences and their learning processes.⁹⁴

Although qualitative studies have been recent additions to the research literature, the Pillsbury Foundation Study, conducted by Moorhead and Ponds in the 1940s, provided the foundation for the use of qualitative procedures in music education research.⁹⁵ The researchers used in-depth observations to investigate the musical development of 3 to 6 year-old kindergarten students. To explore how and why children learn to become musically expressive, the authors designed the study to observe students in a natural environment of free musical play. The final report, published in 1951, contained case studies of three children participating in the study. Rather than compare the musical development of the three students, the authors sought to understand each child's individual musical growth.

Relying on the precedent set by the authors of the Pillsbury study, researchers in music education throughout the 1970s and 1980s conducted similar qualitative investigations of music learners. Bamberger examined two subjects' perceptions and understanding of melodic concepts by observing the learning strategies used by each to compose a melody.⁹⁶ A protocol analysis employing an innovative computer-based

⁹⁴Liora Bresler and Robert E. Stake, "Qualitative Research Methodology in Music Education" in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992): 79-80.

⁹⁵G. Moorhead and D. Pond, *Music of Young Children*, Vols. 1-4 (Vancouver: Pillsbury Foundation, 1941, 1942, 1944, 1951).

⁹⁶Jean Bamberger, "In Search Of A Tune" in *The Arts and Cognition* (Baltimore: Johns Hopkins, 1978).

recording system was used in the study to help evaluate and interpret the data. Freundlich explored two fifth-grade students' musical thinking when solving musical problems. The students were asked to improvise a melody on a simple diatonic xylophone within the framework of standard 12-bar blues. Using a series of observations and interview/conversations with the students, Freundlich refined his interpretations of each student's learning processes.⁹⁷

Since the late 1980s some researchers have used qualitative research methods to study aspects of new technologies. Bresler studied the integration of computers into a college-level introductory music theory class. Observations, unstructured interviews, questionnaires, and computer logs were used to collect data. Although the class seemed an ideal setting for the use of computers in music education, Bresler found that the introduction of computers into the class raised many complex issues. She discovered that the attitudes of students and instructors about (1) computers in general; (2) the programs that were used; and (3) the use of computers in music instruction affected students learning and perceptions of the class.⁹⁸

Some research in music has been done by nonmusicians in which music was one of many subjects chosen to study larger questions. In a federally funded project the Elementary Subjects Study at the University of Michigan, music and the visual arts were studied along with mathematics, science, social studies, and literature. Researchers focused on the conceptual understanding, higher order thinking, and problem solving in elementary music teaching through a series of case studies of music and visual arts instruction.⁹⁹ Bloom studied the development of talent in the domains of music,

⁹⁷Douglas Freundlich, "The Development of Musical Thinking: Case Studies in Improvisation" (Ph.D. diss., Harvard University, 1978).

⁹⁸Liora Bresler, "The Role of the Computer in a Music Theory Class: Integration, Barriers, and Learning" (Ph.D. diss., Stanford University, 1978).

⁹⁹W. May, "Teaching for Understanding in the Arts," *Quarterly* 1(1) (1990): 5-16.

mathematics, sculpture, and athletics. Using in-depth interviews, he investigated the roles of families, teachers, and schools in discovering, developing, and encouraging high levels of competence and performance.¹⁰⁰

Bresler and Stake have observed that the use of qualitative research methods has been limited in the field of music education. They note that most reported studies have been dissertations conducted by researchers with little experience in applying the procedures of naturalistic inquiry. Bresler and Stake maintain, however, that the continued use of qualitative research methodologies will strengthen the body music education research and produce increased understanding of the learning experiences of music students.¹⁰¹

Summary

The educational potential of new instructional technologies has raised many questions that have been the focus of research in music education and piano pedagogy. Innovative uses of music and other instructional technologies in music and keyboard studies have proven to be very effective in increasing students' levels of motivation and enthusiasm for learning. Music educators have also recognized, however, the need to explore questions of how the uses of instructional technologies affect different kinds of learners in the learning process. Leaders in the fields of music education and piano pedagogy have recommended that new kinds of research that focus on the learner will need to be developed to explore these kinds of questions.

Studies of the uses of instructional technologies in such fields as distance education and instructional systems design offer important new sources of information and models for research in music education and piano pedagogy. Combining the results and research designs of studies in these areas with those in music education and piano pedagogy offers

¹⁰⁰Benjamin Bloom, *Developing Talent in Young People* (New York: Ballantine Books, 1985).

¹⁰¹Bresler and Stake, 75-90.

the potential to greatly expand the knowledge and understanding of how new instructional technologies can be used more effectively in music and keyboard studies.

New instructional technologies have often been the focus of studies in piano pedagogy during the past two decades; yet, they remain only a small portion of the total body of research literature in the field. Many have been comparative investigations testing the ability of new technologies to teach as effectively as traditional methods. Other have been descriptive studies of the current uses of new technologies in keyboard studies, and the attitudes of teachers towards them. Few studies have addressed ways of analyzing new technologies and designing instruction with them, or how the uses of new technologies affect the students' learning processes.

CHAPTER III

THE PROCEDURES

Introduction

To accomplish the goals of the study, the researcher used descriptive and qualitative methods to collect, analyze, and interpret data. The instructional systems design (ISD) procedures published by Dick and Carey were also applied to develop the teaching strategies used in the study.¹ The following description of the procedures has been organized in the four sections: (1) selection of the study sample; (2) data collection procedures; (3) application of instructional systems design procedures; and (4) data analysis procedures.

Selection of the Study Sample

The students enrolled in two sections of Level II Group Piano (MuTe 1321), scheduled during the Spring 1998 semester at the University of Oklahoma, were chosen as the basis for selection of the study sample. Both sections of the course met three times each week in the same classroom throughout the semester. Maximum enrollment for each section of the course was limited to sixteen students. A total enrollment of thirty-two students (N=32) was anticipated.

A researcher-designed Informed Consent Form was developed to comply with the University of Oklahoma Policies and State and Federal laws governing the use of human subjects in research. (Appendix A) The form was distributed to all students in both

¹Walter Dick and Lou Carey, *The Systematic Design of Instruction*, 4th ed. (New York: HarperCollins Publishers, Inc., 1996).

sections of the course at the first class meeting of the course. Following its completion by the students, the researcher determined the final size of the study sample. Data collected during the study were limited to those students who had consented to participate in the study. All students received a copy of their completed form in the subsequent class period

Data Collection Procedures

Questionnaires and Tests

A Student Profile Questionnaire, designed by the researcher, was distributed during the second class meeting to those students who had consented to participate in the study. (Appendix B) The questionnaire was used to collect information about each student's (1) general characteristics of age, gender, major area of music study, current degree program, and the presence of any physical or learning disabilities that may have affected their participation in the activities of the class; and (2) previous experiences in music and keyboard studies. Students' responses on the Students Profile Questionnaire were collected and stored by the researcher for use in the data analysis.

The cognitive learning style of field-dependence/independence was selected by the researcher for use in the study. The researcher administered the *Group Embedded Figures Test*² during the sixth class meeting to measure the field-dependence/independence of the participants in the study. Student responses on the GEFT were scored and used by the researcher (1) to identify the field-dependent and field-independent learners present in the study sample; and (2) to select individual students to be interviewed in the next stage of the data collection.

Interviews

From the results of the GEFT, the researcher selected four field-dependent learners and four field-independent learners to be interviewed. An Individual Student Interview

²H. A. Witkin, P. K. Oltman, E. Raskin, and S. A. Karp, *A Manual for the Embedded Figures Tests* (Palo Alto, CA: Consulting Psychologists Press, 1971).

Questionnaire, containing a series of unstructured questions, was developed by the researcher to collect information about (1) each student's reactions to how instructional technologies were used in instruction; and (2) how the use of specific instructional technologies influenced their learning processes. (Appendix C)

The researcher conducted interviews with the selected students during the sixth, eleventh, and fifteenth weeks of the semester. Transcriptions of the taped interviews were made by the researcher for use in analysis of the data. (Appendix D)

Lancaster and Renfrow's text, *Group Piano for Adults, Book I*,³ was used as the basis of instruction during the study. This text was used in Level I Group Piano classes during the previous semester and represented a continuity of curriculum and content.

All instruction was designed and conducted by the researcher. Teaching strategies used in class presentations were developed by the researcher using the procedures of instructional systems design (ISD).⁴ ISD procedures were applied for the following purposes: (1) to establish a systematic process for formulating specific learning goals and performance objectives; (2) to provide a framework for the analysis and selection of instructional technologies that support specific types of learning; and (3) to create a means of verifying equality of instruction for students in both sections of the course.

Instructional Systems Design Procedures: An Overview of the Procedures and Their Application in the Study

In the systems approach of instructional design, the learning environment is described as a group of interrelated components (i.e., teacher, students, materials, and environment) that interact in to produce successful learning. Each component plays an important role and must be coordinated to achieve well-defined learning goals.⁵

³Emmanuel L. Lancaster and Kenon D. Renfrow, *Group Piano For Adults, Book I* (Van Nuys, CA: Alfred Publishing Co., Inc., 1995).

⁴Dick and Carey, 2-4.

⁵Ibid.

Many procedural methods of designing instruction have been published during the past three decades. Despite small differences in procedural details, all instructional systems design models include the phases of analysis, design, development, implementation, and evaluation. In the procedural method by Dick and Carey, a systems approach was used to develop a series of ten stages, or sets of procedures, in the design, production, evaluation, and revision of instruction. A chart of the stages of the instructional systems design process is provided in Figure 3-1.

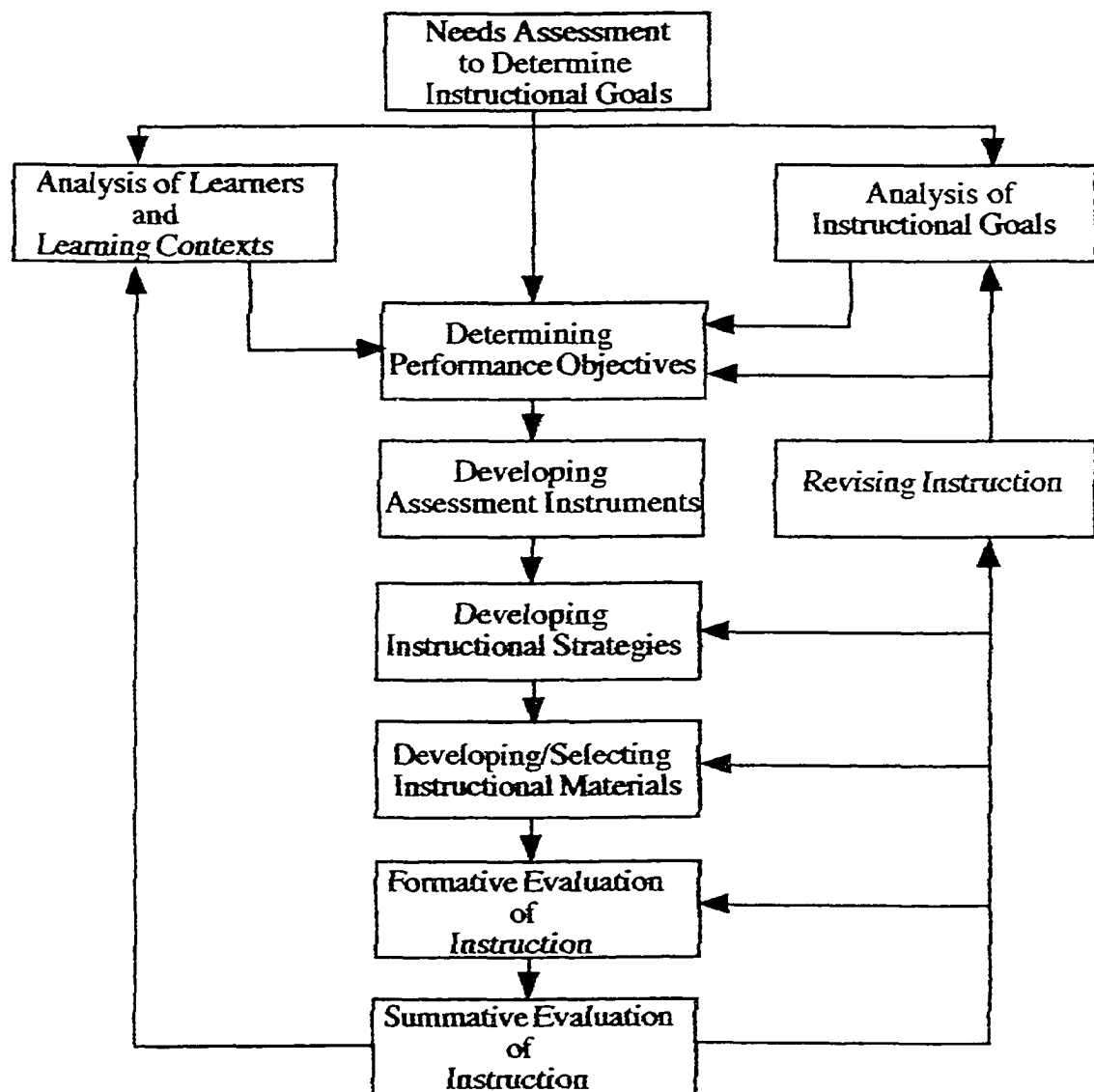


Figure 3-1. Stages of Instructional Systems Design

Each stage in the design process results in information that is used in succeeding stages, and can be applied in the design of: (1) an overall curriculum plan; (2) an individual course; (3) a unit of study within a course; or (4) the individual components of a study unit.

The following paragraphs contain a description of the stages and procedures of the instructional systems design process and how they were applied by the researcher:

Stage 1. Determining Instructional Goals. The initial phase of the instructional systems design is focused on determining what learners will be able to do when instruction has been completed. Instructional goals are often the result of a needs assessment study that identifies a problem to be solved, or a purpose for the development of a curriculum or course of study. At the curricular level, instructional goals are typically broad statements from which individual courses of study are developed. Instructional goals for an individual course, often stated in the course syllabus, are a set of general objectives that form the basis of instruction. Units of instruction within a course may also have statements of general instructional goals. These instructional goals identify topics to be addressed during instruction, the knowledge to be acquired, skills to be learned, or attitudes to be developed.

The researcher did not apply the procedures of this stage of the instructional design process at the curricular or course levels in this study. Curricular goals for all levels of group piano studies at the University of Oklahoma were established previously by the School of Music and Piano Pedagogy Department. Similarly, the general instructional goals for the Level II Group Piano course taught in this study were determined previously by the Piano Pedagogy Department at the University of Oklahoma and stated as “Instructional Objectives” in the general course syllabus. (Appendix E)

The instructional goals for each unit of Level II Group Piano studies were established by the authors of the textbook used in this study. Specific objectives were listed at the beginning of each chapter and used by the researcher as the basis for the development of instructional strategies. (Appendix F)

Stage 2. Analysis of Instructional Goals. Procedures to analyze instructional goals are used to identify the steps that students must accomplish to achieve instructional goals. The goal analysis procedures and their subprocesses can be employed at many levels in the design of instruction. On the curricular level, the steps would include listing the series of

courses to be taken and passed to complete the curriculum. At the course level, goal analysis might be used to describe the units of study or chapters in a textbook that comprise a semester of instruction.

The analysis of instructional goals includes two subprocesses. The first is used to determine the kinds of knowledge, skills, or attitudes that students will have acquired during instruction. Dick and Carey cite the use of Gagne's description of the five domains of learning in the development of their procedures to identify the types of learning (verbal information, psychomotor skills, intellectual skills, attitudinal, and cognitive strategies [meta-cognition]) required of students to achieve specific kinds of learning goals.⁶

Instructional goals identified as verbal information goals require students to state or list specific information in response to specific questions. Problem-solving or the application of knowledge in the form of rules is not included in this type of learning.

Intellectual skills goals ask students to perform a cognitive activity to manipulate information or apply understanding in a specific context. In contrast to verbal information, intellectual skills necessitate the use of information to discriminate, form concepts, apply rules, and solve problems. Included in this category are the cognitive strategies and processes that students develop to monitor and evaluate their own learning.

Instructional goals intended to develop psychomotor skills require students to coordinate both mental and physical activities. Information, understanding, and physical actions are combined to achieve specific objectives and perform specific tasks. In applying this definition in the development of instruction for this study, the ability to press a key down on the piano keyboard would not be considered a psychomotor skill; however, finding and playing a particular key on the keyboard, or performing a five-finger pattern starting on the note "C" would be.

The final category used in the analysis of instructional goals includes attitudinal goals. Attitudinal goals are those that influence the way in which learners choose to perform an intellectual or psychomotor skill, or state verbal information. Although these

⁶Dick and Carey, 50.

types of instructional goals can be difficult to evaluate, attitudinal goals are often reflected in the quality of performance that students demonstrate in the achievement of specific learning goals.

The procedures of the second subprocess in the analysis of instructional goals are used to identify the subordinate skills and entry-level behaviors that students must possess before instruction begins. This phase of goal analysis requires answering the question, What must the student already know so that, with a minimal amount of instruction, this task can be learned? During this phase a hierarchy of skills and behaviors is created to determine at which level instruction should begin. In the development of instruction where little or no prior knowledge or skill level can be assumed, instruction would begin at the lowest levels. When some degree of knowledge and skill can be assumed, the designer must decide the minimum level from which further instruction should be developed.

Goal analysis procedures were applied to the course goals stated in the departmental syllabus and the instructional goals for each unit of study provided by the authors of the textbook. The researcher concluded that students enrolling in Level II Group Piano studies would be required to demonstrate learning in all of the categories described above. The subordinate skills and entry level behaviors required of students to enter the course were determined to be those that were needed to successfully complete the Level I Group Piano course of the previous semester.

Stage 3. Analysis of Learners and Learning Contexts. This step in the systematic design of instruction focuses on understanding more about the learners for whom instruction is being developed and the characteristics of the instructional setting. Procedures are used to assess the present skills, preferences, and attitudes of the learners, as well as important features of the learning environment that may affect the overall instructional/learning process.

Results of a learner analysis can include determining learners' (1) actual entry-level skills; (2) prior knowledge of the subject matter; (3) attitudes toward the course content; (4) academic motivation; (5) prior educational achievement and ability levels; (6) learning preferences; (7) general attitudes toward the organization providing training; and (8) general group characteristics. Collecting information in each of these areas provides the designer

of instruction with a clearer understanding of the students' strengths and limitations before instruction begins.

Students rarely enter an instructional setting without some level of previous experience or prior knowledge concerning the subject of instruction. Determining the students' true entry-level skills and knowledge can uncover gaps in understanding or misconceptions that may influence their abilities to construct new knowledge and achieve instructional goals.

Collecting information related to students' motivational levels, expectations, and attitudes about what they will learn and how they will learn it is also included in this stage of learner assessment. Dick and Carey suggest the application of the concepts and procedures associated with Keller's ARCS model of the studying the components of motivation (attention, relevance, confidence, and satisfaction).⁷

Examining students' individual educational achievement, learning experiences, and instructional preferences can provide useful information about existing learning skills and their abilities to adjust to new approaches to instruction. Included in these procedures is an investigation of the attitudes that students have about the organization providing instruction. Research has shown that high levels of confidence in the instructor and the institution are often substantial predictors of successful instruction and the transfer of learning.⁸

Analysis of the group characteristics provides information about similarities or differences that may exist within a specific group or a general class of learners. Avoiding stereotypical descriptions or general assumptions about the learners, enables the designer of instruction to develop effective motivational strategies and more relevant materials and presentations.

Two additional analyses are included in this stage of the instructional design process: (1) a context analysis of the environment in which the information and skills

⁷J. M. Keller, "The Systematic Process of Motivational Design," *Performance and Instruction* 26(9), 1-8; cited in Dick and Carey, 92, 184-185.

⁸Benjamin S. Bloom, *Human Characteristics and School Learning* (New York: McGraw-Hill, 1976), 30-72; cited in Dick and Carey, 92.

to be taught will be eventually used; and (2) an analysis of the learning environment where instruction will be given. The information from these analyses is used to determine how easily learners will be able to transfer their learning from the instructional environment to the performance setting. Determining the similarities and differences between these two settings provides the basis for the development of the kinds of materials and practice that students will need during the course of instruction. Results of these analyses are also used to confirm information collected during the needs assessment phase, and to refine the decisions made in the analysis of instructional goals stages.

The researcher applied the procedures of this stage of the instructional design process to conduct an analysis of the students participating in the study and the instructional environment. The researcher used the Student Profile Questionnaire to obtain general information about students' age, gender, academic classification, degree program, course of study, and previous experiences in music and piano studies. Additional detailed information about each of the eight students selected for individual interviews was collected during the interview process for use in the analysis and interpretation of the data.

The researcher conducted an assessment of the learning environment to create: (1) a diagram of the elements in the classroom and their placement; and (2) a list of the instructional technologies available for use in instruction. (Appendix G) From this evaluation a description of the educational setting and the attributes of each of the instructional technologies present in the classroom was developed for use in the analysis and interpretation of the data.

Stage 4. Determining Performance Objectives. From the information gathered in Stages 1, 2, & 3, instructional goals are restated to form terminal objectives. Terminal objectives provide detailed descriptions of what learners will be able to do after instruction has been completed. To achieve specific terminal objectives a series of steps may be required. The individual steps in the learning process form a list of the subordinate skills and subordinate objectives that students will need to master in their learning.

The restatement of instructional goals and subordinate skills to form performance objectives provide students with a clear understanding of the terminal objectives and ways to demonstrate their learning in the evaluation process. Performance objectives include

three components: (1) a description of the skill or behavior identified in the instructional goal; (2) the conditions under which the student will perform the terminal objective; and (3) the standards, or criteria, that will be used to evaluate learners' performance.

The researcher used the authors' stated instructional objectives for each of the fifteen units in the textbook that comprise Level II Group Piano studies to develop performance objectives containing the components described above. The subordinate skills necessary in the learning process were also defined and stated as subordinate objectives. During this stage the researcher also identified the types of learning skills (verbal, intellectual, psychomotor, and attitudinal) needed by students to achieve each objective. The performance objectives, subordinate objectives, and required learning skills for Unit 16 of Level II Group Piano studies have been provided in Appendix H as a sample.

Stage 5. Developing Assessment Instruments. After clearly-defined performance objectives have been established, ways to evaluate students' mastery of each objective must be developed. Most instructional design models specify the importance of using criterion-referenced, or objective-referenced, tests to measure students' success in achieving performance objectives. These types of tests can provide important information about students' progress in mastering performance objectives, and the effectiveness of instruction.⁹

Tests constructed in this manner contain items that correspond directly to the stated performance objectives and the criteria established for mastery. Although traditional test formats can be used, a variety of activities can be developed that allows students to demonstrate their learning. The number and structure of test items are also influenced by the types of learning required to achieve performance goals. Some performance objectives may require only one test item to evaluate students' learning, while others may require many. Test items measuring intellectual and verbal skills usually require the student to provide specific answers to specific questions. Paper-and-pencil tests are usually used to assess this type of learning skill. Test items designed to measure psychomotor skills often

⁹Dick and Carey, 142-143.

ask students to perform a sequence of intellectual and physical activities to create a product. Checklists can be developed from the skills and criteria identified in the performance objective to measure students' abilities to perform each part of the task accurately. Assessments of attitudinal learning are more difficult to measure directly. Tests to measure this type of learning skill most often require students to state their preferences or opinions, or provide ways for the instructor to observe learners' behaviors that indicate, or infer, their attitudes.

The quality of assessment instruments and individual test items is directly related to how well performance objectives have been identified and defined. Difficulty in developing clear ways to assess students' learning may indicate that instructional goals and performance objectives may need to be reevaluated. A review of assessment procedures and individual test items measuring specific performance objectives can be used (1) to refine decisions made in the previous steps in the design process; and (2) increase the quality of choices in subsequent stages.

Testing procedures and test items for Level II Group Piano studies were predetermined by the authors of the textbook. (Appendix I) Tests were provided to be administered during the fifth, tenth, and sixteenth weeks of the semester. All tests were designed to evaluate students' psychomotor skills in performing specific keyboard skills and repertoire. Test items were derived from selected instructional objectives identified by the authors in the five chapters of the textbook used in instruction preceding the testing period. The researcher administered the prescribed tests according to the procedures defined by the authors of the textbook and the Piano Pedagogy Department at the University of Oklahoma.

Stage 6. Developing Instructional Strategies. Previous stages in the instructional design process have focused on determining what is to be taught. From these decisions, instructional strategies are created to identify ways of organizing and sequencing information, and delivering instruction. Procedures used to create instructional strategies include: (1) selecting media to deliver information; (2) planning preinstructional activities; (3) determining the information and concepts to be presented; (4) choosing what activities the learner will be asked to perform during instruction; and (5) developing follow-through

activities to provide additional practice, enhance memory, and the transfer of learning.¹⁰

Media selection is based on learning contexts, the skills to be taught, practical considerations, and understanding the kinds of media that may promote specific kinds of learning. Defining the learning context will determine where learning will take place and the delivery system to be used during instruction. In traditional classrooms settings, the teacher represents the primary delivery system. In other learning environments a variety of instructional technologies may be employed to supplement or replace teacher-led instruction.

The types of skills to be taught also influence the types of delivery systems and media selected for use in instruction. The learning of intellectual skills often requires immediate and precise feedback during students' learning processes. Choices of media that offer a high degree of interactivity, such as one-on-one tutoring, computer-based instruction, or programmed instruction, may provide students with a more effective means of receiving necessary feedback. Learning requiring verbal skills usually asks students to respond with specific information to specific questions. Although students still need some level of feedback, students can easily compare their responses to questions with the correct answer. Less interactive media may provide students with the necessary amount of feedback to insure successful learning.

The learning of psychomotor skills require students to apply intellectual understanding and physical activities. To achieve psychomotor performance objectives students need to practice their skills in a realistic physical environment using the equipment, or tools, described in the instructional goal. The media selected for use in instruction may range from simulators to the actual equipment.

One of the more powerful ways to encourage attitudinal learning is the observation of a highly regarded person exhibiting the desired response, for which they receive a reward or approval. Research has suggested that students, making such observations, will

¹⁰Ibid., 177-184.

tend to make similar responses in similar situations. Therefore, visual media may be more effective than others in influencing the development of specific attitudes.¹¹

Dick and Carey suggest the use of Reiser and Gagne's model illustrating how to select a media for use in instruction.¹² (Figure 3-2) By answering a series of questions

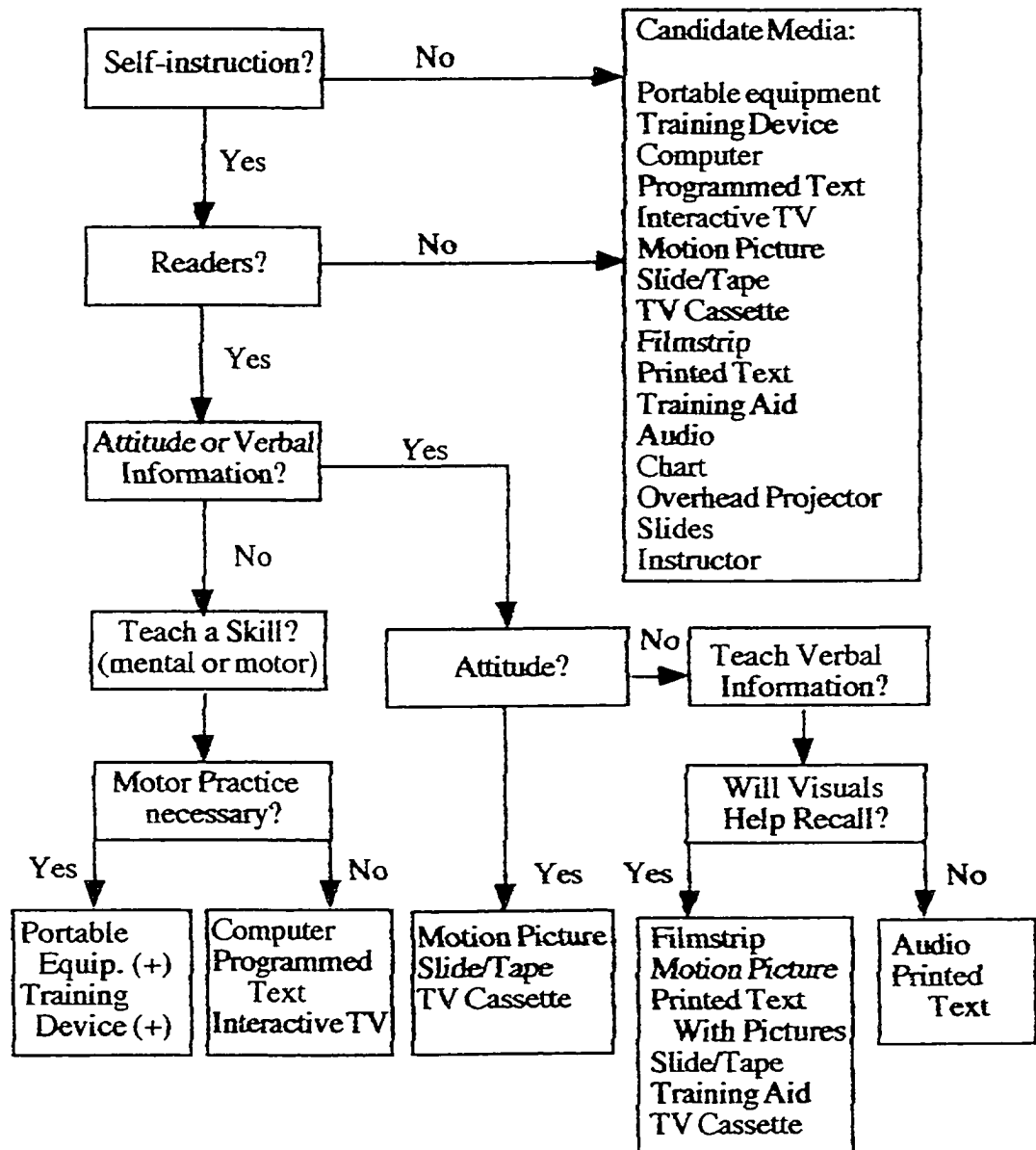


Figure 3-2. Reiser and Gagne's Media Selection Diagram

¹¹Ibid., 178-182.

¹²Ibid., 181.

about the skill to be taught, and following a flow chart, designers of instruction can identify various media to support instruction. Although many different media can be used for any one instructional goal, the best choice is made after further analysis of the characteristics of specific technologies.

Practical considerations also affect the selection of media for instructional applications. Teachers' and students' knowledge of how to use the technologies, the availability of technologies, and costs of developing materials may limit and define choices.

The second component of developing an instructional strategy involves the planning of preinstructional activities. These activities are designed to motivate students, inform them of what they will learn in the form of performance objectives, and ensure that they have the prerequisite knowledge to begin instruction. Preinstructional activities may also include pretests to determine students' current knowledge and skills. Any differences between expected minimum entry-level skills and actual abilities may indicate that remedial work is needed before instruction is started.

Deciding what information to present during instruction forms the next step in developing instructional strategies. Prior to the selection or development of specific instructional materials, the definition of the concepts to be taught and the examples that will be used to illustrate them are chosen. This information provides the basis for the next procedure: choosing the specific kinds of activities that students will be asked to perform and practice during instruction.

The final component in writing instructional strategies is the development of follow-through activities. These activities can include remedial materials for students who have had difficulty in mastering instructional objectives, as well as enrichment materials to expand and reinforce students' learning. The planning of all types of follow-through activities provide ways of strengthening students' memory and transfer of learning.

The researcher applied the procedures described above to write the instructional strategies that were used in the study. The primary performance objectives and subordinate objectives developed in the previous stages of the design process were expanded to specify (1) the method of instruction to be used; and (2) the selection of media and instructional technologies to support instruction. The instructional strategies developed for Unit 16

in the textbook that comprise Level II Group Piano have been provided in Appendix H as a sample.

Stage 7. Developing and Selecting Instructional Materials. The selection of instructional materials is guided by the decisions made in writing the teaching strategies to be used during instruction. Existing sets of materials are evaluated to determine if they are adequate in their present form, or whether they need to be adapted to achieve the instructional objectives. Evaluation of existing instructional materials can include determining whether (1) motivational strategies are present; (2) appropriate content is included; (3) the sequencing of materials is correct; (4) practice exercises have been provided; (5) adequate ways of providing feedback to students are present; (6) appropriate tests are available; (7) appropriate materials and directions have been included for remediation, advanced work, or general progress; and (9) support for memorization and transfer of learning have been provided.

Following the examination of existing materials, it is often necessary to create additional materials in areas identified as weakness, or to combine elements from a number of sources for use in instruction. If no appropriate materials exist, a plan for their development must be made. The resulting instructional package should include (1) all instructional materials to be used by the student; (2) tests and other assessment instruments; and (3) an instructor's manual.¹³

The instructional units in the textbook used in Level II Group Piano classes were examined using the criteria described above. It was determined that all elements needed by the instructor and students to achieve instructional objectives were present in the text. To support students' learning and achievement of some instructional goals, the researcher, developed a limited number of additional materials in the form of handouts and overhead projections. The materials developed by the researcher have been provided in Appendix J.

Stage 8. Formative Evaluation of Instruction. After the all of the components of instruction have been developed, they are reevaluated to identify weaknesses. Information

¹³Ibid., 225-229.

collected in the formative evaluation procedures is used to revise instruction to make it more efficient and effective.

The procedures used to conduct a formative analysis of instructional designs include three phases of collecting information. In the first phase the designer of instruction works with individual students to obtain relevant data to revise the design of instruction and materials. The second phase is a small-group evaluation of instructional materials and strategies. Eight to twenty learners who are representative of the target population are taught using the materials and tested to confirm their effectiveness or expose weaknesses in the design. The final phase requires a field trial using a larger representative student population, typically thirty students, to test materials and procedures in a setting as close to the actual learning environment as possible.

Following the formative evaluation, the instructional plan is modified using the information collected. After all necessary changes have been made, a final version of the instructional plan and all materials is produced.

The researcher did not apply formative evaluation procedures. The evaluation of the instructional goals and materials provided by the authors of the textbook was beyond the scope of this study.

Stage 9. Summative Evaluation of Instruction. Summative evaluation procedures are used to design formal investigations of the effectiveness of the instructional materials with target learners. These evaluations are usually conducted by individuals not directly connected or involved with the process of designing the materials. External evaluators have no personal interest in the instructional plan and are more likely to provide a more objective assessment of the strengths and weaknesses of the overall plan and materials.

Summative evaluation procedures included two primary phases: expert judgment and a field trial. During the expert judgment phase, instructional strategies and materials are examined by recognized content experts to determine their completeness, accuracy, and ability to meet the needs of teachers and students. The field trial phase is used to document the effectiveness of the instructional plan. This phase typically consists of formal measures of students' performances and their success in achieving instructional goals. Information gathered in the summative evaluation process is combined in a formal report and used to

make decisions about whether to adopt and implement the instructional plan, or to continue with additional revisions.

The researcher did not conduct a summative evaluation of the instructional goals and materials used in the study. These were predetermined by the authors of the textbook used for instruction, and their evaluation was beyond the scope of this study.

Stage 10. Revising Instruction. Revisions of the instructional plan can occur at any stage in the design process. However, the results of formative and summative evaluations are used most frequently to modify components of the overall instructional design. Revisions are usually made in two areas: (1) content and materials; and (2) the procedures used to conduct instruction. The data collected from one-on-one trials, small-group field trials, and formal studies of students' achievement provide specific information about the strengths and weaknesses of the instructional plan and ways to improve its effectiveness.

Definition of Terms

Attitude: An internal state that influences an individual's choices or decisions to act under certain circumstances. Attitudes represent a tendency to respond in a particular way.

Complex Goal: A goal that involves more than one domain of learning.

Delivery System: The means by which instruction will be provided to learners. Includes instructor-led instruction, distance education, computer-based instruction, and self-instructional materials.

Entry Behaviors: Specific competencies or skills a learner must have mastered before entering a given instructional activity.

General Learner Characteristics: The general, relatively stable (not influenced by instruction) traits describing the learners on a given target population.

Goal Analysis: The technique used to analyze a goal to identify the sequence of operations and decisions required to achieve it.

Instructional Analysis: The procedures applied to an instructional goal to identify the relevant skills and their subordinate skills and information required for a student to achieve the goal.

Instructional Strategy: An overall plan of activities to achieve an instructional goal. The strategy includes the sequence of intermediate objectives and the learning activities leading to the instructional goal.

Intellectual Skill: The skill that requires some unique cognitive activity; involves manipulating cognitive symbols, as opposed to simply retrieving previously learned information.

Learner Analysis: The determination of pertinent characteristics of members of the target population. Often includes prior knowledge and attitudes toward the content to be taught, as well as attitudes toward organization and work environment.

Media: The physical means of conveying instructional content. Examples include: drawings, slides, audio tape, computer, person, model, etc.

Module: An instructional package with a single integrated theme that provides the information needed to develop mastery of specified knowledge and skills, and serves as one component of a total course or curriculum.

Objective: A statement of what the learners will be expected to do when they have completed the specified course of instruction, stated in terms of observable performances. Also known as: performance objective, behavioral objective, instructional objective.

Psychomotor Skill: Execution of a sequence of major or subtle physical actions to achieve a specified result. All skills employ some type of physical action; the physical action in a psychomotor skill is the focus of the new learning, and is not merely the vehicle for expressing an intellectual skill.

Skill: The ability to perform an action or group of actions; involves overt performance.

Target Population: The total collection of possible users of a given instructional program.

Verbal Information: Requirement to provide a specific response to relatively specific stimuli; involves recall of information.

Data Analysis Procedures

Questionnaires and Tests

The researcher examined all students' responses on the Informed Consent form to determine those students who had elected to participate in the study and those who had declined. From the results the size of the study sample was determined. Students who had declined to participate were excluded from all subsequent data collection procedures.

The researcher analyzed all participating students' responses to the items on the Student Profile Questionnaire and summarized the information. The summary was used to construct a narrative description of the study sample to be used in the presentation and analysis of the data in the final report. Students' characteristics of (1) age, (2) gender, and (3) previous experiences and achievements in music and keyboard studies were included in the description of the sample.

The researcher scored students' responses on the *Group Embedded Figures Test* and summarized the results. Individual scores were plotted on a graph to determine the range of scores, and to identify the total number of field-dependent and field-independent learners present in the sample. The summary of students' scores on the *Group Embedded Figures Test* was included in the narrative description of the total study population.

The results of the *Group Embedded Figures Test* were reexamined by the researcher to identify students whose scores indicated they were clearly field-dependent or field-independent learners. Four field-dependent learners and four field-independent learners were selected for a series of three individual interviews to be conducted by the researcher during the remainder of the semester.

The responses of the four field-dependent and four field-independent learners on the Student Profile Questionnaire were reexamined and analyzed. From this analysis the researcher developed a narrative description of each of the eight students selected for individual interviews. In addition to each student's score on the *Group Embedded Figures Test*, their characteristics of (1) age, (2) gender, and (3) previous experiences and achievements in music and keyboard studies were included in the narrative descriptions.

Interviews

The four field-dependent and four field-independent learners were interviewed using the data collection procedures described above. Following each interview period, the researcher examined and analyzed each student's responses to interview questions. Reoccurring patterns of responses, themes, ideas, words, and phrases were identified and used to formulate more detailed questions to be asked in subsequent interviews. Questions were added or modified in later interviews to (1) confirm the dependability of students' responses to questions in previous interviews; (2) identify new themes and patterns in responses; (3) expose conflicts and/or contradictions in students' responses to similar questions in previous interviews; (4) identify weaknesses in the researcher's analysis of previous interviews; and (5) test the strength of the researcher's interpretation of developing patterns in students' responses.

Following the conclusion of the study, the researcher reexamined all of the data collected from each the four field-dependent and four field-independent learners during the interview procedures. The results of the analyses were used to create a detailed narrative of the researcher's interpretation of each of the eight student's learning experiences concerning the uses of the instructional technologies in class presentations and their importance in achieving instructional performance goals.

To expand the interpretation of the data collected during individual interviews, the researcher applied the concepts and information related to (1) the cognitive learning theories of Brunner and Ausubel; (2) the cognitive learning style of field-dependence/independence; (3) the design of instructional strategies; and (4) an analysis of the characteristics of the technologies used in instruction. In the narrative interpretation of students' learning experiences, the researcher sought to describe (1) how the characteristics of the specific instructional technologies affected individual students' learning and their development of specific skills; and (2) the teaching strategies using specific technologies that were most effective.

CHAPTER IV

THE DATA

Description of the Study Population

Students enrolled in sections .002 and .003 of Level II Group Piano (MuTe 1321) during the 1998 spring semester at the University of Oklahoma served as the population from which a study sample was selected. Thirteen students enrolled in Section .002, and sixteen students enrolled in Section .003. The combined enrollment for the course was twenty-nine students. On examination of the Informed Consent Form completed by all students enrolled in the class, the researcher determined that nine students (N=9) in Section .002, and sixteen (N=16) students in Section .003 consented to participate in the study. The twenty-five students who volunteered to participate in the research project represented the total study population (N=25).

General Characteristics

The researcher developed a Student Profile Questionnaire (SPQ) to collect data about the students in the study population. In Part I of the questionnaire (Questions 1-13) students were asked to provide general information about their (1) age; (2) gender; (3) degree program; (4) major instrument and area of study, and (5) the presence of any physical or learning disability. Questions in Part II (Questions 14-30) asked students to supply information about their previous activities and studies in music. Part III of the questionnaire (Questions 31-38) was designed to collect information about students' previous keyboard studies.

Prior to the study, the researcher piloted the Student Profile Questionnaire with fourteen students enrolled in one section of Level II Group Piano for Non-Music Majors

(MuNm 1032). Students piloting the Student Profile Questionnaire were asked to (1) complete the questionnaire, noting the time they started and the time they finished; and (2) identify questions that were unclear and to provide suggestions for their rewording. The average time needed by students in the class to complete the questionnaire was approximately ten minutes. No items on the questionnaire were identified by the students as unclear, and no suggestions for rewording questions were offered. To permit ample time for the distribution of questionnaires, the reading of directions, and the collection of completed questionnaires, a total of twenty minutes was allotted by the researcher for the administration of the questionnaire to the members of the study sample.

The researcher administered the Student Profile Questionnaire to participating students during the second class meeting of the semester. Items 1-3 on the questionnaire required students to indicate the date on which the questionnaire was provide completed, and identifying information. Students' responses on these items were eliminated from the presentation of the data to protect anonymity.

Students' responses to items 4 and 5 indicated that thirteen males (52%) and twelve females (48%) were present in the study population. The ages of participating students' ranged from 18-22 years. The mean age was 18.7 years. The gender distribution, the percentage of the sample, and the mean ages in each section of the course and the total population are summarized in table 1.

Table 1. Gender Distribution and Mean Ages of the Population

	N	%	Mean Ages
Section .002			
Males	6	66.7	18.3
Females	3	33.3	19.6
Section .003			
Males	7	43.7	18.9
Females	9	56.3	18.6
Total Sample			
Males	13	52	18.6
Females	12	48	18.9

Items 6-9 on the questionnaire sought information about the study participants' academic classifications, degree programs, and areas of study. All students were undergraduate, non-keyboard music majors in the College of Fine Arts at the University of Oklahoma at the time of the study. Twenty-two students were freshmen; one was a sophomore; and two were seniors. Eleven students were music majors in the Bachelor of Music Education (BME) degree program. Six students each were enrolled in the Bachelor of Music (BM) and the Bachelor of Musical Arts (BMA) degree programs. Two students were majors in the Bachelor of Fine Arts (BFA) program. Eighteen students were instrumental music majors, and six were majoring in vocal music. One student was a musical theater major. A summary of students' academic classifications and degree programs has been provided in table 2.

Table 2. Academic Classifications and Degree Programs of Students in the Population

	N	Degree Programs			
		BME	BM	BMA	BFA
Freshmen	22	10	6	5	1
Sophomores	1	...	...	1	...
Juniors	...	...	...	...	...
Seniors	2	1	...	...	1
Totals	25	11	6	6	2

Items 11-13 on the questionnaire were designed to identify the presence of any learning or physical disabilities among the students participating in the study. Two students in the population indicated that they had been previously diagnosed with diabetes, and that their personal care might prevent them from attending class meetings periodically during the semester. No other disabilities were noted by the students in the population.

On Part II of the questionnaire (items 14-17), twenty-four students (96%) stated that they were enrolled for applied lessons on their major instrument at the time of the study. Three students (12%) indicated that they were also receiving applied instruction on other instruments in addition to their major instrument. All students in the population had received formal instruction on their major instrument prior to enrolling in classes at the

University of Oklahoma. The mean was 5.3 years. Three students (12%) indicated that they had also received some previous group instruction on their major instrument.

Items 18-21 solicited information about students' participation in performing groups. All students in the population were enrolled in at least one performing ensemble during the 1998 spring semester at the University of Oklahoma. Twenty-one (84%) students indicated that they had also participated in high school All-State or honor ensembles. Twenty-three (92%) students stated that they had performed at state and/or local music contests before beginning music studies at the University of Oklahoma.

Items 22-29 on the Student Profile Questionnaire asked students to provide information about (1) their previous studies in music theory; (2) their study and uses of MIDI instruments; and (3) their general experiences with computers and educational music computer programs. Fifteen (60%) students stated that they had attended summer music camps where theory studies were included in their instructional experiences. Ten (40%) students indicated that they had received some prior instruction in music theory as a part of private lessons, or in a class offered at their high school.

Twenty-four students (96%) stated that they currently owned computers. Eight (32%) students had prior training in understanding MIDI instruments. One student (4%) indicated that she had had music instruction using a MIDI sequencer, and music computer games and programs. Three students (12%) had used a computer music sequencing program, such as *Performer*. Six students (24%) had experience in the use of a computer music notation program, such as *Finale*.

In Part III of the Student Profile Questionnaire, twenty-three students (92%) stated that they owned a keyboard instrument (i.e. electronic piano/keyboard, digital piano, synthesizer, acoustic piano, or organ). Thirteen students (52%) indicated that they had received formal keyboard instruction prior to their participation in the study. The number of years of previous keyboard studies among students in the population ranged from 1-6 years. The mean was 2.2 years. Two students (8%) indicated that they had received group keyboard instruction prior to enrolling in the class. Fourteen students (56%) reported that they had attempted informal piano studies without the aid of a teacher. One student noted that he had used a self-paced keyboard studies program. No students indicated that they

had used their keyboard skills as an accompanist, or as a member of a performing ensemble.

Results of the *Group Embedded Figures Test*

The researcher administered the *Group Embedded Figures Test* to all students in the population during the third class meeting. The test consisted of two sections, each containing nine test items. Students were asked to identify and trace predetermined simple geometric figures hidden within a more complex diagram. Each section of the test was timed, with students allotted five minutes to complete each section of the test. Tests were scored by the researcher using the template provided by the authors of the test. Each student's score was the number of correct responses on the test. The maximum number of correct responses possible on the test was 18. Students' scores were plotted on a graph to determine the range and distribution of the test scores in the sample. (Figure 3) The range of scores was 15. The median score was 13; the mean score was 13.04. The mean score for females in the population was 12.25. The mean score for male students was 13.76.

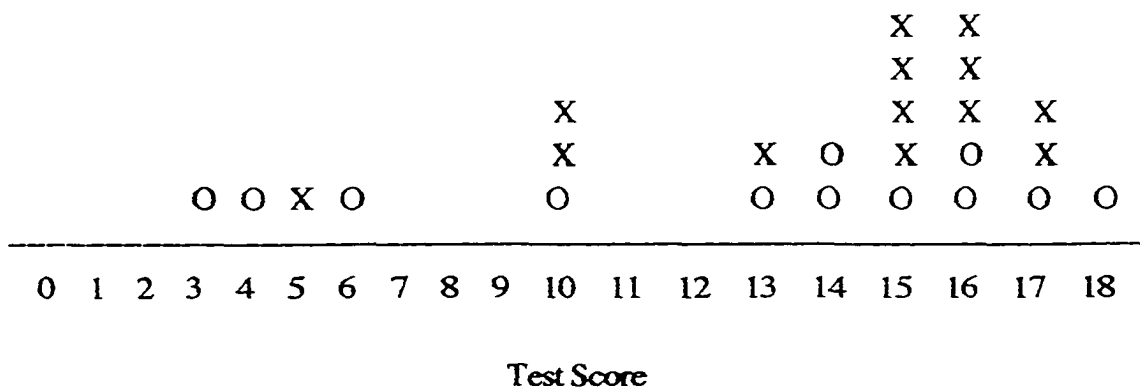


Figure 3. *Group Embedded Figures Test* Score Distribution
(O=females; X=males)

From an analysis of the test scores the researcher determined quartiles (Q) within the distribution. Students whose test scores fell within the first quartile (Q₁) were determined by the researcher to be field-dependent (FD) learners. Students whose scores were located in the fourth quartile (Q₄) were identified as field-independent learners (FI).

A summary of the quartile divisions within the total score distribution has been provided in table 3.

Table 3. Quartiles Within the GEFT Score Distribution

Quartile	Score	N	Males	Females
1	0-10	7	3	4
2	11-13	2	1	1
3	14-16	12	7	5
4	17-18	4	2	2

Four field-dependent learners from the first quartile, and four field-independent learners in the fourth quartile, were selected by the researcher for a series of three individual interviews. Individual interviews with each of the eight students were conducted during the sixth, eleventh, and sixteenth weeks of the semester.

Descriptions of Students Selected for Interviews

Field-Dependent Learners

Field-Dependent Learner #1 (FD-1). [GEFT score=3] FD-1 was an 18 year-old female freshman majoring in instrumental music and enrolled in the Bachelor of Music Education degree program. She was a student in the string department with nine years of previous study on her major instrument. At the time of the study, she was enrolled for applied lessons in her major instrument and was member of the student orchestra at the University of Oklahoma.

Her responses on the Student Profile Questionnaire indicated that she had been active in a variety of performing ensembles (high school orchestra, jazz band, choir, All-State Orchestra) prior to beginning her music studies at the University of Oklahoma. She reported that she had also participated in state and local music contests all four years during her high school studies. FD-1 stated that she had attended music camps during three summers as a high school student. She revealed that she had received instruction in music theory at the camps, as well as during regular private lessons on her major instrument.

She was an owner and active user of a personal computer, but had never received music instruction using computers or music computer programs. She indicated on the Student Profile Questionnaire that she owned a keyboard instrument and had received three years of formal keyboard instruction prior to her participation in the study. She stated that she had not attempted to study any keyboard instrument without the aid of a teacher, and that she had not used a self-paced or computer program in her keyboard studies.

Field-Dependent Learner #2 (FD-2). [GEFT score=4] FD-2 was 22 year-old female senior enrolled in the Bachelor of Fine Arts degree program majoring in musical theater. On the Student Profile Questionnaire she stated that she was currently receiving applied instruction in the voice department, and that she was enrolled in a university vocal performing ensemble. She reported that she had had three years of private instruction in voice prior to her participation in the study.

She indicated that she had attempted to study the guitar on her own, but that she had never received formal instruction on the guitar or any other instrument. Prior to her studies at the University of Oklahoma, she stated that she had been a regular member of her high school choir, but that she had not participated either All-State or honor ensembles, or in state or local music contests. She indicated that she had received some instruction in music theory in middle school music classes, but stated that she had never enrolled in a music theory class.

She reported that she did not currently own or have access to a personal computer, and she that she had never received music instruction using a computer or any educational music computer programs. Her responses to questions on Part III of the Student Profile Questionnaire indicated that she did not own a keyboard instrument at the time of the study. She stated that she had not received formal keyboard instruction prior to her studies at the University of Oklahoma, and that she had never attempted keyboard studies on her own without the aid of a teacher.

Field-Dependent Learner #3 (FD-3). [GEFT score=5] FD-3 was a male 20 year-old freshman instrumental music major enrolled in the Bachelor of Music Education degree program. At the time of the study, he was enrolled for applied lessons on his major instrument, and was a member of two university instrumental performing ensembles.

Prior to enrolling for music studies at the University of Oklahoma, he indicated that he had received eight years of formal applied instruction on his major instrument, and that he had been selected to participate in All-State and honors ensembles for three years during his high school studies. He stated that he had also been a regular participant in state and locally sponsored music contests while a junior high and senior high school student.

He reported that he had attended music camps each summer while he was a high school student, but that he had not had classes or training in music theory at the camps or in private lessons. He stated that he owned a personal computer, but that he had had no formal musical instruction using computers or music computer programs. However, he indicated that he had studied how to use music sequencing and notational programs on his own.

On Part III of the Student Profile Questionnaire, he reported that he did own a keyboard instrument. However, he stated that he had never received formal keyboard instruction prior to enrolling at the University of Oklahoma, and that he had not attempted keyboard studies on his own.

Field-Dependent Learner #4 (FD-4). [GEFT score=6] FD-4 was a 18 year-old female freshman enrolled in the Bachelor of Musical Arts degree program. In addition to her major in instrumental music, she stated that she was also a student in a nursing degree program at the University of Oklahoma. She was enrolled for applied lessons on her major instrument in the string department at the time of the study, and was a member of the university student orchestra. Prior to her music studies at the University of Oklahoma, she reported that she had received ten years of private instruction on her major instrument, and that she had taken an elective course in music theory during her junior year in high school. She also indicated that she had regularly performed in honors orchestra ensembles, as well as a soloist at state and local music contests throughout her four years as a high school student.

She disclosed that she owned and regularly used a personal computer. However, she stated that she had not received music instruction using a computer, music computer programs, or MIDI instruments. She also indicated that she was not familiar with MIDI technologies or the uses of music sequencing or notational computer programs. She noted

that she owned a keyboard instrument, but that had not received formal keyboard instruction prior to her enrollment at the University of Oklahoma.

A summary of the general characteristics and the GEFT test scores of the four field-dependent learners interview for the study has been provided in table 4.

Table 4. Characteristics of Field-Dependent Learners Interviewed

	GEFT Score	Age	Gender	Degree Program
FD-1	3	18	Female	BME
FD-2	4	22	Female	BFA
FD-3	5	20	Male	BME
FD-4	6	18	Female	BMA

Field-Independent Learners

Field-Independent Learner #1 (FI-1). [GEFT score=17] FI-1 was an 18 year-old male freshman in the Bachelor of Music Education degree program majoring in instrumental music. At the time of the study, he was enrolled in applied lessons on his major instrument, and was a member of two university instrumental performing ensembles. He stated on Part II of the Student Profile Questionnaire that he had had six years of formal instruction on his major instrument prior to his music studies at the University of Oklahoma. He reported that he had participated in an All-State concert band and an honors band during his junior and senior years in high school. He also indicated that he had performed as a soloist and as a member of small instrumental ensembles at state and local music contests. He stated that he had attended summer music camps where he had received some instruction in music theory and jazz improvisation techniques.

FI-1 revealed that he owned and regularly used a personal computer. However, he had not received music instruction using a computer or music computer programs. Although he stated he was aware of MIDI technologies and music sequencing and notational programs, he had received no formal instruction on how to use them.

On Part III of the Student Profile Questionnaire he indicated that he owned a keyboard instrument and that he had received one year of formal keyboard instruction prior

to attending the University of Oklahoma. He also stated that he had attempted keyboard studies on his own without the aid of an instructor.

Field-Independent Learner #2 (FI-2). [GEFT score=17] FI-2 was a 19 year-old male freshman vocal major in the Bachelor of Music Education degree program. During the study he was enrolled for applied instruction in voice and was a member of the university chorus. He stated on the Student Profile Questionnaire that he had had three years of instruction in voice prior to attending the University of Oklahoma. He also indicated that he had had applied instruction on the alto and baritone saxophone during high school, and that he had been a member of his high school concert band and wind ensemble. He reported that he had been a member of an All-State chorus and an honor choir during his junior and senior years, and that he had performed as a soloist and in small ensembles at state and local music contests. He stated that he had not attended summer music camps, and that he had not received music theory instruction before enrolling for classes at the university.

FI-2 owned and used a computer on a daily basis, but had not received music instruction using a computers or music computer programs. He stated that he had had some previous training on the use of MIDI instruments, and that he was familiar with music notational programs, such as *Finale*. He reported that he owned a keyboard instrument, and that he had had one year of private keyboard instruction during high school.

Field-Independent Learner #3 (FI-3). [GEFT score=17] FI-3 was an 18 year-old female freshman enrolled as an instrumental music major in the Bachelor of Musical Arts degree program. During the 1998 spring semester, she was enrolled in applied lessons on her major instrument and was a member of the university concert band. She stated that she had had five years of private instruction on her major instrument prior to her studies at the University of Oklahoma, and that she had been a member of the concert band during her four years in high school. Although she reported that she had not been a participant in either All-State or honors ensembles during high school, she indicated that she had performed as a soloist and in small instrumental ensembles at state and local music contests.

FI-3 had attended summer music camps and had some previous instruction in music theory. She stated that she had taken a music theory class during her junior year in high school. Although she owned and used a personal computer, she had not received music instruction using a computer, and she stated that she was not familiar with any music computer programs. She noted that she owned a keyboard instrument, but that she had not received formal keyboard instruction prior to attending the University of Oklahoma.

Field-Independent Learner #4 (FI-4). [GEFT score=18] FI-4 was an 18 year-old female freshman majoring in instrumental music in the Bachelor of Music degree program. At the time of the study, she was enrolled in private lessons on her major instrument at the University of Oklahoma. She reported that she had had eight years of private instruction on her major instrument before beginning her studies at the University of Oklahoma, and that she had been a regular member of her high school orchestra and wind ensemble. She indicated also that she had been chosen to participate in All-State orchestras and bands, as well as honors bands throughout her four years in high school. She stated that she had performed as a soloist and in instrumental ensembles at state and local music contests. She reported that she had attended summer music camps, and had received some instruction in music theory at the camps and in private lessons on her major instrument.

FI-4 indicated that she owned and used a personal computer on a daily basis, but stated that she had not had music instruction using computers or computer programs. She also noted that she was generally unfamiliar with MIDI technologies and their uses in music instruction, and that she had not had previous instruction on the use of music sequencing and notational programs.

On Part III of the Student Information Profile she disclosed that she owned a keyboard instrument, but that she had not had any formal keyboard instruction prior to her music studies at the University of Oklahoma. She reported, however, that she had periodically attempted keyboard studies on her own during her years in high school.

A summary of the general characteristics and the GEFT test scores of the four field-independent learners interviewed for the study has been provided in table 5.

Table 5. Characteristics of Field-Independent Learners Interviewed

	GEFT Score	Age	Gender	Degree Program
FI-1	17	18	Male	BME
FI-2	17	19	Male	BME
FI-3	17	18	Female	BMA
FI-4	18	18	Female	BM

Summaries of Individual Student Interviews

To collect additional data the researcher conducted a series of three individual interviews with the four field-dependent and four field-independent learners selected for the study sample. Each of the eight students was interviewed during the sixth, eleventh, and seventeenth weeks of the semester. All interviews were audio- and/or videotaped for subsequent analyses. Students were asked to respond to a series of unstructured questions concerning (1) the types of instructional technologies that were important to them in their learning; and (2) how individual instructional technologies influenced their learning to achieve specific goals. Each of the three interviews conducted with the eight students interviewed has been summarized below. Interview summaries include the topics that were discussed and quotations of students' responses to specific questions relevant to this study.

Field-Dependent Student Interviews

Field-Dependent Learner-#1 (FD-1)

Interview #1. (Appendix D, pp. 268-275) The initial questions posed to the student in the first interview were of a general nature. She was asked to describe her progress in the class since the beginning of the semester. She stated that she thought that the class had been going well, and that her experiences had been about the same as the previous semester. She indicated that her years of piano training prior to attending college had helped in her class piano studies, but that she still had concerns about piano

technique and hand coordination. She mentioned that in her previous piano studies fingering had been the cause of some confusion to her because of the difference in the ways that string players and pianists number the fingers. She stated, however, that it was not much of a problem for her anymore.

When asked whether she found some of the activities included in class piano instruction to be more troublesome than others, she remarked that coordinating the hands in learning repertoire pieces was of concern to her. She described the supplementary repertoire piece, “Scherzo in Minor,” as having been a particularly challenging piece to learn. (Appendix J) She explained that having to perform different rhythms in each hand at the same time had been a difficult coordination problem for her. Although she did not feel that she had mastered the piece, she indicated that practicing right hand measures as blocked chords in rhythm while playing the left hand chords had helped her to improve her hand coordination. Because of the difficulties she had experienced in learning “Scherzo in D Minor,” she stated that she had chosen to perform another repertoire piece, “Etude,” on the fifth week examination given during the previous class period.¹ She explained that “Etude” had been easier for her to learn. When asked if there had been anything that had helped her to master that piece, she indicated that the handout containing a blocked chord reduction of piece had been of help to her, and that she had used it frequently in her practice sessions outside of class. (Appendix J) She stated, “It showed me where the hands shifted . . . the hand positions, I mean. After I learned those, it was easier to play the notes in rhythm the way it was written out.” (Appendix D, p. 269) She also commented that playing the chord progression that was included in that unit (Unit 16) of the text, and finding similarities between it and the chord patterns in “Etude” had been of help to her in her learning. In her response to a general question about whether practicing chord progressions and other kinds of exercises containing elements that might be found in a specific repertoire piece was important to her in her learning, she responded that it was.

¹E. L. Lancaster and Kenon D. Renfrow, *Group Piano for Adults* (Van Nuys, CA: Alfred Publishing Co., Inc., 1995), 189.

She explained:

It gives me things to look for in the music. Playing exercises before we start the music gets my hands ready for the piece, too. When I play an exercise and there is something in the music that is like it, I can sort of recognize that I have felt something like that before, and that helps. (Appendix D, p. 270)

An ensuing discussion focused on the kinds of instructional presentations and class activities that had helped her in learning to play repertoire pieces. The student was asked to reflect and comment on the different ways that repertoire pieces had been introduced and studied in class. She remarked that instructor-led discussions and demonstrations followed by directed practice (ie. talk-through) sessions had been more helpful to her than the other ways that had been used. She stated:

When you tell us things to do or to think about as we play, it helps me to know how to practice outside of class . . . the things I need to remember and watch out for. (Appendix D, p. 270)

The student added that talking through repertoire pieces regularly in class was important to her in her learning because, "It helps me know if I'm doing it right when I practice on my own outside of class." (Appendix D, p. 270)

In a brief discussion concerning the pace of instruction in the course, the student related that, in general, it was satisfactory. She expressed her preference, however, for class periods in which fewer topics were discussed and more time was spent practicing together on the details of exercises and repertoire pieces. When asked why that was important in her learning, she remarked that directed practice sessions gave her "things [ways] to practice on her own," and had provided her with a way to measure the effectiveness of her practicing outside of class. (Appendix D, p. 270) She added that directed practice practice in class had also helped her in her learning of other course activities, such as chords progressions and scales.

The next portion of the interview centered on the student's experiences in learning the scales that were included on the five-week examination [harmonic minor scales beginning on white keys]. In addition to in-class directed practice sessions, the student stated that the supplementary scale handouts that she had been given in class had been important to her in learning and practicing. (Appendix J.) She stated that the scale

sheets had shown her the patterns of keys on the piano to use, and the fingering patterns to apply in her practice. When asked to explain how the handouts had provided her with that information, she commented:

Well, just the way that you wrote them out on the sheet with the black notes higher up than the white notes in the scale. That helped with finding where to put my thumb or crossing over coming down the scale. (Appendix D, p. 271)

The student was asked whether she saw, or could find, similar kinds of patterns in scales that were fully notated. She replied that she was sometimes able to do so, and that she was able to name the notes of the scales that she was asked to learn. However, she explained that the finger patterns needed to play the scales on the piano were different than those she used on her own instrument, and that it did take her a while to find patterns to play scales on the piano. She added that, in her previous semester of piano studies, she had usually written in the fingerings above the notes in the scales that had been assigned and that she had memorized them. She remarked that that technique had been effective for her, but that it had also taken her a while to memorize the fingerings for each scale she had been required to learn. She noted that sometimes she did group scales together because of similarities in their fingering patterns.

The student was asked to describe how she used the scale handouts in her practice outside of class. She stated that she still wrote in fingerings above individual notes, but that she now also marked off the notes in groups that began with the thumb. A question was then posed about whether teaching demonstrations in class using the key/note visualizer helped her to see patterns of black and white keys in the scales that were studied. She explained:

At the times when you played the scale one note at a time, I got an idea about the black and white keys in the scale, but it helped more when you played the blocks of notes in the different patterns . . . and when you played the whole scale as a block for me to look at. That helped me to see the shape of the whole scale at one time. (Appendix D, p. 272)

She added that directed practice that included blocking finger patterns in the scales had been helpful to her in learning. She confirmed her earlier comment that seeing the scales played one note at a time on the visualizer had not been helpful to her, especially in the early stages of learning a new scale. She explained, however, that after the scale had been blocked out

in class, and she had played the scales a few times, using the visualizer to demonstrate how to play the scale was more effective.

In the next section of the interview the student was asked about the kinds of presentations or class activities that helped her in studies of chord progressions. She stated that learning the pattern of whole- and half-step between the chords in a progression was most helpful in her learning to perform a progression. When asked whether it helped her to identify the harmony and the note of the chord (ie. root, third, or fifth) that moved, she said that knowing those things did not help her. She explained that she “couldn’t think that fast” and that, “it slowed her down” to have to consider those things as she tried to learn to play a progression. She indicated that it was better to talk about the harmony and the notes of the chords that moved after she had learned the pattern of whole- and half-steps and had played through the progression a few times.

The student was asked if her studies in music theory had helped her with the harmonic concepts related to understanding and playing chord progressions. She replied that they had not helped her very much. She stated, however, that her piano studies had helped her to recognize and see patterns of notes in her work in theory class. She mentioned particularly being able to see and identify chord inversions:

When you used the overhead to show us the shape of different inversions and where to look for the root of the chord, that helped a lot, because just after that we started talking about that in theory. (Appendix D, p. 273)

To confirm some of the comments that the student had made earlier in the interview about the kinds of things that helped her in her learning, she was asked if there were specific kinds of presentations or class activities that she would like to continue doing in the next sections of the course. She identified directed practice sessions and handouts as important instructional elements to include in future classes. In her explanation of why those things were important to her, she stated:

The handouts give me things to take to the practice room and work on besides trying to just remember how we did things in class. Having you practice through pieces and exercises with us in class helps a lot, too. I remember the things that I need to do on my own when we play through things in class together. (Appendix D, p. 273)

The next series of interview questions focused on the student's practice procedures outside of class. She stated that she did not have a specific practice routine that she used for every practice session, but that she generally began her practice sessions working on scales and arpeggios and then worked on the repertoire pieces that were assigned. She added that she did try to practice the assigned activities using the practice suggestions that had been given in class. She was asked whether it had helped her when she was given a specific list of practice suggestions in class to apply in her practice outside of class. She replied, "When you tell us how we should practice or show us, it helps me to know what to do on my own," and that short practice lists did give her "things to think about." (Appendix D, p. 271)

The remainder of the interview centered on the sight reading activities in course. The student indicated that she thought that the sight reading activities in the class were going well for her. She commented that practicing sight reading examples in a number of different keys was an important activity, because it would be something that she might be called upon to do in her future career as a teacher. Subsequent questions were posed to the student to determine the kinds of instructional strategies that she thought had helped her to improve her sight reading skills. She was asked whether brief discussions to identify different kinds of accompaniment patterns (ie. blocked chords, broken chords, Alberti bass) and melodic patterns prior to sight reading specific examples had helped her. She responded that she often had difficulty in recognizing such patterns in musical examples, and that it usually took her more than a "couple of minutes" to find them in the music. She stated, "I don't analyze things very fast yet, so I usually just start playing the notes." (Appendix D, p. 273) When asked whether she looked for familiar harmonic units, such as tonic and dominant chords, in sight reading examples, she remarked:

If the chords are stacked up, like a triad or something like that, I might do that, but if they are broken up, I have to look at it for a while before I can figure those kinds of things out. (Appendix D, p. 275)

She added that talking through sight reading examples in class, noting accompaniment and melodic patterns, had helped her to see similar patterns in other examples in the same key.

To conclude the interview, the student was asked if there was anything that had not been discussed that she would like to mention about her learning experiences in the class.

She indicated that there was not. After thanking the student for her comments and participation in the study, the interview was ended.

Interview #2. (Appendix D, pp. 276-282) At the beginning of the second interview the student commented that the course had been going “a little better” for her since the last interview. She added that she had learned things that had helped her in her music theory studies, and that she thought that she was “understanding things about playing the piano better.” When asked what she felt had improved for her in her piano studies, she mentioned sight reading and her hand coordination. She confirmed information that she had given the researcher in the first interview about the class activities that seemed to help her in developing her sight reading skills:

When you took an example in one key and talked to us about the kinds of things to look for in that key and practicing it with us, I learned some things to use when I look at sight reading. (Appendix D, p. 276)

She added that that kind of instructional activity had helped her to develop a method or procedure to use when she was asked to sight read. She was asked how her new skills in learning to sight read were different from what she had been doing. She commented that previously she did not think to look for chord or fingering patterns. She remarked that, in her previous semester of study, her instructor had mentioned finding and using hand positions, but that she had had difficulty in seeing them in the music. She stated that it had helped her in the present semester to practice blocking out patterns in sight reading examples and talk about the fingering patterns to apply. When the student was asked whether directed practice over the headphones or demonstrations using the key/note visualizer helped her to find patterns in the music, she replied that both had been of value to her:

If you show us on the visualizer the keys on the piano that are in the hand position, I kind of know better what to look for on my piano. But, talking over the headphones when I'm playing helps me get to know how it is supposed to feel on the piano. When we go through the blocking, I know where to put my hands. (Appendix D, p. 277)

The student indicated that blocking techniques had helped her to recognize patterns in the music more easily, but that writing in the fingerings was still an important activity to do in her learning.

A series of subsequent questions focused on whether blocking techniques had helped the student to find useful patterns in other kinds of musical activities in the course. She said that blocking had been helpful to her, but that she was not accustomed to looking for patterns as part of her regular practice routines:

When we work on repertoire pieces, say, and there are broken chords in the left hand, if you have us block them out, I can see the chords a little better. But, if you don't, then I sort of just see notes. It takes me a while to figure out patterns on my own. Sometimes it is too frustrating when I have to do it on my own, so I just start playing the music. (Appendix D, p. 277)

The interview continued with a series of questions about the student's success in finding note and finger groups in the scales that had been studied in the course since the last interview [major scales beginning on black keys]. She said that she did not usually look for, or see, finger or note groupings in scales. She stated, "I just see a scale." (Appendix D, p. 277) When asked what had helped her to prepare to perform these scales on the recent ten-week examination, the student identified the scale handouts as having helped her in "knowing how the scale looks on the keyboard." (Appendix D, pp. 278) She explained that after class discussions that included identifying note groupings that began with the thumb and blocking the groups on the piano, she did better with playing them. She commented that placing a box around the note/finger groups on the handouts had also helped her to see the patterns better. The student indicated that she did use the blocking technique when practicing scales outside of class, but that she had also followed the finger number groups above the note names on the handouts. She described blocking scale patterns and talking through the scales in class as having been most helpful in her memorization of the scales. She suggested that talking through scales in class had served to help her to develop procedures for practicing them on her own, stating, "If I remember to do what you told us in class, I did better in practice usually." (Appendix D, p. 278)

In the succeeding section of the interview, the student pointed out that directed practice instruction had also helped her with learning chord progressions. She commented that talking through chord progressions together in class as she played had helped her to learn the pattern of whole- and half-step movements between the notes of the chords in progressions. She added that the use of the key/note visualizer in class demonstrations

had been of particular help to her in showing “the way the chords looked on the piano.”

She remarked:

Once I saw the chords . . . the hand positions . . . on the visualizer, I could find them on the piano better. Talking through the progression chord by chord helped me think through it better. (Appendix D, p. 279)

The student was asked that if she had to use just the notated versions of the chord progressions in the text whether or not she would have been able to discover the same hand positions and patterns of whole- and half-steps between the chords of a progression on her own. She said that she thought she could eventually, but that, when she looked at the notated progressions in the text, she did not look for patterns, and that she usually just read the music. The student added that, in the past when she had to learn a progression in a key that was not notated in the text, she had written out the progression in the new key and had memorized it.

In a group of follow-up questions about the chord progression that she had to prepare for the recent ten-week examination, the student was asked if any of the handouts that had been given to her in class had been of help to her. She remarked that the handout containing an off-the-staff diagram of the progression had been too confusing. Similarly, the student characterized the list of step-by-step procedural instructions included on the handout as too complicated. She confirmed earlier comments that the use of the key/note visualizer to illustrate the shape of the chords in a progression on the keyboard, and the directed practice sessions in class had been more helpful to her in her learning.

The interview continued with a discussion of the repertoire pieces that had been studied in the second section of the course. The student stated that she had found the “The Harpist” to be the easiest to learn and the one that she had chosen to play on the ten-week examination.² She remarked that she had learned that repertoire piece rather quickly, and that the handout containing a block reduction of the composition had been helpful in her practice. (Appendix J) She stated:

I played through the handout a lot. It helped with knowing the hand positions for

²Lancaster and Renfrow, 266.

each chord. Once I could play through the handout, it wasn't hard to play the piece. (Appendix D, p. 279)

The interviewer noted that the study of "The Harpist" in class was an instance in which the student had been given a reduction prior to looking at the score in the text. The student was reminded that in the study of other repertoire pieces, a reduction was distributed after a discussion of the score in class. A question was posed asking the student whether it made a difference in her learning when a reduction was used or given to her. She stated:

Getting the the reduction first worked best for me. I knew what to expect in the piece. After I practiced the hand positions on the reduction, it made using the music easier. Actually, I memorized the piece from the handout. Once I knew how to break up the chords, I didn't use the music except when you made us use it in class. (Appendix D, p. 280)

When asked whether using the score in class after she had been given the reduction was confusing to her in any way, she replied, "Once I memorized the blocks, no. I just thought of the hand patterns." (Appendix D, p. 280)

To confirm the student's comments in the first interview concerning the pacing and structure of the class, the interviewer asked whether she still felt that class periods with fewer topics and more in-class directed practice sessions were more beneficial to her in her learning. She responded that, "The days that you worked with us on talking through things three or four times, I get more done in class." (Appendix D, p. 280) She added that being given short practice periods throughout the class period to apply concepts and understanding were not helpful to her. She stated that in some activities, such as chord progressions, talking through different keys together in class was important to her in her learning. She stated that knowing the patterns of the progression in one key did not always help her when she had to perform the progression in another key. She explained that "playing it [chords progression] in different keys feels different and it looks different on the piano." (Appendix D, p. 281) She added that playing chord progression in new keys made the patterns seem different to her. She indicated that the patterns may have seemed new to her because of the different combination of black and white keys needed to play a progression in one key as opposed to those needed in another keys.

To conclude the interview, the student was asked if there were things that she would add or change about the class in the up-coming last section of the course. She

restated her preference for the continued use of handouts in the study of scales, arpeggios, and progressions, as well as directed practice sessions and specific practice suggestions. She commented that these provided her with ways and specific things to practice outside of class. Following her comments, the student was thanked for her continued participation in the interview process and the interview was concluded.

Interview #3. (Appendix D, pp. 283-289) The last interview with FD-1 was conducted following the final examination in the course. At the beginning of the interview, the student expressed her disappointment with her performance on the final, stating that she had had trouble with memorization of the note and fingering patterns of the scales required on the final (harmonic minor scales beginning on black keys). She explained that she was not sure why she still had problems with scales, but stated that the scale handouts had continued to be of help to her. (Appendix J) The student remarked that the scale handouts containing keyboard diagrams with circles on the keys needed to perform the scales had enabled her to “see the patterns on the keys and know how the scale started.” (Appendix D, p. 283) She stated that the handouts with keyboard diagrams had been of even more help to her in this section of the course than those used in previous sections of the course. The student indicated that the scale handouts used in this section of the course represented a more realistic model of how the scales looked on the keyboard and the pattern of keys used to play them. The student stated that she had had the same kinds of difficulties with performing the modal scales that were included on the final examination. The interviewer stated that no new handouts were distributed concerning modal scales because they were closely related to major and minor scales already studied in the class. The student remarked, however, that a similar set of handouts for modal scales would probably have been helpful to her.

The questions in the next section of the interview were based on a hypothetical question about the kinds of things the student would include in a class period that she could design. She replied that she would include scale studies, but that she would try to make them more interesting. She suggested that scale studies would be more interesting if they were related to a particular repertoire piece that she might be required to learn. The student also reaffirmed her preference for working on preparatory exercises related to a

repertoire piece before working on the piece from the score. She stated, “They showed me the patterns in the music that I needed to know.” (Appendix D, p. 285) She also restated the importance of using reductions of repertoire pieces prior to looking at the complete score. She stated, “I could see what you were talking about better, and once I saw the pattern, like a chord that was broken up, it was easier to see the others.”

(Appendix D, p. 285) The student commented that using reductions had made repertoire pieces easier to play, and that they had helped her to find hand positions and develop more effective practice techniques. She indicated that she had used reductions frequently during her practice sessions outside of class, but that after she had learned the piece she used the music.

The student continued by describing how her ideal class period would be structured. She repeated that she still preferred a smaller number of topics in one class period and more directed practice activities. She added that short individual practice periods throughout the class period had not been especially helpful to her, and that she did not accomplish much during them. She remarked, “It’s better for me if we just work together all the way to the end of the class time....I’d rather practice [on my own] outside of class.” (Appendix D, p. 286) She explained that talking through exercises and repertoire pieces in class had been more helpful in providing her with ways to practice outside of class.

The next portion of the interview focused on the student’s learning related to chord progressions. The student stated that, when she worked on chord progressions, she usually thought about the pattern of whole-and half-steps between chords, as well as the fingering patterns. The interviewer reminded the student of the different ways that chord progressions were demonstrated and studied in class, and asked her which had been of more help. She responded that talking through chord progressions as she played had been more helpful than other methods used in class. The student was asked whether it had helped to watch instructor demonstrations of the chord progression on the visualizer and then be given a short practice period to apply what she had learned to her own playing. She replied:

I get more about the progression when I hear you talk about it and I’m playing

it. . . . Somebody else might get it learned during the time you gave us [to practice] in class, but it might take me twice as long.” (Appendix D, p. 287)

The student remarked, however, that the key/note visualizer had been helpful to her in chord progression studies when it was used during directed practice sessions. She explained that she used the key/note visualizer at those times to “check [whether] what I’m doing it right.” (Appendix D, p. 287)

In response to a question about the kinds of presentations, activities, or supplementary materials that the student found to be more helpful to her in her general piano studies during the semester, the student identified the handouts as being an important aspect of her learning experiences in the class. She stated that the handouts were something she could use in her practice outside of class. The student stressed again the importance of directed practice sessions, especially in the study of repertoire pieces. She indicated that talking through exercises and repertoire pieces had given her more confidence in her ability to practice and achieve learning goals. She remarked, “I practiced better when we went over them in class. I mean, when I did them on my own, sometimes I didn’t seem to have to practice them as much.” (Appendix D, p. 288)

At the conclusion of the interview, the student indicated that she thought that, in general, her piano studies had gone well during the semester. She commented that she thought that she still had problems in some areas, but that she thought that she had improved.

Field-Dependent Learner #2 (FD-2)

Interview #1. (Appendix D, pp. 290-297) In the initial interview, the student stated that she thought the class, in general, had been going well. She remarked that she still was concerned about hand coordination, but that it was something that she had always had problems with in her piano studies. When asked if there had been any kinds of class activities that had helped her to improve her hand coordination, she replied that practicing exercises together in class had helped. In her comments the student stated that studying the repertoire piece, “Etude,” had been of particular help to her. She explained that blocking the chords in each hand had “really helped me with my hand positions and where my hands

needed to go the next time my hands had to change position.” (Appendix D, p. 290) She indicated that blocking chords, or note groups, to find hand positions in repertoire pieces, like “Etude,” was new to her, and that it might be a useful technique to use in learning other repertoire pieces. The student noted, however, that playing a piece over and over again was perhaps the best way to actually learn a repertoire piece.

To understand the student’s approach to practicing, she was asked to describe the kinds of activities and techniques that she used in her practice outside of class. She explained that she usually began her practice sessions working on progressions, moved to repertoire pieces, and concluded with scales. When she was asked to identify the kinds of class activities or presentations that had helped her in her practice outside of class, she stated that the handout she had received in class, illustrating hand positions in the chord progressions and repertoire pieces, had been helpful to her. She commented that, when similarities between chord progression exercises and repertoire pieces were mentioned, she could relate the two easier. In response to a subsequent question about whether it had been helpful to her to play a series of short exercises related to a particular repertoire piece that she was studying, she replied that it was, and that, “Doing a few exercises before we actually look at the piece gives me a little more knowledge about the piece when I look at it for the first time.” (Appendix D, p. 291)

The student mentioned that scales had also been a challenging activity in the class. She stated that looking at the notated scales in the textbook had helped her with fingerings, but that the scale handouts had been helpful in showing her how the notes of a scale could be grouped. (Appendix J) She explained that, when she used the scale handouts in her practice, she usually wrote in the fingerings for the scale above the note names, but that she did not “go through and draw out [box in] the groups of notes or fingerings like we do in class.” (Appendix D, p. 292) The student also remarked that talking through the scales in class as she played them had been helpful to her:

That helps a lot when you tell us what to do...and hearing your piano . . . that makes a big difference, too. I like it when we work in class and you tell us, like third finger here or thumb here, because it keeps me going. When I’m working on my own, and I mess up, I’ll stop all the time. (Appendix D, p. 292)

She added, “Sometimes I really don’t know what to do when I practice on my own, and it [directed practice] helps me to hear how you would do it.” (Appendix D, p. 292)

As the interview proceeded, the student mentioned that learning to play the chord progressions had been another difficult aspect of the first section of the course. When asked if there had been any class activity or presentation that had been helpful to her in the study of chord progressions, she replied that talking through them in class while she looked at the notation in the textbook had helped her. She commented, “I could see it in front of me in the book and hear you telling us what to do, and then I could do it.” (Appendix D, p. 293) In response to subsequent questions about the use of guided practice sessions in other class activities, the student replied, “It helps me to know and understand what I have to do on my own.” (Appendix D, p. 293)

In the next portion of the interview, a series of questions were posed to student about rhythmic studies, especially learning to play in a steady tempo. She stated that, when the instructor counted outloud as she played, she was more aware of pulse, and that, when she played along with the MIDI disks, she was more able to play in a steady rhythm. She added that listening to the rhythm tracks on the MIDI disks of exercises or repertoire pieces had also had provided her with a performance model that had helped her “to know what I should be listening for when I practice on my own.” (Appendix D, p. 293) Although the student indicated that the MIDI disks had been of value in some aspects of her learning, she explained that playing along with the disks before she had mastered a particular exercise or repertoire piece had not been beneficial to her. She remarked, “It is confusing to me to hear all the other stuff going on while I’m trying to play my part.” (Appendix D, p. 294) The student also remarked that, if she did not feel confident in her ability to play an exercise or repertoire piece, she often felt as if she could not keep up with the disk. When she was asked whether she would use the disks in a specific way if she had access to them for her practice outside of class, she replied:

When I practice, I really have to think about what I’m supposed to be doing, and listening to the same thing that I’m playing would be totally confusing to me, I think. I think I’d be more worried about trying to match the disk exactly, and I know I wouldn’t be able to do that. (Appendix D, p. 294)

In a discussion of the sight reading activities in the class, the student said that she felt confident about her ability to name notes in the score, but that her “mechanics” were not fast enough to play well at sight. The interviewer described the ways in which sight reading had been discussed and practiced in class, and asked the student if there had been a particular way that had been more effective for her. She replied that when patterns in the music were pointed out to her before she played, she thought that she could see them fairly easily, and that she sight read better. She added, however, “I know what scales and chords look like, but it’s hard for me to see them in the music right a way sometimes.” (Appendix D, p. 294) When she asked to describe what she saw, or looked for, in musical examples in general, the student stated:

When we work on scales and progressions, I can see scales and chords, but when they’re in the music it’s a little different. I mean I can see a scale in a piece and know it’s a scale, but I don’t always know what scale it is or how to play it. I think I just probably need to do that kind of things more often, though. After you tell us or discuss it with us, and I know what to look for, I can see what you are talking about and know better what to do. (Appendix D, p. 295)

Although the student described ensemble activities as being troublesome for her in general, she explained that talking through them in class and discussions focused on finding patterns in the music had helped her. The student noted that the ensemble, “Alexander’s Ragtime Band,” had been one that she felt had been particularly successful for her.

(Appendix J) When asked why, she stated:

Because I could do it. On that one, we worked on it a lot in class going step-by-step and practicing little sections. It was hard at first, but after we had talked about everything and practiced it over the headphones, I knew what I was doing and really enjoyed it. Also it helps if I know the piece, like that one. It’s more motivating to me to know what the piece is supposed to sound like than to try and play something that I have never heard before . . . or don’t have a clue about. (Appendix D, p. 295)

Following the discussion of specific class activities, the student was asked if there were specific kinds of presentations or instructional activities in general that had been more helpful to her than others. She identified talking through examples in class and hearing the instructor’s piano as she played as important things that she would like to continue doing in the next section of the course. She also noted that class discussions using overhead projections had been helpful to her in learning and understanding fingering patterns.

She commented:

The overheads are good, too, especially when you demonstrate how to mark off something in the music, like finger patterns in scales. I can see what you mean better, and it helps me to know what to look at in the music. (Appendix D, p. 296)

The student also mentioned that the visualizer had aided her in seeing patterns of keys on her piano, particularly when working on scales. She explained:

Well, I can see what I'm supposed to be doing like when we work on scales. I still have a hard time grouping notes in my head and knowing the patterns of black and white keys in some scales. The visualizer helps me see the pattern of keys better, and when you tell us what fingerings we should be using, it makes better sense to me when I play on my piano. (Appendix D, p. 296)

The student described the visualizer as also having been helpful to her in studying chord progressions in class. She commented that the visualizer had aided her in knowing "where my fingers are supposed to be and the keys I'm supposed to be on. It just helps me get a better idea of what to be watching for when I play." (Appendix D, p. 296)

To conclude the interview, the student was asked if there were aspects of the class that she would change or do differently that would be of help to her in her learning. She remarked that she would spend more time talking through exercises and repertoire pieces, and that she preferred a slower pace in class periods. She stated:

I don't like going too fast through things, or having too many things to do in one class. I guess I don't feel like I have enough time to think about things sometimes before we move on to something new. (Appendix D, p. 296)

She indicated that trying to include too many topics in one class session did not give her time to ask questions or receive feedback about how she was doing with a particular playing activity. She noted, however, that when she did have a question, she usually had time to ask it during the ten-minute individual practice period at the end of the class period.

The student was asked if there had been anything that had not been discussed in the interview that she wanted to mention. She indicated that there was not. The student as thanked for her participation in the study and the interview was completed.

Interview #2. (Appendix D, pp. 298-304) The second interview was conducted with FD-2 in March 1998, following the ten-week examination. At the beginning of the interview the student expressed that she felt the course had been going better for her since

the last interview. She explained:

I think that I have a better idea of what I need to do to practice outside of class. The little practice suggestions that you give us in class are really helping me. I'm still not great at playing the piano, but I think I'm getting more confidence in myself. (Appendix D, p. 298)

She also remarked that she thought that her hand coordination had improved. When asked whether there had been any particular class presentations or activities that had been helpful to her in improving her coordination skills, the student stated that talking through exercises, scales, arpeggios, chord progressions, and repertoire pieces had helped her "to know what to think about as I'm playing." (Appendix D, p. 298) She added that talking through scales had helped her to identify note and key groups in the scales that were studied, and that blocking the finger patterns on the keyboard had helped her to "feel the keys that I need to play the scale." (Appendix D, p. 298)

The student identified the scales handouts and the use of the key/note visualizer in class as being more useful in helping her to see and learn fingering patterns in scales. She described the handouts as having helped her "to see the whole scale at one time and get a better idea of how it is supposed to go on the keyboard." (Appendix D, p. 299) She noted that she used the scales handouts almost exclusively in her practice sessions. Although the student stated that the notated versions of the scales in the textbook were not especially confusing to her, she preferred using the scale handouts, because they had indicated the shape of the scale on the keyboard more clearly. She stated, "I can look at the sheet when I'm practicing and see the next group of keys that I need to play the scale." (Appendix D, p. 299) The student mentioned that, after having used the scale handouts in her practice, looking at the notated scales in the textbook made better sense to her. She stated that when she did use the textbook in her practice outside of class, she frequently marked in fingerings, put boxes around note groups, and/or circled the notes where the thumb was to be used to start a fingering group. She explained that being able to see fingering patterns and note groups on the scale handouts had also helped her to memorize the scales.

The student also described the key/note visualizer as being beneficial in scale studies. She commented that it had helped her when it was used to demonstrate how fingering patterns and note groups in the scales could be blocked for practicing outside of

class. She stated, “I could kind of see how the scale looked on my piano.” (Appendix D, p. 299) The student noted, however, that when the key/note visualizer was used during directed practice sessions in class, she only used it “if I got lost and needed to know where I was supposed to be in the scale.” (Appendix D, p. 300) When asked if the use of the visualizer in class had ever been confusing to her, the student described the following instance:

One time when you were playing . . . I think it was the E-flat scale . . . and you were showing us the scale and telling us about the fingerings to use, I wasn't sure what I should be looking at or doing. First, I wasn't real sure of the notes of the scale or how it was supposed to look on my piano, and when you were telling us about the fingering and the notes, I couldn't think fast enough to find the right note and finger at the same time to keep up. (Appendix D, p. 300)

The student added that, while the visualizer had been useful to her in demonstrations illustrating fingering patterns and key groupings in scale and arpeggio studies, it was not as beneficial to her during guided practice sessions in class.

The interview continued with a discussion about the student's study of chord progressions in the class. The student stated that talking through chord progressions in class to find useful fingerings and the patterns of note motions between chords in a progression had been most helpful to her. She commented that directed practice sessions in chord progression studies had helped her to know how to practice them outside of class. She noted that the handouts that had been distributed in class had been of some assistance to her. She described the step-by-step list of procedural directions to play the chord progression included on the previous examination as having been confusing to her. (Appendix J) However, she noted that the off-the-staff diagram of progressions on some handouts had been of some help to her:

That made a little more sense to me when you showed us on the overhead and talked about the way the notes moved, but when I tried to use it on my own, it was not very good. I guess maybe that it was a little more confusing because of all the things that I had to try and figure out. (Appendix D, p. 301)

The student restated her comments in the previous interview about the importance of guided practice sessions during chord progression studies in class:

When we practice in class together, I can tell whether I'm getting better at it. I think, too, that when we go through it in class everyday a little bit, I learn how to practice it on my own. (Appendix D, p. 301)

In a discussion about learning repertoire pieces, the student indicated that she thought she was doing well, but added that learning to play repertoire pieces smoothly was still a challenge for her. She stated that talking through repertoire pieces in class to identify hand positions, and blocking them out had been of help to her in her learning process. She described reductions of repertoire pieces as particularly helpful in her learning, and that, "When we play the reductions in class, I get a better idea of the hand positions that I need to remember to play the piece." (Appendix D, p. 301) The student commented that she used the reductions of repertoire pieces in her practice outside of class, and that they had changed the way in which she viewed the score, stating, "I can relate how the hand positions felt in the reduction to the way the music is written out on the page better, I think." (Appendix D, p. 301) She qualified her response, however, adding, "I still have trouble playing the piece, though, sometimes. I mean, knowing what the hand positions are doesn't tell me...or doesn't make my fingers move any better or easier." (Appendix D, p. 301) The student restated her reliance on guided practice in class to help her play better.

To confirm information given by the student in the first interview about the use of the MIDI accompaniment disks in class, the student was asked whether the use of the disks in class had been helpful to her. She stated that the disks were more helpful to her in providing a performance model of a repertoire piece. She commented that she still found it difficult to play along with the disk as an accompaniment until she had mastered the piece. She explained that, when she made errors, she found it difficult and somewhat frustrating to try and keep up with the disk accompaniments. She indicated that slowing the tempo down was helpful at times, but added:

... when I make a mistake, I can't get back on track usually, I'd much rather play just a few measures at a time, like you have us do when you are playing through with us and practicing with us. That helps more. (Appendix D, p. 302)

When the student was asked if the disks were distracting or confusing to her, she replied:

Well, I try to play it perfectly, like on the disk, but I never have been able to do that yet. Sometimes all the other instruments, or sounds that I hear, get me off, because I think that it is something that I'm supposed to be playing and I'm not. (Appendix D, p. 303)

The student conceded that, if she felt more confident about her playing in general, she

might enjoy playing along with the disks more. However, she maintained that playing along with the disks in class made her feel more “nervous” about her playing. She indicated that, if she could use the disks in her practice of repertoire pieces outside of class, she would use them primarily as aural models of final performance goals.

The final section of the interview was used to confirm the student’s comments in the first interview about the pace of the class, the structure of classroom activities, and feedback. The student stated that she still preferred class periods in which fewer topics were discussed and more time was spent “practicing through things together.” (Appendix D, p. 303). She indicated that the last ten minutes of the class that were given to her for individual practice had been enough time for her to ask questions and receive feedback on problems that she might have had with specific activities or assignments. The student expressed her satisfaction with how the class had been going in general. She commented that, “Things that we have been doing in class are helping me. I’m never going to be a great piano player, but at least I think that I am making progress.” (Appendix D, p. 303) The student was thanked for her comments and continued participation in the research project, and the interview was concluded.

Interview #3. (Appendix D, pp. 305-310) During the final interview the student was asked to reflect on her progress and experiences in the class throughout the semester. She indicated that she thought that the class had gone well for her in general. She noted, however, that she had not been able to practice as much at the end of the semester as she had at the beginning of the course because of her responsibilities in her other classes. Despite the lack of practice time, she stated that she felt that she was able to progress, and that some of the practice techniques she had learned in the class had helped in her practice outside of class. She mentioned that in-class activities identifying fingering patterns in scales and blocking chords in repertoire pieces had been helpful to her. The student commented that she had found the scale handouts to be especially helpful to her in learning fingering patterns:

They showed me how the notes made patterns and the fingers to use. It just made them easier to practice and memorize. (Appendix D, p. 305)

Similarly, the student described the handouts and reductions related to repertoire studies as

having been important in her learning:

I think the handouts with the blocked chords helped me a lot, because I could play the blocked chords and then I would know where my hands were supposed to go. When I went back to the piece as it was written, it was easier to play, because I could feel the patterns of notes in my hands. (Appendix D, p. 306)

The student was asked whether she thought she would have been able to find fingering and hand patterns in her music if she had not been given reductions of repertoire pieces. She replied that she did not think she would have:

Before you started giving us reductions, I pretty much went note-by-note when I practiced. I really didn't look for patterns much . . . or maybe I didn't know what to look for. (Appendix D, p. 306)

To confirm comments that the student had made in earlier interviews, she was asked about the pacing of the class. She restated her preference for fewer topics and more in depth, guided practice activities in regular class sessions:

I like it a lot better when you talk to us over the headsets when we're playing through things. I think it's better, too, to go through a repertoire piece or an exercise a number of times together like that. If we go too fast, I kind of feel like it's hit-or-miss then. I either get it or I don't. (Appendix D, p. 306)

The student continued:

If I didn't get something that we did in class because we went too fast, I got kind of frustrated when I went to practice on my own. I like to understand things really well before I go out on my own to practice. (Appendix D, p. 306)

In the next section of the interview, the student was asked to describe the kinds of class activities that had been helpful in the development of her playing skills in general. She explained that she thought that warm-up exercises and the lists of practice suggestions given to her in class has been important factors in her learning:

I like a definite agenda of things to do, especially if it is something new. The little checklists of things that you gave us gave me some guidelines to follow in my practice...what you should practice and what you should accomplish. It gave me more motivation, too, because I could tell that I was making progress . . . or at least getting things done. I felt better about my practicing. (Appendix D, p. 306)

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That kind of thing helps me stay focused on what I need to do or get done. The checklist of things to do for the final that you gave us helped me organize my practice. It really helped me be more efficient, I think. If I know what I have to do, then I'll get it done. (Appendix D, p. 307)

The student was then asked whether there had been any kinds of study techniques or presentations that had been more helpful than others in her learning in the class. She stated that analyzing exercises and repertoire pieces before practicing them in class had been important to her. She remarked that practicing short exercises related to a specific repertoire pieces prior to looking at the music had been beneficial to her also. She commented:

It helped me understand the piece when we got to it. When you just started a repertoire piece without any exercises that led up to it, it was like being thrown in the water and told to swim. (Appendix D, p. 308)

The student was asked to explain what she did in her practice when preliminary exercises were not used before beginning a repertoire piece. She indicated that she did try to look for patterns of notes and fingerings in the music, but that they were often difficult for her to see or find on her own. She noted that at those times she relied on the use of reductions to help her find fingering patterns and hand positions to practice in the music.

The student also indicated that the key/note visualizer had been of some help to her during in-class practice sessions related to repertoire pieces, as well as scales and arpeggios. She remarked:

When you made us stop playing and look at it when you were demonstrating something, like a scale pattern, or how to move from one chord to the next in a progression, it helped me to see what I needed to do. (Appendix D, p. 309)

The student stated, however, that when the visualizer was used during guided practice sessions, she found it difficult to look back and forth from her keyboard and the visualizer. She explained, "I mean, at times, that I got confused or lost, I just felt that there was too much to look at one time in different places." (Appendix D, p. 309) She restated her preference for "seeing things and how they go before I play them," and noting, "If I understand what I need to do, I can do it, or play things better." (Appendix D, p. 309)

In the concluding portion of the interview, the student repeated her feeling of satisfaction with the class. She commented that she had learned different ways to practice and look at music that had made her learning easier. She noted that, during the semester, she had felt she was accomplishing specific goals all the time, and that that had helped to motivate her in her practice outside the class.

The student was asked if there were any other topics that she would like to discuss concerning her experiences in the class during the semester. She said that there was not. She was thanked for her participation in the interview process of the research project, and the interview was concluded.

Field-Dependent Learner #3 (FD-3)

Interview #1. (Appendix D, pp. 311-317) The initial interview with FD-3 was conducted in the week following the regularly scheduled five-week examination. In the opening portion of the interview the student was asked to describe how the class in general had been going for him. He stated that he thought that it was going well, but that the pace of the class was somewhat faster than the previous semester of class piano studies. He commented, however, that he preferred the quicker pace of the present semester, and that he thought that he had been “learning more.”

In a discussion of what the student had found to be challenging in the class, he stated that he thought that learning repertoire pieces and hand coordination had been more troublesome to him than other class activities. He commented that coordinating left and right hands had always been a problem in his piano studies, but that guided practice sessions in class had helped him to improve this aspect of his playing. He explained that guided practice activities in class had also provided him with ways to practice on his own outside of class, and had they had “showed me what I needed to do, and what I’m doing wrong.” (Appendix D, p. 312)

The student indicated that directed practice session had also been beneficial to him in other class activities, such as scale and arpeggio studies, and chord progressions. The interviewer asked the student to reflect on the other ways that scales and arpeggios, and chord progressions had been presented and studied in class (ie. handouts with step-by-step directions, diagrams, overheads), and to identify any that had been of help to him. He repeated that guided practice had been more important in his learning than the handouts. He explained, “It helps a lot to hear someone tell me about what I need to do, and then I get it.” (Appendix D, p. 312) He noted that talk-through demonstrations and guided practice sessions had been particularly helpful in his learning to play chord progressions.

He stated that they had helped him to understand and learn the patterns of note and finger motions between chords of a progression. The student was asked whether talking through chord progressions regularly in different keys had been important in his learning. He remarked that once he understood the patterns of a particular progression, he did not need to be talked through the progression as often in class.

The interview continued, focusing on repertoire studies in the course and the kinds of presentations or class activities that had been important in his learning. The student remarked that guided practice in class had been of more help than other kinds of activities in learning repertoire pieces. The student was asked whether it made a difference in his learning when short preparatory exercises that were related to a particular repertoire piece were practiced in class before looking at the full score. He stated that they were, and that they had been important in helping him to learn things that he needed to play specific repertoire pieces. The student also mentioned that receiving specific comments and suggestions about his playing from the instructor during individual practice periods in class had been important to him also. He stated, "It keeps me on track with a repertoire piece when I learning it. If you give me specific things to work on, it helps me know what to practice." (Appendix D, p. 314)

The interview continued with a discussion of the kinds of class activities and presentations that were important in the student's learning of scales and arpeggios. He remarked that the handouts and use of the key/note visualizer had been most helpful to him. The student explained that the handouts had been effective in helping him to see note groups and fingering patterns in the scales and arpeggios. (Appendix J) He described the key/note visualizer as having helped him in learning to see the pattern of keys on the keyboard that he needed to perform a particular scale or arpeggio. He noted, "Once I know the pattern of notes and fingerings, I can block them out when I look at the sheet when I practice." (Appendix D, p. 314)

The student was asked whether there had been a specific way that the visualizer had been used in class that had been more helpful to him in his learning. He stated that "if it is a new scale or arpeggio, it helps to watch you do it and tell me about the things that I need to do." (Appendix D, p. 315) Although the handouts and use of the visualizer had been

identified as having been helpful, the student restated the importance of some amount of guided practice in class. He commented, "Once I understand the shape of the scale and the fingerings, and you have talked us through it a few times, I can pretty much do it in my own." (Appendix D, p. 315)

In the next section of the interview, the student remarked that he thought that his current class piano studies had helped him in his work in music theory:

I think I can visualize the things we talk about in theory better, especially chords. When we talk about chords in theory, I am starting to think about how I would play it on the piano now. (Appendix D, p. 315)

He commented that he had previously tried to relate his theory studies to his major instrument, but that he had not had much success. He also noted that his studies in theory had affected his learning in group piano:

When we talk about chord progressions in theory class and then talk about them and play them in here, it helps me understand them better. Playing progressions in here helps me understand how harmonies work, because I can see it happen on the keyboard and hear how they sound. (Appendix D, p. 315)

The interview continued with a discussion of the student's experiences in the sight reading activities in the course. He commented that he preferred class periods in which a number of examples in the same key were studied and practiced:

I got a better feel for the key when we did a number of examples in the same key. When you told us the kinds of things to look for in a particular key...the patterns and chords and stuff . . . I could see them in the music easier if I had more than one chance at it. When we played in different keys, one right after the other, I really didn't have enough time to learn think in that key very well. (Appendix D, p. 316)

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When we practiced sight reading last semester, we didn't talk about looking for patterns very much, so I pretty much had to read each note as fast as I could and then try to play the right finger. I really didn't do very well at sight reading then, I don't think. (Appendix D, p. 316)

The student remarked that looking for patterns in music was somewhat new to him in his learning, and that, "Before this class, I really didn't look for things like that much. Before, I usually just more or less went note-by-note and tried to practice the things I needed to fix. (Appendix D, p. 316) He explained, however, that once they were pointed out to him in his music, he was able to recognize them more easily. He stated that he was starting

to see things more in the music now that he knew what to look for. The student also indicated that being more aware of looking for patterns in music had changed his practice outside of the class. He explained that knowing how to find patterns in his keyboard music had given him a better idea of how to go about practicing. He commented that identifying patterns of notes, keys, and fingerings, coupled with guided practice activities in class, had been important in his learning in the class. He stated, "When you talk to us about the patterns and the fingerings as I'm playing, it all sort of comes together better, I think." (Appendix D, p. 317)

The student was asked if there were any changes that he would make in the class that would be helpful to him in his learning in the next section of the course. He replied:

No, I like the way things are going so far. I like the way we have worked on things together in class and how you have explained the different things we have done. You give us two or three different ways of working on things and ideas of how to practice and that helps me. (Appendix D, p. 317)

He restated his previous comments that handouts and the use of the key/note visualizer had been most helpful to him in his learning in the class to date, and that they "have helped me see things in the music better." (Appendix D, p. 317)

The student was asked whether there were any topics that had not been mentioned that he would like to discuss. He indicated that there was not. The student was thanked for his comments and participation in the study and the interview was concluded.

Interview #2. (Appendix D, pp. 318-330) The second interview with FD-3 was conducted following the regularly scheduled ten-week examination. In the interview questions were posed to the student to identify new topics related to his learning experiences in the class, and to confirm comments that he had made in the first interview. Initial questions focused on how the student felt about his general progress in the class. He stated that he had been able to find more practice time in his schedule since the last interview, and that he thought that he was doing better in the class. To uncover information about the student's practice routine, he was asked to describe the kind of things that he did when he practice outside of class. The student stated that he usually began his practice sessions with work on scales and arpeggios, then progressions and repertoire pieces. He explained, when he worked on scales, he liked to practice them in

varying note values (ie. quarter, eighth, and sixteenth notes). When asked what he thought about or how he worked on scales, he replied that he usually thought about note groups and the fingerings needed for each group. The student explained that he used the handouts that had been distributed for the scales that were assigned in the class. (Appendix J) In his description of how he used the handouts in his practice, he replied that he often drew boxes around the notes names in each fingering group, and that he highlighted the notes where the thumb was to be used. He stated that this procedure had helped him to see key groups and fingering patterns in scales.

The student noted that he used some of the same procedures when he worked on arpeggios. He commented that he used different rhythmic values in his practice, but that he had had more difficulty in finding note groups or patterns in the arpeggios that were assigned for the examination. He stated that he usually tried to find where the thumb was to be used, stating, "If I know where the thumb is, I can figure the rest out." (Appendix D, p. 319) When asked to describe the kinds of class presentations or activities had been more helpful to him in learning scales and arpeggios, the student replied that guided practice sessions, pointing out fingering patterns and note groups in the scales, and blocking the notes of key groups had been most beneficial to him:

... when we played one note at a time, it helped to get my fingers to move through the scales and the arpeggios. The blocking helped me to be able to set my fingers up on my hand for a certain spacing on the right keys. (Appendix D, p. 319)

The interview continued with questions about the kinds of class presentations and activities that had been effective in the student's learning of chord progression studies. He remarked that the handouts with diagrams using off-the-staff notation to illustrate the motion of whole- and half-steps between the chords of a progression had been useful to him in his learning. (Appendix J) He commented, "Once I figured out which finger moves a half-step and which finger moves a whole [-step], I could do it in any key." (Appendix D, p. 320) The student also noted that the chord progression diagrams had aided him in memorizing them. He remarked that he had tried to practice the progressions using the step-by-step directions included on the handout, but that they had not worked as well for him, and that had become frustrated with them.

The next portion of the interview focused on the student's study of repertoire pieces

in the course. He indicated that discussions that centered on identifying patterns in the music and blocking out such things as chords had been beneficial to him. The interviewer reminded the student of a recent class period in which the study of a new repertoire piece, “The Harpist,” was begun. The student was asked whether identifying chord structures, writing in chord symbols, and blocking them out had been helpful to him. He replied, “Yeah, because it tells me where my hands need to be. That helps a lot when we mark them in like that.” (Appendix D, p. 320) The student was asked if a reduction of “The Harpist,” similar to the ones that were handed out for previous repertoire pieces, would be of help to him in his learning. He stated:

Yeah, I guess it would in the beginning, at the very start, before I even looked at the music. That way I would know where the chords were at. When I have the music in front of me . . . when I look at the music . . . I’m too worried about my fingers . . . getting my fingers to move at the right time, . . . instead of the chord. (Appendix D, p. 320)

The student indicated that, in the previous class period, identifying the seventh-chords in “The Harpist” and blocking them out had been helped him “with getting [his] hands in place for those chords.” (Appendix D, p. 321) When asked whether those kinds of class activities had enabled him to identify the seventh-chords in the score of the “Harpist” more easily, he replied that he could see the chords in the music, but that he might write them down so he could remember them. He continued that he often placed boxes around the notes of broken chords that formed specific harmonies in the score and labeled them with a chord symbol. He stated that the boxes represented landmarks in his music.

In his comments about his learning experiences related to studies in harmonization and chord progressions, the student mentioned that the key/note visualizer had been an important factor in these class activities. He commented, “When we’re doing any type of chord progression . . . any type of chords, I’ll look at it because it tells me where I should have my fingers.” (Appendix D, p. 322) When the student was asked whether it had bothered him to look back and forth from the visualizer to his keyboard when it was used in presentations, he responded that it did not. He remarked, however, that when verbal instructions concerning such things as fingerings were given to him at the same time as he was playing and using the key/note visualizer to find hand patterns or key groups on the

keyboard, he had difficulty in attending to all of the information that was being presented. He stated, “I just can’t listen to you and look up here [points to visualizer] at the same time, because I’m thinking about the lights on the visualizer.” (Appendix D, p. 322) The student was asked to describe the uses of the key/note visualizer in class that did help him in his learning. He explained that it was more effective for him when he was asked to watch and listen to the instructional presentation without having to play, and then be given individual practice time to apply what he had learned.

Following the discussion of the uses of the visualizer in class presentations, a series of questions were posed about sight reading activities in the class. The student was asked to describe the kinds of presentations or in-class exercises that had helped him to prepare for the sight reading portion of the recent ten-week examination. He was reminded of the different ways that sight reading had been studied and was asked if any particular method had been more effective for him than others. He commented that guided practice sessions that included a number of different examples in the same key had been more beneficial to him in developing his sight reading skills. When the student was asked to explain, he stated:

It gives me more time to think. Usually, when I do too many different things in one session, I think, “We studied a whole bunch of keys, but what did I get from it?” Sometimes I lose a lot from studying a lot of stuff at one time.
(Appendix D, p. 323)

The student indicated that practicing a number of sight reading examples in the same key had helped him to recognize patterns of chords and note groups associated with specific keys, and that that had helped him in preparing the sight reading portion of the ten-week examination. He noted that he was able to recognize patterns in the test example “real fast,” and that, “After I found the patterns, it was a matter of just putting them together.” (Appendix D, p. 323)

The student suggested that his improving sight reading skills had also affected his learning of repertoire pieces in the course. He remarked that practice in finding and identifying note and chord patterns in sight reading activities had helped him to recognize similar patterns in repertoire examples. As a result, he stated that he thought he was able to learn repertoire pieces much faster. The student was asked if there had been other

class activities or presentations that had also been helpful to him in learning repertoire pieces. He commented that practicing short preparatory exercises containing things that he would find in a particular piece had been more helpful to him than beginning with the score.

In the final portion of the interview the student was asked to comment on more general aspects of the class, such as pacing, the types of presentations that were effective in his learning, and things that he might change about the course. He replied that he liked the variety of teaching styles that had been used in class presentations, but that he preferred class periods in which the pace of instruction was a little slower and instruction was more linear. He stated, "I wouldn't put too much stuff in one class. I just don't absorb as much. I like to know what was done in the class when I walk out the door."

(Appendix D, p. 327) The student remarked that it had helped him in his learning to spend more time talking through exercises or repertoire pieces together in class. He noted that in certain activities, such as scales, it was also important for the instructor to talk about and demonstrate concepts and practice procedures before guided practice sessions. He stated, "If we just start playing and talk about them at the same time, I'm, like, lost."

(Appendix D, p. 328) The student indicated that, at times when many sources of information were presented at one time, he was not sure what source to attend to in his learning. He explained that guided practice in class had helped him to understand how concepts that had been presented could be applied in his practice:

Well, if you just told me how to do it, I might not get it the first time, or I might lose something. I need you to just like pound it into me for two or three minutes. I might pick up on something that I missed when you explained it the first time.
(Appendix D, p. 329)

Although the student stated that regular guided practice sessions in class were important in his learning, he also remarked that he liked the ten minute individual practice periods at the end of each class period, because it gave him an opportunity to ask questions and receive specific comments and suggestions about his playing.

The student was asked if there were other topics that had not been mentioned that he would like to discuss before ending the interview. He stated that there were not. The student was thanked for his comments and participation, and the interview was concluded.

Interview #3. (Appendix D, pp. 331-341) The third interview with FD-3 was conducted following the final examination in the course. The purpose of the final interview was to confirm comments made by the student in previous interviews and to obtain additional information concerning the student's learning experiences in the course since the last interview. At the beginning of the interview the student expressed his general satisfaction with the course. He commented that he thought that he had made progress in his piano studies, and that, "it was just a lot of fun this semester." (Appendix D, p. 331) He stated that the handouts he had received during the course had been of particular importance to him in his learning, and that he thought that the instruction in the class had been "more intense" than in his group piano studies of the previous semester. He characterized his progress during the semester as steady with some spurts of growth. The student mentioned that he thought that his coordination skills had improved during the semester.

The student was asked to describe the handouts that he had found helpful to him, and to explain how they had affected his learning in the class. The student identified the handouts for scales and the reductions of repertoire pieces as having been most beneficial to him. (Appendix J) He stated that both types of handouts had helped him in learning fingering patterns. The student remarked that he had used the reductions of repertoire pieces frequently in his practice outside of class. He noted, "I used the reductions in the beginning of my practices, and then, after I got better in playing the piece, I'd go ahead and just use the music." (Appendix D, p. 332) The student was asked if it had made a difference in his learning when reductions had not been distributed for some repertoire pieces studied in the class. He disclosed that, on those occasions, he had used a notation program on his computer to make his own reductions.

The student was reminded of the two formats that were used on handouts for scales, and was asked if either one of them had been more effective than the other. He stated that the handouts listing the note names in the scale with the black key note names placed on a higher level had been more meaningful to him. He stated that he thought the handouts containing keyboard diagrams with the circles on the keys used to perform the scales had been a little more confusing, and that they contained "too much information to

take in and look at and to try and figure out.” (Appendix D, p. 332)

The student was asked if uses of the keyboard side of the key/note visualizer to demonstrate scale concepts and fingerings in class had been confusing in the same ways as the keyboard diagrams on paper had been to him. He responded that the use of the visualizer in class had not been confusing to him, and that:

I like to see what you are talking about instead of trying to figure it out with my hand. Whenever I look at my own hand, I can't really see the shape of a scale or chord. But when I look at the visualizer, I look at the lights and stuff . . . it really helped a lot. (Appendix D, p. 333)

In response to a question about whether the lights on the key/note visualizer had ever obscured a pattern of keys being discussed in a scale presentation, he stated that the lights had not been distracting to him. To confirm his comments made in the previous interview concerning the use of the key/note visualizer in class, the student was asked to describe how the it had helped him in his learning. He explained that he still often used the key/note visualizer as a reference during class discussions and demonstrations. He noted, however, that when the visualizer was used instruction, it had been more helpful to him when he was asked first to watch the visualizer and listen to instruction and then practice. The student remarked:

I'd rather have you do it first . . . that way I can hear it and I would know what it sounds like. If I made a mistake [in practice] my ear could tell me I was wrong. (Appendix D, p. 333)

He continued, “I think I learned faster if you talked first and then I practiced.” (Appendix D, p. 314) The student also reaffirmed his previous statements that, when the visualizer was coupled with verbal descriptions or instructions given over the headphones, it had been somewhat confusing to him because of the amount of information being presented. He noted that he had had similar experiences during guided practice sessions in class when verbal instruction was given while the student used the reduction and was asked to play:

When you started naming off chords, I just got kind of lost because my fingers couldn't move fast enough to the chords . . . and I thought, yeah, I'm lost. (Appendix D, p. 334)

The next segment of the interview was based on a question asking the student to identify and describe the kinds of instructional methods and class activities that he would

included in an ideal class session that was designed to fit his particular needs as a learner. He commented that he would include the use of the key/note visualizer and handouts in such a class session. He stated, “They just really helped me a lot, instead of giving us the music and going through it a measure at a time.” (Appendix D, p. 335) The student also indicated that he would limit the size of the class to a smaller number of students. He explained that in the previous semester his section of group piano class had been a full class, and that “I felt like I wasn’t getting the attention that I needed as a student to learn what I needed to learn.” (Appendix D, p. 335) He indicated that it was important for him to receive regular and specific feedback about his work in the class, but that he did not think that he needed constant feedback throughout a class session. He remarked that the last ten minutes of each class period that had been reserved for individual practice during the semester had provided him with ample opportunity to seek answers to specific questions that he had. The student added, however, that he would not include short practice periods throughout the class period. He explained that he liked class periods “to just flow through what we are going to do for the day.” (Appendix D, p. 337)

The student also stated that he would include fewer topics and more emphasis on directed practice sessions in a single class period:

I’d probably like just a few things and work maybe more in detail, because then I’ll get more practice in. If you pack a whole bunch of things in a class, then I’ll forget. (Appendix D, p. 335)

In a subsequent comment, the student described the importance of in-class directed practice sessions in his learning:

I like you to tell me what I need to do as I’m doing it and then give me time to do it. Then I can like ask questions about it and then take it to the practice room. (Appendix D, p. 335)

The student added that he had sought out additional sources of feedback outside of class concerning his playing, and that he had used the tutoring service provided for group piano students by the piano pedagogy department. He noted that it was important to him in his learning in general to have access to the individuals who could provide him with timely feedback about his progress in a class or answers to questions he might have. The student also mentioned that he thought having additional access to the electronic pianos in the group

piano laboratories during week with the instructor or a tutor present would be something that would be helpful to him in his learning. He stated:

The pianos over there [practice room building] are real different from these pianos [electronic pianos], and that messed me up the most. It just felt so different over there when I was practicing. (Appendix D, p. 336)

The student continued his description of the instructional methods or activities that he would include in his ideal group piano class. He commented that perhaps he would shift the emphasis of the class content from exercises to studying more repertoire pieces. The student said that he thought that he would place more emphasis on learning repertoire pieces, stating, "Maybe learning things with repertoire would be a more exciting way than doing a bunch of exercises, even though the exercises are good." (Appendix D, p. 336) The student was reminded of the different ways that repertoire pieces were presented and studied in the class and was asked if a particular kind of approach had been more effective for him than others. He indicated that beginning the study of a repertoire piece from the score without preparatory exercises had not worked for him in his learning processes. He stated, "I don't like going through the music first, because I pick up bad habits, and I'll have that habit the rest of the time." (Appendix D, p. 337) He continued that he thought it was a little more confusing to him to begin with the notated score if he did not have some kind of understanding or knowledge about the piece before he started to work on it in class or on his own. The student described his difficulties in learning "The Harpist," a repertoire study for which a reduction was distributed only after beginning the piece from the score in class. He remarked that, "When we looked at the music first, it took me longer to learn that piece than I thought it would, because I didn't have the reduction." (Appendix D, p. 337) He explained that the patterns of seventh-chord harmonies formed by the broken chord figuration had been more difficult for him to understand and see without a reduction.

The student was asked whether preparatory exercises or reductions in other kinds of studies in the class had been important in his learning. He commented that they had been beneficial to him in scale and arpeggio studies, chord progressions, sight reading, and two-hand accompaniment activities. He also remarked that there was an important relationship developing between his work in music theory and his group piano studies. He explained that his piano studies had helped him improve his understanding of music

theory, stating:

Well, whenever we'd analyze a melody or a piece and put Roman numerals on it in theory, I didn't understand it when he'd explain it. And then, maybe a week or two later, we'd do something in here and I'd say, "Oh, man! I know how to do that now!" Because my hands were actually doing it, I could see the chord, . . . what was in my hands. (Appendix D, p. 337)

Although the student commented that group piano studies had helped him in his music theory studies, he noted that, at the present time, he did not think that his work in music theory had contributed to his group piano studies.

In the next segment of the interview, the student was asked to describe the kinds of class activities or presentations using reductions that had helped him in his group piano studies. In a discussion of his work on chord progressions in the class, he commented:

At the beginning of the semester, chord progressions were really hard to grasp. Last semester I didn't grasp them at all. I mean, even though there was a pattern there, I was like still kind of lost. In my last class they didn't use the visualizer. She would explain it, but I couldn't see the patterns for some strange reason when I was looking at the music. And this semester, I'll look up here [points to the visualizer] and say, "Hey, there's a pattern!" (Appendix D, p. 338)

The student restated the importance of the handouts that he had been given in class during discussions related to chord progressions. When asked to identify the kinds of handouts that had been more helpful to him than others, he remarked that those containing an off-the-staff diagram of the motion of the notes between the chords in a progression had been particularly beneficial to him. (Appendix J) He explained, that after using the diagram/reduction of the essential features of a particular progression, it had been easier for him to return to the notated version of the chord progression and see relevant patterns in the music. The student continued, saying that he thought that his ability to find and recognize patterns in music in general had increased as a result of in-class activities that focused on identifying them. He noted that mid-way through the semester [March], he had also started to look at music differently:

Well, I guess I really didn't look at music as a logical thing . . . of why it was written that way. Now I can see more patterns, and sometimes when there is something that doesn't fit a pattern, I can see that it doesn't fit. I guess I see a lot more things. (Appendix D, p. 339)

In response to a follow-up question, the student reiterated the importance in his overall learning in the class of discussions and supporting materials that helped to reduced the

complexity of musical examples to the basic patterns and components.

The student remarked that he thought that his improved ability to see patterns of notes and chords in music had affected his sight reading skills. He stated, "If I recognize the pattern, then I'll know how to play it," and, "I won't have to break it down as much, because then I'll see it and then I can put my hands there." (Appendix D, p. 339)

The student also commented that he thought knowing about patterns and learning how to identify them in his music had improved his coordination, and had made him feel more comfortable about studying piano in general.

In the final portion of the interview, the student was asked to comment on the things that he would have liked to have changed about the class that would have been more beneficial to him in his learning during the semester. He replied that he thought that he would liked to have included repertoire and exercise studies that were more closely related to the ways that he might use his piano skills as a future teacher of instrumental music. He noted that he thought that it would be important to learn how to study and play an accompaniment to an instrumental solo that he might assign to some of he future students. He also commented that he would have liked to have done more group playing and practice during class periods without using the headphones:

Sometimes I feel a little isolated from everybody, and maybe sometimes I get a little lost by having them on. I guess, even though it would be a little noisy, I would like not having the headphones on and going over the things with my peers and listening to them and them listening to me. That would also motivate me to learn things a little better, because I know they're listening to me all the time. (Appendix D, p. 341)

The student indicated that having a study partner to work with often during the course of the semester might have been beneficial to him in his learning in the class. He remarked, "I don't work well on my own. It's hard for me to sit at the piano on my own." (Appendix D, p. 341) When asked why collaboration with other students in the class might have been more helpful to him, he explained:

If I don't understand something, usually, my peers explain some things better than my professors do. Maybe my professors have explained it very well, but I just didn't get it, but the way my peers say it sheds some light on it and I get it. (Appendix D, p. 341)

.....

I like working more on projects together. It's just more fun for me to learn that way. It keeps me on track with my learning. (Appendix D, p. 341)

The student was asked if there was anything that had not been mentioned in the interview that he would like to discuss. He indicated that there was not. He was thanked for his willingness to participate in the interview process of the research project, and the interview was concluded.

Field-Dependent Learner #4 (FD-4)

Interview #1. (Appendix D, pp. 342-348) The first interview with Field-Dependent Student-4 was conducted in the week following the regularly scheduled five-week examination in the course week. At the beginning of the interview the student remarked that she thought the class had been going well for her, explaining that, "I'm playing a little better, and I'm learning things faster, I think." (Appendix D, p. 342)

Despite her overall satisfaction with the course at the time of the interview, she indicated that she had found learning repertoire pieces to be more challenging than other activities in the course. She explained that coordinating the hands in her playing was still a problem for her. The student noted, however, that the reductions of repertoire pieces that she had been given in class had helped her in her learning, and that she had used them in her practice sessions outside of class. When asked how the reductions had helped her, she stated:

They helped me in my coordination, because they showed me where my hands were supposed to be on the keyboard. Knowing that some notes were part of a chord helped, because it was easier to play individual notes after that. (Appendix D, p. 342)

She added that the reductions had also changed the way she viewed the printed score of a repertoire piece. She remarked, "They helped me with finding hand positions instead of just playing one note at a time." (Appendix D, p. 342) The student explained that, in the past, she had usually looked at music one note at a time, and that that approach may have been due to the nature of the music written for her major instrument [cello]. She remarked, however, that, "Seeing how things are grouped helps me understand the music a little better, I think." (Appendix D, p. 343) In a brief discussion of how a reduction had helped

the student in a specific repertoire study, “The Chase,” she stated:³

The reduction helped me see the inversions of the triads at the beginning. I know what inversions are and how to play them, but sometimes I don’t see them when they are written in the music. It takes me a while to see them.
(Appendix D, p. 343)

The student explained that she had used the reduction of “The Chase” to practice “certain parts” of the piece, but that she had also used the music as much as the reduction in her practice outside of class. The student also noted that practicing short preparatory exercises containing musical and technical elements that she might encounter in the score of a repertoire piece had been important. She commented, “After we work on those kinds of exercises related to the piece, I kind of know better what to expect when I look at the music. The exercises help me with knowing hand positions better. (Appendix D, p. 343)

The interview continued with a series of questions about the student’s learning experiences in other aspects of the class. She remarked that, although she had found learning repertoire pieces to be a challenging part of the class, other studies in the course, such as chord progressions, scales, and arpeggios, had not been as difficult for her. In the study of chord progressions, the student indicated that directed practice sessions in class that focused on learning the whole- and half-step patterns of note motions between chords had been more helpful to her than other kinds of presentations. She explained that once she had learned the patterns associated with a particular progression in one or two keys, she had been able to apply that knowledge to other keys more easily. The student commented that the handouts that had been given to her in class had been “okay,” but that they had not been of any particular significance to the in her learning of chord progressions. She stated, “I [looked] at [them] once or twice and then put them away.” (Appendix D, p. 343) The student restated the importance of directed practice sessions in her learning of chord progressions. When she was asked whether daily directed practice sessions were important throughout her learning of chord progressions, the student stated:

It would probably be easier if you talked us through them, but I could probably get them on my own, too. It probably would be good to talk us through a new key one

³Lancaster and Renfrow, 226.

or two times, then after that I could get it. (Appendix D, p. 344)

In a brief related comment about the general structure of class periods, the student remarked that she preferred those that contained more structured instructional activities, such as directed practice, rather than periodic opportunities for individual practice during class time. She explained, "If I have too many little practice times in the class period, I don't get much done. It's better if you keep working with us on things together." (Appendix D, p. 345)

In a description of her learning experiences concerning scale and arpeggio studies, as well as sight reading activities in the class, the student made similar observations and comments about the importance of directed practice sessions. She remarked that directed practice periods had helped her to see patterns of notes and fingerings in scales and arpeggios that she could use in her practice outside of class. She also described the handouts related to scales and arpeggios as having been helpful, stating:

Seeing where the black notes are in the scale on those sheets has helped me with my fingering when I play. After looking at the way the scales are written out on the sheets that you gave us, I can see how the keys on the piano are grouped together. (Appendix D, p. 345)

The student added that she had used the handouts regularly in her practice. She explained that she had often written in fingerings, especially the placement of the thumb at the beginning of fingering groups. She commented, however, that in-class exercises of drawing boxes around note and fingering groups on the handouts had been a "little confusing" to her. She remarked, "There was just too much in the page to look at sometimes." (Appendix D, p. 345)

As the discussion continued, the student indicated that directed practice sessions had also been important in sight reading studies in the class. She stated that talking through a series of examples in the same key had been more helpful to her in developing her skills in sight reading than playing a number of exercises in various keys:

I get to know what to look for or expect in that key when I come across it again. I think I get a better feel for how that key feels on the piano, too. I learn the patterns better. (Appendix D, p. 347)

The student was asked whether the things that she had learned in the class so far had been helpful to her in other areas of her studies in music. She replied that she thought

that her piano and theory studies had complemented one another:

The things that we've done to see inversions and chords and how they move, like in chord progressions, when we talk about that in theory, I think about how I would play them on the piano. I used to try to relate theory things to my instrument, but it's hard that way. Learning to play the piano has helped me visualize things like chords better, I think. (Appendix D, p. 346)

.....

They work together, I think. When we talk about chords and inversions in theory, it helps when we play them in class. It is easier to get the whole concept if I have a way of playing things we talk about in theory. (Appendix D, p. 346)

In the final portion of the interview the student was asked to identify the kinds of presentations and class activities that she had found to be helpful in her learning and ones that she would like to continue in the following sections of the course. She stressed the importance of directed practice in her learning experiences in the class. The student qualified her statement, however, noting that discussions and demonstrations of concepts before she was asked to play had been more helpful to her than those that were conducted as she was performing on the keyboard:

It's better to hear you explain things first and show me what to look for. If it's something that we have talked about before, then it's helpful to talk about them as we play. I get a better idea of what I should be watching for or thinking about when I play. (Appendix D, p. 347)

During the course of this portion of the interview, the student also described the use of the key/note visualizer in class and how it had affected her learning:

The visualizer is confusing to me most of the time . . . at least the staff line side of it. The keyboard side of it is helpful sometimes, though. Like when we're working on a progression, and I absolutely can't find the place where my fingers are supposed to go, I'll look at it if it's on. (Appendix D, p. 347)

The student commented that when the visualizer was used in demonstrations while she watched, it had improved her ability to see some kinds of patterns a little more easily, but that, if she tried to look at the visualizer during directed practice sessions, it had been less effective. She stated:

By the time I look up and then look at my keyboard, I'm already behind. It just takes me a little time to look back and forth. I'd rather just try and concentrate on what you are telling us over the headphones. (Appendix D, p. 347)

The student was asked if there was anything that had not been discussed in the

interview that she would like to mention about her experiences in the class. She indicated that there was not. The student was thanked for her willingness to participate in the interview process, and the interview was concluded.

Interview #2. (Appendix D, pp. 349-356) The second interview with the student was conducted following the regularly scheduled ten-week examination. Despite a minor injury that the student had recently suffered to her right hand, the student stated that she thought that the course had been going well for her since the last interview. She noted that she thought that she had been making progress in the class.

Questions posed to the student during the early stages of the interview were focused on the student's experiences in preparing for the recent examination. She mentioned that she had found the required arpeggios [arpeggios beginning on black keys] to be more difficult, or "awkward," than other parts of the test. The student explained that early in the study of the arpeggios she had mistakenly tried to apply the fingerings normally used for arpeggios beginning on white keys. When she was asked if there had been a particular class presentation or discussion that had helped her to learn the correct fingerings, the student stated that one of the two handouts concerning the arpeggios had been of help to her in her practice. (Appendix J) The student stated that she had used the handouts indicating the notes names of the arpeggio with the black key names placed on a higher level than the white key names. She remarked, "When I used the sheet, I could see patterns of notes that I could relate to on the keyboard, and that helped me with the fingerings." (Appendix D, p. 350)

In her preparation of the scales beginning on black keys that were also required on the examination, the student stated that she thought that they were easier for her to prepare than the arpeggios. She noted that, if she knew the notes in the scale where the thumb was to be placed, "the rest of the notes seemed to follow easier" (Appendix D, p. 350) When the student was asked if she thought of finger patterns, note groups, or key groups in the scales as she played them, she explained that she usually thought of the names of the notes in the scale first. In a description of how she practiced the scales, she stated, "I found where I needed to put my thumb first then where the other notes of the scale were and the fingers that I needed to finish the pattern." (Appendix D, p. 350)

The student also characterized the progression on the examination as having been easy for her to learn. Of the various ways that the progression had been presented and practiced in class, she identified the handout containing an off-the-staff diagram of the progression with arrows indicating the distance and direction that individual notes moved as having been most helpful to her in her learning. (Appendix J) She stated, “When I used the diagram, I could see the pattern of how the notes moved and know which key to play next.” (Appendix D, p. 351)

The student also emphasized the continued importance of directed practice sessions in her study of chord progressions in class. She noted, however, that, after a few directed practice sessions, she had been able to learn the basic pattern of note motions in the progression well enough to apply her understanding in playing the progression in other keys on her own. In response to a question about the use of the visualizer in class discussions related to chord progressions, the student stated that she did not like using the visualizer, adding that it had confused her. She explained that she thought that the colored background of the visualizer had sometimes made it difficult for her to see the patterns of keys on the keyboard side of the visualizer when it was used to illustrate chord motions in progressions. She remarked:

I think it's the orange background. It's hard to see what key to play sometimes. I think it's the combination of all the things to look at that confuses my eye a little. (Appendix D, p. 352)

In the next portion of the interview, the student was asked to describe how she had prepared the sight reading portion on the examination. She explained, that in the ten minutes given to her to prepare the example, she had first identified the key and then looked for patterns of notes and chords in the music. She replied that she had not had much difficulty in recognizing the patterns in the music, and that she thought that the example had not been too hard for her to learn to play in the time allotted to her. The student was asked whether any of the ways that sight reading had been studied and practiced in class had been helpful to her to improve her skills. She indicated that practicing sight reading every day in class had helped her to learn what to look for in the music when sight read. Interestingly, however, the student made a distinction between knowing the scale of the key of a particular sight reading example and the actual example itself. She commented

that, once she had identified the key of a particular sight reading example, she could see the pattern of keys on the keyboard associated with the scale of the key, but that when she actually sight read the example she stated, “I just see the individual notes in the music, and then find the key I need to play.” (Appendix D, p. 352)

To confirm comments that the student had made in the first interview, The student was asked again if her piano studies had been helpful in other music classes. She reaffirmed her previous comments that piano had been helpful in her music theory studies. As an example, the student explained, “When we talk about intervals in theory, I draw out a little piano on my paper.” (Appendix D, p. 353) She indicated that using keyboard diagrams had also been useful in her understanding of harmony concepts discussed in her theory class. She stated, “Like when we have to spell chords, I use them [keyboard diagrams] as a visual aid, I guess. They help me understand the whole idea of chords better. (Appendix D, p. 353)

The next segment of the interview was an extended discussion of the student’s learning associated with repertoire pieces studies in the class. Because the study of repertoire pieces had been a primary topic in the first interview with the student, questions were posed to uncover new information about her learning experiences, as well as confirm her previous statements and observations. The student reconfirmed the importance of directed practice sessions in learning repertoire pieces. She commented, however, that talk-throughs too early in the study of repertoire pieces had been confusing to her sometimes. She stated, “It’s a little confusing to hear you talk about it while I’m playing until I have had a chance to look at it on my own a little bit.” (Appendix D, p. 354) The student also repeated her previous statements about the significance of using reductions of repertoire pieces in her learning. She explained that she had used the reductions of the repertoire pieces frequently in her practice sessions outside of class, and that they had helped her to find and identify hand positions. She stated, “They helped a lot to know where to put my hands on the keyboard.” (Appendix D, p. 354) The student was asked whether class presentations in which she had been asked to draw boxes around hand positions and patterns in the score had been as useful to her in her learning. She replied, “Well, sometimes it was too much stuff in the music to look at,” and, “Sometimes it was

hard to look at the marks you had us make and then the music, too. That was kind of confusing.” (Appendix D, p. 354) The student also reaffirmed her preference for studying short preparatory exercises before working from the score of a repertoire piece. She explained:

I like working on exercises first. Working on exercises first helps me to see things in the piece better, and know how to practice it. I think it helps me to see and remember better some of the patterns that I’m going to need to know to play the piece, too. (Appendix D, p. 355)

In response to a question about the overall difficulty of repertoire piece that had been discussed and studied in the class, the student indicated that some had been very difficult for her, and that it might be beneficial to study two or three shorter, less complex pieces that taught her the same concepts. She remarked that, “Sometimes the harder pieces take too long to learn and I get frustrated sooner, and then I don’t feel like I’m getting anywhere.” (Appendix D, p. 355)

In the final portion of the interview, the student was asked if there were specific kinds of presentations or activities that she would like to have continued in the last segment of the course. She stated that she would like to include more work with two-hand accompaniment exercises. She explained that these activities in the previous part of the course had helped her “to use the things I learn about using chords, and get me using both hands.” (Appendix D, p. 357) Since the MIDI disks were used extensively in two-hand accompaniment studies in the class, the student was asked if the way the disks had been used had been beneficial to her in her learning. She indicated that they had been useful in providing models of possible accompaniment patterns that she could use. She commented, however, that, “Sometimes what I play is not exactly the same as the accompaniment on the disk, so it is confusing at times to hear other things going on.” (Appendix D, p. 356) The student also noted that when the accompaniment track on the disks had been turned off and she played along with the just melody track, she had enjoyed the experience.

Before ending the interview, the student was asked if there were any changes or additions to the class that she would make to help her in her learning. She said that there were none, and restated her general satisfaction with the way the course had been going for her. The student was thanked for her continued participation in the interview process and

the interview was concluded.

Interview #3. (Appendix D, pp. 357-363) The third and last interview with Field-Dependent Student-4 was conducted in the week prior to the final examination in the course. In her opening remarks, the student disclosed that she thought that her piano skills had improved since the beginning of the semester. She specified that her general technique had become more comfortable, and that her ability to play scales and arpeggios had improved. The student was asked to identify the kinds of presentations or class activities that she thought had contributed to making scales and arpeggios easier for her to play. She replied that the handouts that she had received had been important to her in her learning, because, "It helped me visualize the things that I needed to do to play the different scales and arpeggios." (Appendix D, p. 357) Of the various handouts related to scales and arpeggios beginning on black keys that had been distributed since the last interview, the student stated that the most helpful ones had been those that had contained a horizontal listing of the names of the notes in the scales with the black key names placed on a higher level. (Appendix) In describing how these had been useful to her, she stated, "All I had to do was look at that and I knew where my fingers needed to be when I played the scales." (Appendix D, p. 338) The student described the other kinds of handouts, consisting of a keyboard diagram and circles on the appropriate notes of the individual scales, as clearer and even easier to use. However, she commented that she did not use these handouts as much in her practice:

... I didn't like to rely on that one too much, because it tells you exactly what to play, and I don't know if I'd really learn, or memorize, the scale patterns as well. I think the one with just the note names with the black keys on a higher level helps to learn the scales better. (Appendix D, p. 357)

She continued, stating, "I understood the concept of the scale better with the one with just the note names on it." (Appendix D, p. 357)

In the next segment of the interview, the student was asked about the various ways chord progressions had been presented and studied in the class. She remarked that the handouts containing a written list of step-by-step instructions of the things to do to play a particular progression had been confusing to her. (Appendix J) She stated, "That whole big long 'spiel' was a mess to me." (Appendix D, p. 358) She described the off-the-staff

diagrams of progressions, indicating the direction and distance that notes moved between chords of a progression, as having been more helpful to her. She specified, however, that in-class directed practice sessions using the notated progression in the textbook had been more important than any of the handouts:

When you talked us through them in class, I learned how, or what, to think about, and what to watch for when I played. I think it helped me to know how to practice them on my own better. (Appendix D, p. 358)

The student noted that, although talking through progressions often in class was important early in her learning of a new progression, it was not so necessary after she had learned the patterns of note motions in the progression. In a related comment, she added that directed practice in learning scales and arpeggios had been similarly important to her in learning note grouping and fingering patterns. When the student was asked what she thought about as she practiced a progression, she indicated that she thought about progressions in a number of different ways. She explained that, at times, she thought about the key in which she was playing, and at other times, the Roman numeral chord symbols. She stated, however, that the way that seemed to work better for her was “probably thinking of the patterns of how the notes moved by step and the fingers that move, especially the hard keys . . . the ones that I don’t use very often.” (Appendix D, p. 358)

To expand the scope of the interview, the student was asked what aspects of the class that she had found to be more challenging during the semester. She remarked that learning repertoire pieces had been more difficult than other activities in the class. She remarked, however, that reductions of repertoire pieces had been important in her learning because they helped her to analyze the pieces better. She continued:

They helped me see the things the pieces was based on, like chords and scales. It was easier to see how the notes could be grouped into patterns that I could practice on my own. They helped me see what my hands needed to do. (Appendix D, p. 359)

The student was asked if it had made a difference in her learning when she had been given a reduction of a repertoire piece. She stated, “I like getting the reductions first, because you go into the piece knowing what to look for, or the things you are going to find.” (Appendix D, p. 359) The student also confirmed comments that she had made in earlier interview about the effectiveness of practicing short exercises containing elements that she

would encounter when using the score. She indicated that preparatory exercise were still important to her, but added:

If the piece is not too complicated, I liked starting with the music and practicing things in the music. But if it had a lot of different things to do in it, or specific kinds of technical problems, it helped to practice little exercises before trying to play the piece with the music. (Appendix D, p. 359)

To confirm statements that the student had made in previous interviews, the student was asked whether any of the activities in the class, or topics that had been discussed in the course, had affected her learning in her other music classes. She reaffirmed her earlier observations that she thought that her piano studies had improved her understanding of the things that had been presented in her regular music theory class.

The next portion of the interview focused on the student's preparation for the upcoming final examination. She was asked whether she had found particular aspects of the final examination materials to be more challenging than others. She commented that she thought that the improvisation portion of the test had been difficult for her to prepare. In describing the class presentations and activities that she thought had helped her to prepare an improvisation for the final examination, she stated:

When you gave us examples of what we could do, it helped. Also the time we went through the steps of making up an improvisation, it helped to watch you show is the way to choose notes that make a good phrase and then fill them out to make a melody. No one did that in my last semester class. They just showed us the chords we had to use and told us to make something up. I never really understood how to do it. (Appendix D, p. 360)

The student added that going through the steps of developing an improvisation in class had given her a way of experimenting with improvisation on her own.

In the final segment of the interview questions were posed to the student about the kinds of instructional presentations and activities that she felt had been most significant in her learning during the course as a whole. She restated her earlier comments about the importance of directed practice sessions during regular class periods. She stated that talking through such things as scales, arpeggios, chord progressions, and repertoire pieces had been an influential part of her learning throughout the course. She explained:

After we talk through things a few times, I can remember what you said to think about, or be sure to do, and then practicing on my own was easier, I think. (Appendix D, p. 361)

It gives me a way, or a procedure, to follow in my own practice. After we talked through things, I kind of know better what I need to do on my own.
(Appendix D, p. 361)

The student continued with a description of other things that she had found to be helpful in her practice outside of class:

Like I mentioned earlier, the scale handouts and the reductions for repertoire pieces helped me be more efficient in my practicing . . . and also it [they] helped me to know ways to practice. Once you showed us how to use the handouts, when I went to the practice room, I had kind of an idea of what I was going to do.
(Appendix D, p. 361)

The student added that her practice sessions outside of class had changed from what she had been used to doing. She stated that, "I didn't have any practice techniques, I don't think. I just opened the book and worked on the things that I needed to work on. I just sort of played through things a lot." (Appendix D, p. 361)

In a brief exchange about the pacing and structure of class periods during the semester, the student repeated her statements in previous interviews concerning her preferences for a quicker paced class that included directed practice sessions for a range of activities throughout the period. She commented that she thought that kind of class structure made the class "smoother," and that it had made it easier for her to concentrate. In the concluding moments of the interview the student made a series of comments and observations that seemed to summarize significant aspects of her learning experiences during the course:

I think talking about different ways of looking for things in the music and finding different ways to practice were the most important things to me about the class this semester. The handouts and things like that helped me a lot, as I mentioned before. I think it was more organized this semester than my first semester. Last semester we just went through different exercises and repertoire pieces and then had a test. Sometimes I didn't feel like I was making any progress. I did okay on the tests, I think, but I really didn't know if I was learning to play the piano any better.
(Appendix D, p. 362)

.....

I like to know what I'm doing and why. If the class seems too loose, I don't feel like I know where I'm going with it. I like to know what I need to do, and like to feel that, if I do these steps in my practice, that I'm going to get better.
(Appendix D, p. 363)

The student was asked if there was anything that had not been discussed during the

interview that she would like to mention. She indicated that there was not. She was thanked for her comments and willingness to participate in interview process of the study, and the interview was concluded.

Field-Independent Student Interviews

Field-Independent Learner #1 (FI-1)

Interview #1. (Appendix D, pp. 364-371) The first interview with FI-1 was conducted during the sixth week of the semester. In response to a series of general questions about his assessment of his learning experiences since the beginning of the semester, the student replied that he thought that the class had been going well for him, and that he had not found any of the course activities to be too problematic. He noted that he thought that the pacing and difficulty level of the class was moderate. The student also indicated that he found such things as scales, arpeggios, and sight reading activities relatively easy for him to accomplish. He commented, however, that the handouts that he had been given in class had helped him to see fingering and note patterns in the scales. When asked whether he thought that he would be able to find the same kinds of patterns in the notated scales without the use of the handouts, the student replied, "Yeah. I'd have to look at it for a second or so to figure out which finger to start on, but after that it would be okay. I think." (Appendix D, p. 365)

In a brief discussion of his practice outside of class, the student explained that he had a specific daily routine that he used. He commented that he usually began with scales, followed by progressions and other exercises, and then proceeded to repertoire pieces. In a description of his daily practice routine, he stated:

Well, every morning I warm-up on the piano and my horn at the same time. I play scales on the piano while I warm-up my mouth piece. That gets my fingers going for piano. I use my keyboard in my room to do little things off and on during the day. (Appendix D, p. 365)

Questions in the next segment of the interview focused on the class activities that the student found to be more difficult for him. He described learning repertoire pieces as having been somewhat challenging for him, especially hand coordination. He indicated

that he felt comfortable with repertoire pieces that required him to play block chords in the left hand and melodic figures in his right hand, but that playing different rhythms in each hand was more “tricky” for him. The student mentioned, however, that the repertoire piece, “Etude,” had been easy for him to learn because of the similarity of patterns in both hands.⁴ He described in-class chord blocking activities and the use of the reduction that he had been given as helpful in his learning to play “Etude.” The student stated that using the reduction had helped him to “visualize how to play the chords a little easier on the piano.” (Appendix D, p. 365) He noted, however, that he had used the reduction only a “couple of times” in his practice outside of class, stating, “after that, I pretty much had it memorized.” (Appendix D, p. 365) When asked to explain how the reduction had helped him to memorize “Etude,” he remarked:

I learned what each chord felt like on the piano about the second or third time I used it, and after that I could just look at the music and knew what each measure was going to feel like on the piano. (Appendix D, p. 366)

In the student next portion of the interview the student described his learning experiences in the study of chord progressions. He indicated that he thought that learning to play chord progressions was one of the easier activities of the course. He explained that, after playing through a progression “a couple times,” he was generally able to discover the pattern of note motions between chords and apply his understanding to transposing the progression to other keys. Although the student stated that he recognized the patterns of note motions between chords, he added that he usually thought of the “actual chord in the key” in which he was playing. He commented that he also used a “visualization technique” in his learning of chord progressions. He stated:

When I look at a chord progression, or a piece of music really, I try to visualize how my hands would play it and see it in my mind . . . the fingers that I would use and how it would feel. (Appendix D, p. 366)

.....

I try to visualize how I’d play them on the piano. Doing that helps me to look to connect what I see on the page with what it would be like to play it on the piano. (Appendix D, p. 366)

⁴Lancaster and Renfrow, 189.

In response to a question about the other kinds of class presentations or activities that had been of help to him in learning chord progressions, the student replied that he did not think that no one specific presentation had been of more help than others. He added, however, that finding similarities and differences between progressions that he had already learned and new ones had made his learning easier.

The interview continued with a general question asking the student to identify the kinds of class activities that he found to be important in his learning, and ones he thought that he would like to continue in the remainder of the course. He commented that he would like to do more regular work on “technique kinds of things” to develop finger dexterity, especially as they were related to repertoire studies. He added that he thought that he might “progress faster” if he were required to learn harder repertoire pieces that provided a greater challenge to his technical abilities. In response to a related question about the presentation and study of repertoire pieces in class, the student remarked that he preferred to start with the score of a repertoire piece from the beginning. Although he had found practicing some kinds of preliminary exercises helpful to him, he noted that finding things in the piece to work on and working on them in relationship to the piece made his repertoire studies more interesting.” He commented:

I guess one thing might be to have more challenging things to do rhythmically. I mean, most of the exercises and things are really basic. We’re music majors and we can read rhythms pretty well; otherwise, we wouldn’t be music majors. I think it would be good to have to do things that would be at the next level past quarter notes and half notes and eighth notes. (Appendix D, p. 367)

To uncover additional information about the student’s perceptions of his learning in the class, the student was asked to describe the things that he would include in a class period if he could design one to fit his learning needs. He disclosed that he thought that he would provide for more opportunities for individual practice in class on things that had been discussed:

I get things we talk about pretty easy. Usually, if it is something that I haven’t heard about before, it’s usually a matter of me just thinking it out for myself and deciding what I need to do in my own practice. (Appendix D, p. 368)

The student was asked whether or not he had found directed practice sessions helpful to him in his learning in general. The student explained that talking through exercises after

in-class presentations and demonstrations was not really necessary to him in his learning, and that he preferred to have more time on his own to apply what had been discussed. He noted, however, that directed practice in class had not been counterproductive. He stated, "I just like working on things on my own, especially if I already understand what I need to do." (Appendix D, p. 368) He added:

I prefer to work on my own, I think. I'd get it done faster, I think. I have my own way of working on things that I like to do that I know will get the job done. I can stay focused on the things that I need to work on if I work by myself. (Appendix D, p. 364)

The student described, however, how directed practice sessions had helped him with learning the patterns of fingerings and note motions in chord progressions. He explained:

I think talking us through the process as we're doing it a couple of times works the best. I like when we play one chord and then play the next chord and then try to visualize what we did to get there. That teaches me more than any other way how to think my way through a progression. After we've done that a couple of times, I pretty much can visualize how to do it in other keys. (Appendix D, p. 369)

The student was then asked if it had been important to him when learning chord progressions to discuss the patterns and concepts that he would find in a the progression before being given time to practice on his own. He replied:

I think that I'd learn the patterns better if I found them myself. I might have to look at it for a couple of minutes though, but I could find the patterns that I would need to know to play the progression. (Appendix D, p. 369)

.....

I think that I could learn it faster than going step-by-step. Maybe if you gave the people who wanted individual time a chance to work on their own, you could do a walk-through with just the ones who wanted it or needed it. (Appendix D, p. 370)

In the concluding moments of the interview, the student briefly described other changes that he would make in the class. He commented that he would increase the difficulty of the musical exercises and repertoire pieces:

I think I'd feel more motivated to work on things that were more challenging. It helps build my confidence to know that I have conquered a hard piece. I like figuring things out about the music I'm learning, and working to accomplish them. (Appendix D, p. 370)

When asked to describe the things that he looked in music, he explained:

I look for patterns and things that help me understand the music better, because that

give me ways to practice. Once I know what's there, I can usually apply different kinds of practice techniques to learn the music. (Appendix D, p. 370)

.....

That's the way I like working on music in general. My learning goes faster when I'm playing my own instrument, but I use the same kinds of things when I practice things on the piano. (Appendix D, p. 371)

The student was asked if there were any other topics that had not been mentioned that he would like to discuss. He indicated that there was not. He was thanked for his comments and willingness to be interviewed for the study, and the interview was concluded.

Interview #2. (Appendix D, pp. 372-381) Field-Independent Student #1 was interviewed again in the week following the ten-week examination. Questions were posed to him to confirm comments that he had made in the previous interview, as well as to uncover new information concerning to his learning experiences in the class. In his opening remarks the student indicated that he thought that his hand coordination and general technique had improved since the last interview. He attributed the improvement in his playing to the variety of technique exercises that had been used as warm-up exercises at the beginning of each class period. He noted that going through the warm-up exercises together in class had helped him to discover additional ways to work on technique and hand coordination in his own practice sessions outside of class. The student was asked whether talking through other playing activities together in class had been an important to him in his general learning in the course. He replied that talk-throughs had given him additional practice on exercises and repertoire pieces, but that he thought that he would have learned to play them as well if he had worked on them on his own.

Following the student's initial comments, the interview focused on the student's learning experiences in the class to prepare the various performance requirements included on the recent ten-week examination. He commented that, in general, he had not had much difficulty in the preparing any of the materials for the test, and that, "It all come together for me about a week before we had to take the test." (Appendix D, p. 373) He noted that the chord progression had been relatively easy for him. In response to a question about the class activities that he thought had helped him to learn the chord progression, he replied that

he did not think that there was any particular kind of presentation that was more helpful than another.

The student was asked if the handouts concerning the chord progression had been of help to him in his learning. (Appendix J) He commented that he had not needed them, and that he had not used them very much in his practice outside of class. He stated, "The diagram had a ton of stuff on it . . . there were no staff lines and a lot of arrows that didn't mean much to me." (Appendix D, p. 374) The student remarked:

It wasn't hard to figure out or understand what was there, but I just liked using the music. On the first couple of chords in the progression where only a couple of notes moved, it showed me things I needed to do, but when a bunch of notes moved at one time, it was easier just to use the music. (Appendix D, p. 374)

He added that, when he used the music notation, he could already see in the notes what needed to happen on the keys.

The student made similar comments and observations about his learning of the scales and arpeggios that were required on the examination. In a description of his practice of the scales, he stated:

They just sort of fell into place as I practiced them. I mean, I didn't even look at the sheets that you gave us with the fingerings on them . . . except when we used them in class. I just played the scale and the fingerings just fell into place as I played them. (Appendix D, p. 374)

He added that, in his practice, he had identified fingering patterns and note groups in the scales by finding the notes that required the use of the thumb. In his study of the arpeggios, the student explained that he had used a similar procedure, but that he had briefly used one of the handouts as a references in the learning fingering patterns for them.

The interview continued with a discussion of the student's study of the repertoire pieces, "Hardly Raining," and "The Harpist." The student stated that he thought that both pieces had been easy for him to learn, and that he had not had any particular problems with them in his practice. In "Hardly Raining" the student described the greatest challenge to him had been moving blocked seventh-chords in opposite directions to right hand motions, and coordinating syncopated notes in the right hand melody with the left hand chords. When asked to explain how he had solved those problems, he stated:

Basically, I looked at the [left hand] whole chord, and once I got the feel of it, I

just memorized what it looked like on the keyboard. Then I could transfer that to the other chords that were the same shape. (Appendix D, p. 376)

In "The Harpist,"⁵ which contained a series of arpeggiated seventh-chords, the student remarked that he had been able to see the individual harmonic units easily, but that, if had not seen a particular seventh-chord unit, he had been able to hear it when he played the notes.

The topic of the interview was changed to explore the kinds of practice techniques that the student had used to prepare of the sight reading portion of the recent ten-week examination. In the ten minutes that he had had to rehearse the example, he commented that he had looked for note and fingering patterns, practiced hands alone, and then out them together slowly. He noted that the patterns had been easy to see, and that he thought that he had been able to learn the example quickly.

In a brief exchange about the student's study of the chord progression included on the recent examination, he noted that there had been fewer directed practice sessions in class than in the class sessions prior to the first examination. When asked how he thought that had affected his learning, he stated:

It helped when we did the progression for the first test every day a little bit in class. I know that the progression we just had is real close to the one we did earlier, and it wasn't all that difficult to learn, but it helps if we go through it for, say, five minutes right after we warm up each day. That's better, say, than working on it for fifteen minutes every other day, I think. (Appendix D, p. 377)

The next questions posed to the student were used to confirm information that he had given in the previous interview about his practice routine outside of class. He confirmed his earlier statements that he had a specific regular routine in his practice sessions outside of class. He explained:

Well, I use the piano in my warm-up routine for my instrument. I'll play a scale on the piano and then on my instrument, and then maybe an arpeggio on the piano and then I'll play it on my horn. (Appendix D, p. 377)

.....

⁵Lancaster and Renfrow, 266.

Well, most of the things that I learn and have to practice in piano are also the kinds of things, like scales and arpeggios, that I have to learn on my horn. So, they kind of compliment each other. When I work on a scale in piano, I play it on my horn, and the same thing for arpeggios and broken chord patterns. (Appendix D, p. 377)

The remainder of the interview contained questions that asked the student to reflect on the activities that had been included in the class to date, and to describe what he would change about the class, and/or the kinds of instructional activities that he would like to have continued in the next section of the course. Although he said he thought the class was going well for him, he stated that he would probably increase the amount of class time spent on technical studies to develop dexterity. He commented that the pace of the class was generally good, and that working through things in class had been helpful to him. He noted that, after directed practice sessions in class, he did like the times that he had been given a few minutes to practice on his own before moving on to the next topic.

During the course of the discussion, the student mentioned that he would also include working on more repertoire pieces rather than isolated exercises. He explained that he thought that repertoire pieces offered a more realistic challenge and greater opportunity to develop playing skills that he would need in his career as a teacher. To uncover additional information about the student preferred working on repertoire pieced, he the student was asked if there had been specific instructional activities that had been more helpful to him than others. He commented that he liked starting with the full score, analyzing it to find specific challenges, and working on various aspects of sections of the piece before putting them together. The student was asked whether the reductions of the repertoire pieces that had been studied in the class had been helpful to him. He stated:

I really didn't use the reductions very much. I mean, like in the piece, "Etude," that we did at the beginning of the semester, it really didn't matter very much if I used the music in the book or the sheet of blocked chords. (Appendix D, p. 379)

He explained that the reductions were not necessary for him to see or find patterns of notes or chords in music. He added that, in his practice, finding patterns of notes and fingerings was easy for him, and that he was able to memorize them quickly. When asked if using the key/note visualizer to identify different patterns and talking through them together in class had been helpful in his learning, he replied:

Well, not particularly. I mean, it's a good thing to do maybe, but I can usually see the patterns that I need to practice, so I like to practice it on my own first. And then, if I have a problem, I can ask about it. I'm pretty independent when it comes to learning. I like figuring things out on my own. (Appendix D, p. 379)

The interview continued with brief discussion about whether piano studies had been helpful in the student's other studies in music. Although he restated his previous comment that his theory and piano studies generally complimented one another, he remarked that he thought that his theory studies had influenced his piano studies more. He indicated that his work in theory classes related to understanding and using chord symbols had been helpful to him in chord progression studies in the class. He noted, however, that learning to play chord patterns and progressions was not as important to him as learning repertoire pieces that improved his playing ability. The student commented that he thought that memorizing the patterns in isolated chord progression would not be as useful to him as learning to play accompaniments for his future students, and creating different accompaniment patterns from chord symbols would be a more realistic goal for him to achieve. He explained:

... everything in music is basically some kind of pattern, and the more patterns I know and can play will help me with pieces or things that I might have to do later on. (Appendix D, p. 381)

Before concluding the interview, the student was asked if there were other topics that had not been discussed that he would like to mention. He replied that there were not. The student was thanked for his comments and participation in the study, and the interview was ended.

Interview #3. (Appendix D, pp. 382-389) The third interview with FI-1 took place during the last week of regular classes in the semester prior to the final examination in the course. Questions that were asked during the interview were designed to confirm information and comments made by the student in previous interviews, and uncover any new information about his learning experiences in the class since the last interview. In his opening remarks, the student commented that he thought that the class had gone well for him, and that the technical exercises that had been included in the class since the last interview had helped him "get his fingers better organized." The student commented that he still found learning repertoire pieces to be a challenging part of the course, but that they had been helpful to him in the development of his general technique. When asked to

describe how he worked on repertoire to improve his playing, he explained, "I usually look for patterns, like scales, chords, things like that, and try to make sense of what's in the music as I practice it." (Appendix D, p. 382)

The student was asked to reflect on the semester and describe the class activities or presentations that he thought had been important in his learning, as well as the things that he might add or change. He remarked that class discussions and presentations followed by short individual practice periods had often been more meaningful to him than instructor-led directed practice sessions. He explained that it had been important for the instructor to identify and review important points (ie. hand positions, fingerings) to consider for later practice, but that he had often thought about the musical examples from a different perspective than what was being explained in group directed practice periods. In a description of a specific instance related to chord progression studies, he stated:

Sometimes when you talked to us over the headphones, telling us which finger to move and how far, it kind of bothered me, because I was thinking about it in a different way. (Appendix D, p. 383)

.....

I'm thinking in the key we are playing in. I know that there are patterns to the progression, but to me they're a pattern within the key signature. (Appendix D, p. 383)

In response to a question about how he learned a chord progression, he indicated he usually thought about the specific harmonies that he was playing. He explained:

I mean, I don't memorize progressions by half-steps or whole-steps. I think about the chord I'm on and what notes I need for the next one coming up. (Appendix D, p. 382)

.....

... in the progressions we have done, some of them are in minor and others are in major, and you need to know when to use the raised-sixth, say, or the raised-seventh. It works better for me when I know the harmony, or chord, that I'm trying to play. (Appendix D, p. 382)

The student commented that he thought that his theory studies had helped him to analyze the harmonies in chord progressions and develop the practice techniques that he used.

The topic of the interview returned to the student's experiences in learning repertoire pieces. During the conversation, he confirmed statements that he had made

in the first and second interviews concerning the kinds of presentations that were effective for him. He remarked that he still preferred starting new repertoire pieces from the score and finding specific things in the music to practice rather than practicing a series of preparatory exercises. The student noted that the preliminary exercises that had been practiced prior to studying “The Harpist”⁶ and “Chromatic Rag,”⁷ had been good for general technique, but that they were different from the ways that individual elements were written in the score. He stated:

... when we did the seventh-chord exercises before we started “The Harpist,” they were good to do maybe, but not all of the seventh-chords that we played were in that piece, and they weren’t written the same way in the music.
(Appendix D, p. 384)

.....

... like in the “Chromatic Rag,” I can sit and play a chromatic scale, but I can’t play the “Chromatic Rag” even though there were chromatic scale parts in it.
(Appendix D, p. 384)

The student explained that he had been able to see the patterns of seventh-chords in “The Harpist.” and the chromatic units in “Chromatic Rag,” but that his primary concern had been determining the specific fingering patterns that he needed to perform the score. The student was asked whether the reductions of repertoire pieces that he had received in class had been useful in his learning. Although he remarked that he knew the purpose of using the reductions in class, he stated that he had not used them very much in his practice outside of class:

I basically used them as a reference sometimes. I could see the chords in the piece itself, and if I needed to work on a finger pattern or hand position, I’d just block them from the music. (Appendix D, p. 384)

As the discussion continued, the student made similar observations about his learning of scales. He indicated that handouts and in-class presentations that focused on identifying note and fingering patterns in scales had “helped a little.” He added, however,

⁶Lancaster and Renfrow, 189.

⁷Ibid., 320.

that he already felt comfortable with knowing the note names of individual scales, and that he was more successful at finding fingering patterns by playing the scale himself. The student explained that, when he practiced scales, he watched for the places in scales where the thumb was used to begin a new pattern group and then practiced the patterns he had discovered.

The questions asked in the final portion of the interview were used to confirm earlier comments that the student had made about the instructional presentations and activities that he had found to be helpful to him the course. During the discussion, the student reaffirmed the important role that technical studies and learning repertoire pieces had played in the development of his keyboard skills in the class. He commented that he thought that most of the course activities had been relevant to how he thought that he might use the keyboard in his career as a teacher, especially two-hand accompaniments and reading chord symbols.

In response to questions about the types of presentations and instructional activities that had been helpful to him in the course, he stated that no specific kinds of instructional methods had been more meaningful than others. He noted, however, that being given short individual practice periods after discussions or presentations had been important in applying what he had learned. The student commented that directed practice sessions in class had been helpful sometimes, but that he preferred to practice on his own and concentrate on the things he needed to work on in specific playing activities. When asked whether directed practice sessions had ever been counterproductive to him in his learning, he stated:

It didn't bother me, but I really didn't need it. . . . sometimes I really didn't listen to what you were telling us over the headphones. I just went ahead and practiced what I needed to do in the exercise or piece. (Appendix.D. p. 386)

In a description of the instructional methods that the student thought had been helpful in the study of repertoire studies, the student reconfirmed his earlier comments. He remarked:

I like breaking them down into sections and working on parts, or sections, first. That's part of practicing I think. I don't like looking at things as a whole first. I like analyzing different sections of the music to find things to work on, and then put it all together after they are in pretty good shape. (Appendix D. p. 386)

As the discussion continued, the student was asked if discussions and directed practice sessions in class had helped him to find and identify important patterns in repertoire pieces.

He stated:

No. You're going to find those things in the piece as you go along anyway, so I think it's better for me to just start working on the piece. Knowing things about theory takes care of the discussion part of things for me. (Appendix D, p. 387)

The student added, "When I see something in the music, I can practice it the way it's written there, instead of working on an exercise type of thing that I might never find in the piece." (Appendix D, p. 387)

To explore the student's reactions to the MIDI technologies that had been used to support repertoire studies, the student was asked if the MIDI disks had been helpful to him in a particular way. He noted that they had been useful in providing him with an aural model of pieces that he was not familiar with, but that playing along with the accompaniments had not been effective until he had learned the specific repertoire piece. He stated, that, while he was learning a repertoire piece, he need to focus on his playing. The student indicated that using the MIDI disks to play in a steady tempo was had not been important to him, because:

I can pretty much keep a steady tempo on my own. If I can't, it's that I'm having a problem with notes or fingerings that I need to work on myself. (Appendix D, p. 388)

When asked how he might use the MIDI disks or sequencer in his practice if he had access to them, he stated that he might use it to record repertoire pieces that he had finished to evaluate his playing, make his own arrangements of pieces, and record improvisations. Although the student indicated that he might use the MIDI disks and equipment in some ways in his practice, he noted that using them had not been an important part of his learning in the class.

The student was asked if there were topics that had not been discussed that he would like to mention. He indicated that there was not. The student was thanked for his participation in the study, and the interview was concluded.

Field-Independent Learner #2 (FI-2)

Interview #1. (Appendix D, pp. 390-397) Field-Independent Learner #2 was interviewed during the week following the five-week examination in the course. In his opening remarks, the student stated that he thought that the course had been going well for him. He commented about the differences in the way the class was being conducted compared to the Group Piano Level I course that he had taken in the previous semester. He noted that the present class had included more in-class repetition and practice on particular activities. He explained that this had been especially important to him in his study of scales and repertoire pieces in the class.

In a discussion of the kinds of instructional activities that had been helpful to him in scale and arpeggio studies, the student mentioned that the handouts that he had received. He commented:

Those handouts were nice . . . the ones with the the notes of the scale written out . . . and going through them in class and figuring out the fingerings for each one. It's a lot easier to use the sheets than to find the scale in the book. (Appendix D, p. 390)

The student noted that using the scale handouts in class to play through the scales and identify note groups and fingering patterns had been helpful to him in learning how the scales felt on the keyboard. He stated:

Once you've gone over them a few times and you know how your fingers cross over, or what that scale feels like, you can, even if you don't think of it consciously, you can remember. "Oh yeah, that feels familiar." (Appendix D, p. 390)

When asked if directed practice sessions in class had helped him in any particular way, the student remarked:

Talking through the scale, at least a couple of times helped, but after that, I pretty much had the patterns down, so I guess I didn't need the talk-throughs all the time. (Appendix D, p. 391)

The student added that, even though he did not think that he had needed regular directed practice sessions in class for scales and arpeggios, he stated that they were extra practice for him.

In a discussion of the different ways that repertoire pieces had been presented and studied in class, the student commented that he preferred to start with the full score of a

repertoire piece and find things to work on. He explained:

If you find something that gives you trouble, you can maybe work on an exercise to help you with the technique. You really don't need an exercise for every little thing. Some things you just get by doing them. (Appendix D, p. 391)

In response to a group of questions about the student's learning experiences related to the repertoire piece, "Etude," the student replied that playing the notes in each measure of the score as a blocked chord in class had helped in his practice.⁸ He stated:

I liked blocking out the chords. That's pretty much how I learned the piece. After I had the hand positions, it was a little easier to think of the chords, and then, I just ran the chords the way they were written. (Appendix D, p. 392)

The student was asked if the reduction of "Etude" had been useful to him. He remarked:

I used the reduction instead of the score most of the time. The rhythms in each measure were all the same, so it was easier to just look at the chords on the sheet. (Appendix D, p. 392)

When asked if he thought that having reductions of repertoire pieces before looking at the full score would be important to him in future repertoire studies, the student stated that it might be "nice" to have one at the beginning of some repertoire studies, but he added that he did not think that it would be necessary for every piece. The student noted that the reduction of "Etude" had helped him to memorize that piece quickly. He stated:

I almost had it memorized the second or third time I played it from the reduction. I just thought I have this chord . . . and then this chord..then this chord. I think that if I had the score, I'd be thinking of each individual note. With the reduction, I just think, "I have this chord and I'm going to just play the notes." (Appendix D, p. 392)

The student added that using the reduction of "Etude" had made it easier for him to see specific triad patterns in the broken chords in the score. The student was asked if he would have been able to find the same patterns if had not been given the reduction. He replied:

Yeah, I think so. The reduction just made it easier. It saved me some time in my practicing. . . . I usually just jump in and find the patterns as I'm practicing the music. (Appendix D, p. 392)

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⁸Lancaster and Renfrow, 189.

Most of the time, I like to start on my own and then if I have questions about how to work on something, I can just ask. But, if the piece has a lot of things that I haven't seen before, it helps to talk about them a little before, just to be sure I know what I'm supposed to look out for. (Appendix D, p. 393)

In a brief exchange concerning the pacing of the class, the student stated that he thought that it was fine, and that the number of topics discussed in any one class periods was not an important factor in his learning. He noted, however, that he thought that he would prefer to spend more time working on repertoire pieces in class, rather than exercises or skills. He explained that he felt comfortable with working on general keyboard skills on his own.

The topic of the interview was changed to explore the student's learning related to chord progression and sight reading studies in the class. The student commented that the handout containing an off-the-staff diagram of the progression on the recent examination had been helpful to him. He stated:

The little diagram helped me. It showed me how the notes moved from one chord to the other. Looking at the music . . . the way it is written out in the book, it was a little intimidating at first. It was easier to learn it seeing how the notes moved, and also being talked through it a couple of times helped out. (Appendix D, p. 394)

Although the student noted that directed practice sessions in class had been meaningful to him in the early stages of his learning of the progression, he stated, "Once I have the pattern in my head, I can do it on my own." (Appendix D, p. 393)

In his comments about the sight reading activities in the class, he remarked:

It's starting to get to the point where I can see patterns pretty easy. The chord kind of things are starting to jump out at me when I look at the music. I can see inversions now pretty fast and even seeing the range of the notes, like in the melody, are getting pretty easy. (Appendix D, p. 394)

The student attributed his developing ability to see different kinds of patterns in music to in-class practice at looking for them. He commented:

Once I know what to look for, it is pretty easy to see things like chord patterns, or note patterns in the music. Like when we practiced that one day on recognizing the shape of different inversions of triads, it was easier to just look at the shape of the notes and know that that was "x" inversion. (Appendix D, p. 394)

In the next portion of the interview, the student was asked to describe how using

the key/notevisualizer in class has affected his learning in the class. He commented that it had helped him in chord progression studies. When asked to describe how the key/note visualizer had been used to help him, he stated, "I think seeing you do it and then letting me practice it on my own worked best for me. That way I can think through what I need to do myself." (Appendix D, p. 394) In a response to a similar question about the use of the visualizer in scale studies in class, he replied:

... seeing the note groups in scales when you do it on the visualizer helps me see the patterns better when I practice scales. It still helps at the beginning to have you talk through it a couple of times, though. (Appendix D, p. 395)

The student explained, however, that he did not have too much trouble identifying note groups in particular scales, but that, in his practice, he focused more on working out fingering patterns.

The student commented that his studies in music theory had helped him with finding different kinds of patterns in music that he could apply in his practice outside of class. He also stated that piano had influenced his work in music theory. He remarked:

Yeah, especially when we talk about four-part harmony kinds of things in theory. I can visualize the keyboard now and kind of know what that harmony would feel like on the piano, or what it might sound like if I played it. It even had helped with knowing the quality of triads, like major and minor, augmented and diminished. When I see them written, I can think of how it would feel to play them and know what my fingers would feel like. (Appendix D, p. 395)

In the final segment of the interview, the student was asked to describe the kinds of activities and presentations that he would include in an ideal class period. The student commented that he would begin the class period with scales and arpeggios to warm up, and then move directly to repertoire pieces. He explained that he thought that the skills activities were easy to understand, and that, once the basic understanding was there, they could be practiced outside of class. He stated that he thought that repertoire pieces contained more complex challenges, and that more time should be spent in class working on the technical skills needed to play different pieces. When asked if it would also be helpful to him to spend time discussing and identifying the patterns in the music, he stated, "Yeah, at first, but I can usually see things like chords and scales, but I don't know sometimes how to go about playing them with the right, or best, fingering. (Appendix D, p. 396) He continued, "Once you know what to look for, analyzing is pretty easy. It's the

learning how to play a piece that takes time, I think.” (Appendix D, p. 396) The student noted that he thought that directed practice sessions at the beginning of repertoire studies might be good to do, but that it might work better for him if discussions and presentations were interspersed with short individual practice periods.

To conclude the interview, the student was asked if there were topics that had not been discussed that he would like to mention. He replied that there were not. The student was thanked for his participation in the study, and the interview was concluded.

Interview #2. (Appendix D, pp. 398–407) The second interview with FI-2 was conducted in the week following the ten-week examination in the course. In his general comments about his learning experiences in the class since the last interview, he stated that the class was continuing to go well for him, and that he had not had any particular problems. He noted, however, that the chord progression that had been required on the recent examination had been challenging for him to learn and prepare. He explained that he was not able to pin-point why the progression had been difficult for him, but that he had experienced problems with fingerings. The student was asked to describe the class activities or presentations that had helped him to learn the chord progression. He commented that, when he worked on chord progressions, he concentrated on identifying patterns of note motions between chords and fingering patterns, and that the handout with the off-the-staff diagram of the progression had been more than anything else. He added that the written list of steps to perform the progression that was included on the same handout had also been helpful to him.

The interview continued with questions about the student’s learning of the scales and arpeggios that were required on the five-week examination [major scales and arpeggios beginning on black keys]. The student explained that in scale and arpeggios studies, he focused on identifying note and key groups that began with the thumb. The student was asked if there had been any kinds of class presentations or activities that had been helpful him in scale and arpeggio studies. He noted that he remembered the handouts that had been given to him, but stated that he did not consider them to have been an important part of his studies. He indicated that he learned the fingering and note patterns in scales and arpeggios by playing through them to find groups that began on the thumb.

The next portion of the interview focused on the student's learning experiences and practice techniques associated with repertoire studies in the class. In the course of the discussion, the student stated that he usually began his practice of repertoire pieces by looking for patterns of notes that represented hand position on the keyboard. He noted that in-class discussions identifying hand positions had been helpful to him, but that he could usually find those on his own. In response to a question about whether the reductions of repertoire pieces that he had been given had helped him to recognize chord patterns in the music, the student replied:

Yeah, that helped. It makes it easier to see it and think of it as a chord than to see it and think of it as four notes. . . . And it helps to make it easier to memorize. It helps to think of a group of notes as a chord. (Appendix D, p. 400)

The student added that he had used the reduction of the "The Harpist" more than the score, and that the blocked versions of that piece and others had improved his ability to see past non-harmonic tones when he looked at the score to find the fundamental harmony in a measure or group of notes. When asked about the kinds of class presentations that had been helpful to him in repertoire studies, the student stated that directed practice sessions had been useful, but that he usually preferred to be reminded of the important things to remember about the repertoire piece, and then be given a short practice period to work on his own.

The interview continued with a brief discussion the sight reading portion on the recent examination. The student described the steps that he had used to learn the sight reading example in the ten minutes that he had been given. His description indicated that he had a specific procedure that he used to prepare the sight reading example. He stated:

First, I went through the melody and looked for places where the hand position was going to change, looked for triads, stuff like that. . . . And then I did the same with the left hand, and looked for places where I was going to have to move my hand, or where the chord changed . . . what it did, what happened, what moved up, what moved down. Then I played each hand separately two or three times, and then tried to put them together. (Appendix D, p. 401)

As the student continued, he noted that the most challenging aspect of sight reading, as well as repertoire pieces, was hand coordination. He indicated, however, that he thought this part of his playing was improving, and described a "break through moment" in his development of hand coordination:

Once, when I was playing “Fandango,” I was struggling with playing the melody with the Alberti bass. It was sort of start-and stop. But all of a sudden it just happened, both hands just came together. (Appendix D, p. 402)

In his explanation of how that might have happened, he stated, “I think that I knew the patterns in each hand so well. I mean they were kind of automatic, that eventually it just all come together.” (Appendix D., p. 403) The student noted that it might have been beneficial to him to practice various accompaniment patterns in class until they were more or less automatic so that when he encountered them in repertoire piece he would know what they were supposed to feel like.

The topic of the interview returned to repertoire studies in the class and the instructional approaches that had been meaningful to the student. He reaffirmed comments that he had made in the first interview about beginning with the score instead of working on a series of preparatory exercises. He stated:

... even though you might work on scales and other things by themselves and you know that it might help you in a piece, you really don’t see exactly what it related to. I think it is much more meaningful ... and it sticks with you more ... if you have context from the beginning. (Appendix D, p. 403)

.....

... if you had a scale to learn in a song, it would be a lot more fun to practice it for the piece than if you were just practicing the scale by itself. You have some sort of goal ... I mean, if it is part of the song, you think that, if I’m going to learn this song, I need to learn it like this. (Appendix D, p. 403)

To expand the discussion, the student was asked to describe other things about the class that he thought had been important to him in his learning. He replied that the reductions of repertoire pieces, as well as the handouts that he had been given in chord progression studies, had been meaningful to him. He commented that reductions had helped him to think of individual notes as “one thing, like a chord,” and that they had been important aids to memorization. He remarked:

I think I’m more of a visual person when it comes to memory, but if it is just learning where the chords are, I don’t think it makes much difference to me. I mean, I can see them in the music. (Appendix D, p. 404)

The student also commented that he thought it was more effective in his learning to discuss the important elements of a repertoire piece using the score first, and then use the reduction

as a reminder of what he already should know about the music.

The remainder of the interview was used to confirm some of the statements and observations that the student had made earlier in the interview. In his comments about the instructional methods that had been used in practicing sight reading in class, the student remarked:

I think it is better to do examples in a lot of different keys to get practice in seeing things once and just doing it. For me, if I do a lot of pieces in one key, I get lazy and don't think as much. I like the challenge of having to play in a different key each time. That way, I have to think about and look for different things each time. (Appendix D, p. 405)

The student also reaffirmed his comments about the importance of being given short individual practice periods throughout class meetings to apply what had been discussed in presentations. In his remarks about the general content and structure of the class, the student restated his belief that working on more repertoire pieces and the specific ways to go about learning them was more practical and realistic than mastering groups of skills out of context. He noted that discussions and presentations designed to find and identify various kinds of patterns in music had been helpful to him, but that he usually did not have difficulty in seeing them in the music himself. The student commented that being able to see patterns in the music that he was studying reduced the amount of practice time he needed to accomplish a piece of music, and that it had helped him to develop more interesting ways to practice the music on his own.

To conclude the interview, the student was asked if there were any other topics related to his learning experiences in the class that he would like to mention. He indicated that there were not. The student was thanked for his participation in the study, and the interview was ended.

Interview #3. (Appendix D, pp. 408-414) The final interview with FI-2 was conducted following the final examination in the course. In the interview, the student was asked to reflect upon his learning in the class throughout the semester and describe the kinds of class activities and presentations that had been meaningful to him. Questions were also posed to the student to confirm information that he had given in the first and second interviews. In his opening remarks, the student stated that he thought that his

general keyboard skills had improved during the semester, noting that repertoire pieces and other playing activities in the class were easier to do and required less time to accomplish.

When asked about the kinds of things that had helped him with scales and arpeggios, the student commented that the handouts used in the last section of the course containing keyboard diagrams and circles to indicate the notes of the scales had been effective for him. He explained that they had been useful to him in seeing the key and fingering patterns that were important in performing specific scales. Because the keyboard diagrams on the handout resembled the kinds of visual information provided on the key/note visualizer, the student was asked whether the visualizer had also been helpful to him. He stated that both had been effective in showing him the patterns that he needed to perform the scales that had been studied.

In a discussion of repertoire studies, the student restated the important role that reductions had played in his learning. He stated:

... th[ey] kind of got me to where I think about it even if I don't have it right in front of me. It's gotten me to where I can look at a measure and see the notes that form patterns that help me to practice. (Appendix D, p. 408)

In a remark about how reductions had affected his practice outside of class, the student commented, "Once I understand the pattern, I pretty much get to the point where I don't need to look at the music much. I just remember the patterns." (Appendix D, p. 409)

The student noted that being able to find patterns in music had also helped him with the sight reading portion on the recent final examination:

... I didn't have to struggle as much to get it so I could play it. I saw the chord patterns in the left hand and the hand patterns, or how the melody notes were grouped in the right hand, pretty fast. (Appendix D, p. 409)

The student added that recognizing patterns of notes in music notation also helped him to see patterns of keys on the keyboard that made his practicing more effective. In chord progression studies, he explained that the off-the staff diagrams that he had been given to him on handouts had been more effective for him in finding these kinds of patterns in the music and on the keyboard.

The remaining portion of the interview was an extended discussion about the

changes that the student would make and the kinds of things that he would include in the course to fit his particular needs as a learner. He restated comments that he had made in previous interviews about spending more time learning and working on repertoire pieces:

I think I would concentrate more on repertoire, like, you know, learning a song. You sit down and look at a song, analyze it, and say, "Oh, here we have a scale. Let's play the scale. And then, "Here we've got this arpeggio in this key, so let's play some arpeggios." I think I learn a lot better when I see how it's related to what I'm going to be doing, as opposed to learning some abstract concept that I'll use later. (Appendix D, p. 410)

.....

I think it is more of a motivational thing. I mean, if I have a reason to learn something, I'm going to learn it quicker, than if it is something that I'm going to need for a test sometime. (Appendix D, p. 410)

.....

I think that I would include [keyboard skills], but do it, or study those things, in the repertoire pieces. I mean, I don't know how it works for other people, but I may be able to play all the scales or arpeggios in the world, but, if I can't do them in the context of a piece, those things are not as relevant to me. (Appendix D, p. 411)

The student continued that, when working on repertoire pieces in his ideal class, he would prefer spending a few minutes discussing specific aspects of a repertoire piece, and then be given a few minutes to work on his own. He added, however, that talking through repertoire pieces in class was also helpful, especially when beginning a new piece. In addition to learning repertoire pieces, the student restated the importance of learning skills that he thought he would be more likely to use as a teacher, such as reading chord symbols and creating accompaniments.

The student was asked if any of the technologies that had been used in the class had been important to him in his learning. In addition to the handouts, he stated that the visualizer had been an effective part of class presentations. He explained:

Sometimes just hearing about something, like finger patterns, doesn't translate to the keyboard easily, especially if you haven't had a lot of piano studies. It's kind of nice to see it and hear it at the same time. (Appendix D, p. 412)

The student noted that the key/note visualizer had been particularly important to him in chord progression studies:

When you demonstrated the progression on the visualizer and I just watched, it

helped me see relationships better. I kinds of knew better how the notes should move when I played them. (Appendix D, p. 412)

In scale and arpeggio studies, the student repeated his earlier comments about the effectiveness of the handouts containing keyboard diagrams. He noted that he thought that they had been helpful to him because they were “more concrete...more like the real thing.” (Appendix D, p. 394) When asked if he thought that he would have been able to learn the scales and arpeggios as well if he had not been given the handouts, he stated that he thought that he would, but that the handouts had made learning them easier.

In his final remarks the student described how he thought he learned and the things that were important to him. He stated:

... I like focusing on the knowledge kinds of things and the things that will help with practicing outside of class. I mean, with only an hour class three times a week, learning most of the physical kinds of things we're going to have to do on our own in practice. The knowledge, or understanding, and musicality things I think are important to talk about in class, because it would be harder for me to tell if I'm understanding things right without some help form the teacher on that. (Appendix D, p. 413)

The student added that talking about musical concepts and how they related to keyboard studies had had a significant effect on his learning in his other music studies, especially music theory. He stated:

I think it has helped me in my theory a lot. It has given me a more concrete way of understanding things in theory that just looking at the music on the staff. I can kind of picture things that we talk about in theory on the piano and that helps out. (Appendix D, p. 413)

The student was asked if there was anything about his learning experiences in the course that had not been discussed that he thought was important to mention. He stated that he did not think so. After the student was thanked for his willingness to discuss his learning in the class and his participation in the interview phase of the study, the interview was concluded.

Field-Independent Learner #3 (FI-3)

Interview #1. (Appendix D, pp. 415-421) The initial interview with FI-3 was conducted in the week following the five-week examination in the course. At the beginning of the interview the student stated that she was pleased at how well the course had been

going for her, and that she thought that she was doing better than she had in the previous semester. In her description of the class activities that she found challenging, she remarked that playing chord progressions had been difficult for her. She explained that she was not sure why chord progressions had been difficult, but she theorized that perhaps she was not able to process the notation fast enough. In response to a question about whether there had been any activities that had helped her to improve her learning of chord progressions, she replied that the handout containing the step-by-step list of actions needed to perform the chord progression on the recent examination had helped her. (Appendix J) She stated, "That made sense to me." (Appendix D, p. 415) She explained that the procedural list had helped her to learn the pattern of fingerings needed to perform the progression.

In scale and arpeggio studies, the student stated that she had also used the handouts to develop fingering patterns to play the scales and arpeggios required on the examination. (Appendix J) She noted that, while the handouts had been helpful to her, she thought that she could have found the same patterns if she had used only the notated versions of the scales and arpeggios in the textbook. In a description of how she used the handouts, she stated that she often drew boxes around fingering groups that began with the thumb.

In her learning of the repertoire studies in the course, the student stated the reductions had been helpful to her. She remarked:

Like in the song, "Etude," once I played through the blocked version, I could generally remember what the chords felt like and then I just played the notes one at a time like they were written in the music. (Appendix D, p. 417)

The student added that she thought that using reductions to study repertoire pieces had also influenced her learning in other activities in the course, such as sight reading. She explained that, "I'm starting to see more patterns in the music when I look at the examples we have done." (Appendix D, p. 417)

The next portion of the interview was an extended discussion about the kinds of instructional approaches and activities that had been meaningful to the student in the first section of the course. She commented that directed practice sessions had been helpful to her in finding useful fingering patterns to perform scales and chord progressions. She noted, however, that after two or three directed practice sessions, she felt that she could probably "do the rest on her own." The student made similar comments about the use of

directed practice sessions in repertoire studies:

Going through [repertoire pieces] together is good, at least a couple of times. After that, I guess practicing on my own would be okay, too. I don't okay if I'm just turned loose after I understand what I need to do. (Appendix D, p. 418)

In other comments about how repertoire studies had been introduced and studied in the class, the student stated:

Sometimes doing preliminary exercises is helpful, but I usually like to start with the music right away and find things in the music that I have to work on, and making, or finding, exercises that will help me play the piece better. (Appendix D, p. 418)

.....

I like blocking things out first where you can. I also like taking short sections of the piece that might have similar things to do and working on getting that section down and moving on to the next section. (Appendix D, p. 420)

In response to a related question about the balance in the class between repertoire and keyboard skills studies, the student replied that she would prefer more repertoire studies, but that she also recognized the importance of learning general skills that she would use in her teaching. In the conversation, the student remarked that working on keyboard skills had affected her learning in music theory. When asked how, she stated, "Oddly enough, things like chord progressions have helped me with dictation in theory." (Appendix D, p. 401) She continued:

Playing progressions, like the cadences in both hands, has helped me hear the bass line better when we do them in dictation. I don't know why it has worked that way, but it has. (Appendix D, p. 420)

.....

I think that I recognize things in music faster when you talk about note groups and hand positions or fingering patterns. Before, I pretty much looked at music one note at a time. I mean that I understood from theory that notes sometimes form chords and things, but I wasn't used to looking at music that way. I think that I am getting better about seeing things in the music and working out ways to play them on the piano; whereas before, I'd probably just try to plunk it out note by note. (Appendix D, p. 420)

In her final comments, the student repeated her feelings of satisfaction with the way that the course had been going for her, and that she thought that the class activities had helped her to play better and had improved her practice outside of class.

The student was asked if there were any other topics related to her learning

experiences in the class that she wanted to mentioned. She stated there were not. The student was thanked for her willingness to participate in the study and the interview was concluded.

Interview #2. (Appendix D, pp. 422-428) F1-3 was interviewed the second time during the week following the ten-week examination in the course. The student expressed her satisfaction with the course and surprise at her progress in the class. She stated that she thought that her hand coordination had improved very much. She attributed this to the study of repertoire pieces and sight reading studies in the course. She stated:

You have given us a lot of things to sight read and that helps . . . especially the things that you have handed out to us to read. Last semester we pretty much just sight read the little examples in the book. (Appendix D, p. 422)

The student added that she thought that the sight reading activities in the class has also improved her sight reading in her private lessons. She explained that she thought her improved sight reading skills had been largely due practicing more in class. In a discussion about the kinds of techniques that she used to prepare the sight reading portion on the recent examination, the student stated that she looked for patterns and the shape of things she found in music. She remarked:

I found the shape of the chords and how they felt and how they moved from one to the other . . . the hand positions . . . and the scales. I mean the note groups in the melody. things like that. (Appendix D, p. 423)

The student added that finding patterns in music had become easier for her since the beginning of the semester, and that working on chord progressions had improved her ability to recognize inversions in the sight reading examples, as well as other playing activities in the class. She stated, "Playing chord progressions in class has helped with seeing inversions. When I see a chord inversion in the music, I can get my hand set quicker than I could before." (Appendix D, p. 423)

To obtain more detailed information about the student's experiences in learning chord progressions, she was asked to describe the ways that she prepared the progression that was required on the recent ten-week examination. She explained that she thought that the progression was easy to learn, and that in her practice she had looked for patterns of how the notes moved from chord to chord and the fingerings that were most logical. The

interviewer asked whether class presentations and discussions that focused on identifying the harmony and the part of the chord that moved had been helpful to her. She replied, “that made sense,” but that she learned the progression by finding patterns. When asked if there had been any specific class activity that had helped her, she stated:

I found that I did better when I looked at the music and analyzed how the notes moved, and you talking us through it. I like that sort of verbal talk-through that you do often when we work on progressions in class. (Appendix D, p. 424)

The student added that talking through chord progressions in class had also helped her to memorize the patterns in the progression, and that had made it easier for to learn how to transpose the progression.

In a brief discussion of how the student had studied and prepared the scales and arpeggios for the examination, she indicated that the handouts had been of help to her in identifying note groups and fingering patterns. She commented, “Knowing where my thumb was supposed to go helped me group the notes better in my mind. Then it was easier to do on the piano.” (Appendix D, p. 424)

The interview continued with questions about how the student had practiced the repertoire piece that she played on the examination. She explained that she had blocked measures of notes into chords and practiced moving back and forth between the chords:

Once you showed me how to block the chords in each measure, I could see the chords in the music, so I used the music more often than the reductions. (Appendix D, p. 425)

She added, “I look for chords that might be broken up and the range of the melody, because those things will tell me where I need to put my hands on the keyboard.”

(Appendix D, p. 425) In a comment about how she thought that being able to find patterns in repertoire pieces had helped to improve her playing, the student stated:

Well, now when I look at the music, not only repertoire pieces, but other things, too, I sort of know what they are supposed to feel like on the keyboard. It makes it easier to practice, because I don’t have to go note by note. (Appendix D, p. 425)

In her final remarks about repertoire studies in the class, the student confirmed comments that she had made in the first interview about the relationships that she had discovered between her piano and music theory studies:

. . . theory has helped a lot. Piano and theory kind of work together for me. Last

semester it was pretty much theory was helping with piano, but now piano helps me in theory. When we talk about things in theory that we have done in here, I remember now I did that on the piano, and it gives me a connection to what we are discussing in theory. (Appendix D, p. 425)

In the final portion of the interview, the student was asked to describe the kinds of instructional presentations and activities that had been meaningful in her learning in the class since the last interview. She stated that she liked to analyze the music that she studied in the class “to find things that make them make more sense and easier to practice on.” (Appendix D, p. 425) She indicated that the visualizer had been helpful to her scale and arpeggio studies, but that she did not look at it very much. She explained:

I usually get what you are trying to get across just by listening to what you are saying over the headsets and looking at my piano. (Appendix D, p. 426)

.....

I just don’t need it, I guess. I mean, when you tell us to look at it when you demonstrate something, I look at what you are doing, but I think I most of the time already get what you are telling us. (Appendix D, p. 426)

In response to a question about whether it bothered her to stop and look at the visualizer in class presentations, she stated that it did not, and that “it only reinforced the way she already thought about things.” (Appendix D, p. 426)

The student was asked to comment on the use of the MIDI disks in class. She noted that listening to the disks at the beginning of a particular study had served to provide her with an aural model of the final product, but that playing along with the disks before she had mastered the exercise or repertoire piece had not been helpful to her. When asked if using the disks had been aided her in learning to play in a steady tempo, she stated:

No, I already know what playing in a steady tempo is. If I am having problems playing through something, like and exercise of something, I know what I need to do, and I can do that on my own. (Appendix D, p. 427)

When asked of she would use the MIDI disks in a specific way if she had access to them in her practice outside of class, she responded that she did not think that she would not use them much. She explained that she would probably only use them after she had learned a piece to test whether she could play through it with the accompaniment without stopping.

The student restated the important role that the handouts for scales and arpeggios,

and the reductions of repertoire pieces had played in her learning in the class. She stated:

They are things that I find useful in helping with my practice outside of class. Those two things have been the most helpful to me in learning things like scales and arpeggios in the class so far. (Appendix D, p. 428)

She reaffirmed, however, that she thought that she would have been able to find the patterns in the music that she needed to know without them.

In her final remarks the student repeated her feelings of satisfaction with the course.

She stated:

I think the thing I like the most is spending time to look for and find patterns. I like analyzing things because I know that it will help me in my practice outside of class. Also having the time to practice things at the end of class. That gives me the chance to try things out that we have talked about and ask questions if I need to. (Appendix D, p. 428)

To conclude the interview, the student was asked if there were other topics that had not been discussed that she would like to mention. She indicated that there were not. The student was thanked for her participation in the study, and the interview was ended

Interview #3. (Appendix D, pp. 429–437) The final interview with was conducted after the final examination in the course. Questions posed to the student during the interview were intended to confirm comments that she had made in previous interviews, as well as uncover additional new information about her learning experiences in the class. In her opening statements, the student remarked that she thought that the class had been successful for her, and that her playing had improved during the semester. She added that she thought that the class had been well-organized and had contained many helpful suggestions “on how to look at piano music like a piano player would, and different ways to practice things.” (Appendix D, p. 430)

The student was asked to reflect on her learning in the course and to describe the class activities that she had found to be challenging, and the kinds of instructional presentations that had been meaningful to her. In her remarks, she stated that she had not had any particular problems with any of the class activities. She mentioned, however, that the study of the scales that began on black keys had been difficult at first, but that after she understood the fingering patterns, they were not hard for her to master. She added that she thought that her early difficulties with these scales had probably been due to the newness of

the material. The student was asked to describe the instructional approaches or class activities that she thought had been useful to her in understanding these scales. She stated that she had been able to see note grouping in scales, but that she had not been sure about how to identify effective fingering patterns. The student commented that class discussions and directed practice sessions that focused on matching note groups with fingering patterns and blocking the note groups in the scale with the fingerings needed to play them had been effective for her. In response to a question about whether the handouts that she had been given concerning scales had been useful, she replied, “[They] got me started. After I used the sheets a couple of times, though, I pretty much had the scales memorized by the way they looked and felt on the piano.” (Appendix D, p. 430)

In a brief discussion about chord progression studies in the class, the student noted that her approach to learning them had changed since the beginning of the semester:

In the first part of the semester, I was more focused on learning the pattern of whole-steps and half-steps between chords, but now I go for the shape of the chord more than anything. (Appendix D, p. 431)

.....

Well, it’s kind of complicated, but I think that when I learn the shape of the chords in a progression and how it fits into the key we are playing it in, I learned the progression easier. Knowing what moves by whole-step or half-step helped me fix my mistakes, but I did better when I looked for the shape of the whole chord. I don’t know, though, maybe it was that I finally began to be able to think in a key better and know what the chords in a particular key look like when I have to play them on the piano. (Appendix D, p. 431)

The next section of the interview was an extended discussion of the student’s learning experiences related to repertoire studies in the class. The student stated that she considered herself to be “rhythmically challenged,” and that it had been helpful to her to hear aural models of repertoire pieces especially at the beginning of her studies. She noted that the MIDI disks had been effective in providing these kinds of models. When the student was asked whether other uses of the MIDI disks in class had been helpful to her, she confirmed the comments that she had made in previous interviews. She remarked that playing hands alone with the disks at slower tempos in class had been “good practice” for her, but that they had not been particularly helpful until she had completed her studies of a

piece and could play through it smoothly. The student explained that her primary concern in learning repertoire pieces had been hand coordination, and that she did not think that playing along with the disks could have helped her with that part of her practice. She summarized her comments, stating, "The disks were interesting to listen to and play along with after I had the piece learned: it kept my interest, but they weren't 'critical' in the way I learned the piece." (Appendix D, p. 431)

In other statements related to learning repertoire pieces, the student indicated that blocking broken chord patterns and directed practice sessions in class had often been helpful to her. She added that reductions had been useful, but that she had not used them in her practice outside of class. She explained:

... I knew what you were trying to do with them. I guess I just didn't need them to learn the things that you were using them for. In the pieces that had a lot of broken chords, I guess I could see them in the music fairly easily, so, it was a matter of blocking out the hand positions and deciding on the fingerings to use. (Appendix D, p. 432)

In response to a question about whether she thought it had been easy for her to find chord patterns and hand positions in her music without the use of reductions, she replied, "Once in a while it took me a few minutes, but I eventually found one." (Appendix D, p. 432) In her final comments in this section of the interview, the student also confirmed information that she had given previously about how repertoire pieces were presented and studied in class. She stated:

I definitely like starting with the piece first. It just makes more sense to me to start with the music and work on things that were directly related to playing that piece. It was okay to start with exercises, but it really didn't help me all that much. (Appendix D, p. 433)

The interview continued with a discussion of chord progression studies in the class. Questions were posed to the student to explore the comments that she had made earlier in the interview about the changes she had experienced in the ways she studied chord progressions (ie. finding chord shapes as opposed to patterns of note motions between chords). In her comments she stated that the list of steps to perform specific progressions that had been included on handouts, as well as directed practice sessions in class, had been effective in helping her to find chord shapes. (Appendix J) Since the visualizer had been used in chord progression studies in class presentations, the student was asked if it had

been helpful to her in her learning. In a series of remarks she indicated that the visualizer had not been particularly helpful to her. She stated:

Usually I'm a pretty visual person, but for some reason the visualizer doesn't help me much with things like that. . . . I understood what you were talking about when you used it, but it just wasn't that useful. I guess I just didn't need it to get what you were explaining. (Appendix D, p. 434)

.....

When you were talking and using the visualizer at the same time, I just listened to what you were saying and tried to translate what you were saying to my own keyboard. I didn't look at the visualizer much. (Appendix D, p. 434)

.....

Seeing things on the visualizer is different than looking at them on my own piano. I did better when you talked as I played or looked my my keyboard. (Appendix D, p. 434)

When asked to explain why she thought the visualizer had not been effective for her, the student stated, "Maybe it's that I was sitting on the other end of the classroom from the visualizer, and it wasn't easy to look at." (Appendix D, p. 435)

The final segment of the interview focused on the kinds of instructional activities that the student thought had been most effective for her, the changes that she might make in the class, and how her learning had changed during the semester. The student indicated that the ten minutes at the end of class periods for individual practice had provided with an opportunity her "pull all the things together" that had been discussed, and to ask questions when she had them. The student also commented that she preferred class periods in which a variety of topics had been discussed and the pace of the class was quicker. She stated:

I like the "fast and furious" kinds of periods mostly. Once we have discussed something and have worked on it a couple of times together in class, I'd rather just go through it once or twice to review and then move on. I think I get more done in class periods like that. (Appendix D, p. 435)

In her observations about how she thought her learning had been affected or had changed during the semester, the student explained:

Before this class, I usually just sat down and just played through the things that we were assigned to do. Now, I can actually sit down and have a way of looking at things that help me practice better. I look for patterns more and practice them. That has been something new to me. We never talked much about looking for patterns and different ways of looking at the music last semester. It was pretty much, "let's

run through things and see where they stand,” and “you need to practice this more on your own.” (Appendix D, p. 436)

The student also noted that her learning in other classes had been affected:

I look for patterns in my theory work and in the things that I work on in my private lessons. . . . I think I get more done in my other classes, or at least I think about things differently, which has helped me understand things like theory better. (Appendix D, p. 436)

In her final remarks in this portion of the interview, the student restated the importance of such things as score reductions, and how they had affected her learning in repertoire pieces like “The Harpist”.⁹

I saw hand positions that I needed to use to play the piece. That was a “magic moment” for me, because I actually knew from looking at the music what I needed to do to learn it. I was actually able to play the right hand almost immediately, and that never happened to me before. (Appendix D, p. 437)

.....

I just saw more in the music that made sense, and that gave me ideas about how to practice. (Appendix D, p. 437)

The student was asked if there were any other topics that she wanted to discuss about her learning in the class. She said that there were none. The student was thanked for her participation in the study, and the interview was concluded.

Field-Independent Learner #4 (FI-4)

Interview #1. (Appendix D, pp. 438-444) The initial interview with FI-4 was conducted during the week following the five-week examination in the course. In her responses to general questions about her learning experiences in the first section of the course, the student stated that she thought that the course had been going well for her. With the exception of some early difficulties that she had experienced in learning some scale fingerings, she said that she had not found any of the course activities to be unusually difficult for her. When the student was asked about the kinds of presentations or class

⁹Lancaster and Renfrow, 266.

activities that had helped her to learn scale fingerings, she explained that scales handouts had been helpful to her. (Appendix J) She added, however, that they had not been essential in her learning, and that she thought that, without them, she would have been able to master the scales that had been studied equally as well. She explained that the handouts had just made her practicing easier. In response to a question about the effectiveness of directed practice sessions in learning the fingering patterns of scales, she replied that she had preferred the times that she had been given in class to work on them on her own.

In her comments about the use of directed practice sessions in chord progression studies in the class, the student made a similar remarks. She stated that talking through chord progressions one or two times together in class to identify note motions between chords was helpful, but that after that, she preferred to work on her own. (The student noted, in passing, that the handout containing an off-the-staff diagram had been a "little confusing.")

The interview continued with a discussion of the student's experiences in learning the repertoire pieces that had been studied in the class. In her responses to questions about the kinds of instructional approaches that had been used, she stated that all had been equally effective for her, and that it had not made a difference in her learning whether repertoire studies had begun with the score, or with a series of preparatory exercises. She noted, however, that she thought that some directed practice sessions in class had been too brief, and that she would have preferred to have spent more time talking through "the hard spots" and working on "technical things." The student also stated that the reductions of repertoire pieces that she had been given had made her practice outside of class easier. The student added, however, that reductions of repertoire pieces were not necessary in her learning to find patterns of notes and chords to practice. She remarked, "I usually can just look and the notes on the page and I can figure it out." (Appendix D, p. 451)

In the final portion of the interview questions posed to the student focused on how the technologies that had been used in instructional presentations had influenced her learning in the class. The student stated that the various uses of the MIDI disks, overhead projections, and the key/note visualizer in class had not been key factors in her learning of repertoire pieces or other playing activities, but that they had all worked together to make

instruction interesting. Somewhat later in the interview, however, the student commented that using the visualizer in some class presentations related to chord progression studies had helped her to see chord shapes, and that she had looked at the visualizer as a reference to be sure of her hand positions. In scale studies, the student commented that the handouts that she had received had helped “a little” in discovering fingering patterns to use, but that they were not central to her understanding or practice of the scales. (Appendix J) She noted that it was easier to use the handouts, and that she thought that she would have been able to learn the scales as well if she had just used the notated versions of them in the textbook.

The student was asked if there were other things about her learning experiences in the class that she wanted to mention. She said that there were not. The student was thanked for her participation in the interview phase of the study, and the interview was concluded.

Interview #2. (Appendix D, pp. 445–451) The second interview with FI-4 was conducted during the week following the ten-week examination. In her initial remarks about her learning experiences in the class since the last interview, the student stated that she thought that the class was continuing to go well for her, and that she was progressing in her studies. In the next portion of the interview, the student was asked about her study and preparation for the recent examination. She indicated that she thought that the test had gone well for her, and that she had not had any problems in her practice. In her response to a question about how she practiced the sight reading portion of the test in the ten minutes she was given to prepare it, she noted that she looked for patterns of notes and chords, blocked them out, and then put hands together slowly. She stated that the patterns in the music had been easy for her to see, and that she had had enough time to become comfortable with playing through the example.

The student was asked about the kinds of practice techniques that she had used to prepare the scales and arpeggios that had been required in the test. She stated that in her practice she had played through them slowly and looked for the patterns of black and white keys in each of the scales and arpeggios and had memorized them. When she was asked if any there had been any specific class presentations or activities that had helped her, she

stated that the handouts for the scales and arpeggios with fingerings placed in boxes below note groups had been useful to her in her practice.

In a similar discussion of her preparation of the chord progression included on the examination, the student stated that she did not think that there had been any specific instructional presentation or activity that had been more meaningful to her than others in her learning in the class. As the conversation developed, however, she noted that directed practice sessions in the study of the chord progression had been effective at the beginning of her studies, and that she had used the handout containing the list of steps to perform the progression in her practice to correct mistakes in her playing.

The interview continued with questions about the student's learning experiences related to repertoire studies in the class. In her response to a question about the kinds of class activities that had been helpful to her, the student stated that she preferred those in which there was a discussion of specific problems and ways to practice them more than working through the whole piece together in class. She indicated that talking through repertoire pieces in class as she played was not always necessary in her learning, and stated, "I think it is better when we just work on the trouble spots. I can usually get the other things myself." (Appendix D, p. 451) The student explained that using score reductions and blocking out broken chord patterns in class had been good activities, but that she usually found patterns in music "easy to see most of the time."

In the final segment of the interview, the student was asked to comment on the general pacing and structure of class periods. She stated that she preferred class meetings that had a variety of activities and short individual practice periods after discussions and instructional presentations. The student was asked if there were any changes or additions to the class that she would make to improve her learning experiences in the class. She stated that she could not recommend any, and that she was satisfied with the way that the class was going.

To conclude the interview, the student was asked if there were other topics that had not been discussed in the interview that she would like to mention. She indicated that there were not. The student was thanked for her participation in the study, and the interview was ended.

Interview #3. (Appendix D, pp. 445-452) The third interview with FI-4 was conducted during the week prior to the final examination in the course. Questions posed in the final interview were designed to confirm comments that the student had made in previous meetings, and to uncover new information about her learning experiences in class since the last interview. The student stated at the beginning of the interview that she thought that her increased ability to recognize patterns in music had helped her to improve her playing. When asked if there had been anything that had been done in the class to help her recognize patterns more easily, she replied, just looking for them had been helpful. The student was asked to reflect on the different learning activities that had been part of the course, and to describe any that she had found to be difficult for her. She stated that repertoire studies had been challenging sometimes. In her comments about the ways that repertoire pieces had been presented and studied in class, the student confirmed comments that she had made in earlier interviews. She remarked that no one way of working on repertoire pieces in class had been more effective for her than others. She added that reductions had been useful, but that she did not consider them to be essential in her learning processes. The student stated that directed practice sessions early in repertoire studies had been helpful in exposing specific kinds of problems to work on in her practice outside of class, but that after she understood what she needed to do, she preferred to practice on her own.

In scale and arpeggio studies in the class since the last interview, the student commented that the handouts containing keyboard diagrams with circles on the key needed to perform the scale had been helpful to her. She remarked that they had been more realistic representations of how the scales looked on the keyboard, but that the other kinds of scale handouts that had been used during the semester were as effective. In response to a question about the importance of in-class directed practice sessions in scale and arpeggio studies, the student replied that they were “just more practice.”

The student’s remarks about chord progression studies in the course also confirmed previous observations that she had made about her learning in that area. She stated that none of the different instructional approaches that had been used in class presentations had been more effective or important to her than others. She explained, “Actually, I think I

learned [them] by looking at the way it was written in the book and learned where my fingers went from that.” (Appendix D, p. 454)

In the next portion of the interview the student was asked to describe the kinds of things that she would include in an ideal class that fit her particular learning needs. She stated that she would incorporate short practice periods after class discussions and demonstrations so that she could practice things that had been discussed while they were fresh in her mind. In a description of the pacing of her ideal class, she explained:

I don't think that I would move too quickly through things, but I think after I am familiar with what I need to do, we'd do a little practicing on a number of things, give me some suggestions, or remind me of things to do, and then move on. (Appendix D, p. 455)

The student continued with a description of how she would want to study repertoire pieces, stating:

I think that exercises are okay and are good to do for developing general kinds of skills, but they might not be written exactly the same as in the piece we have to learn, I like looking at the music so I can find the things that I need to work right away. That way, when I practice, I am learning to play the piece from the beginning. (Appendix D, p. 455)

She noted that reductions of repertoire pieces had helped her “to see things quicker, and know what to practice,” but that she had not used them much. She remarked:

. . . they were helpful, but I didn't use them much after the first couple of times we talked about them and how they were related to the pieces. . . . I used them as references a few times, but I really didn't practice the piece with them very much. (Appendix D, p. 456)

In the last section of the interview, the student commented that the course had contained a variety of learning activities that she thought would be useful in her career as a teacher. In her closing remarks, the student summarized her perceptions of the class:

The things that we did to look at and analyze the music in class were pretty much the same things that we did in theory, so that was more of a review of things that I already knew. Playing through things in class, or talking about how to practice was more important to me most of the time. (Appendix D, p. 457)

The student was thanked for her participation in the study and the interview was concluded.

CHAPTER V

INTERPRETATION OF THE DATA

Introduction

Analyses of the data collected during the study are presented in this chapter. The information gathered from the four (4) field-dependent and four (4) field-independent learners in the study sample was examined to determine the roles that instructional technologies played in their learning in the Level II Group Piano course selected for this study. Students' responses to interview questions were used to develop the interpretations below. Although all classroom activities in the course were discussed during individual interviews, only those conversations in which the students provided substantial information about their learning experiences were used in the interpretation of the data. To interpret the data, the researcher used the following sources: (1) the characteristics and dimensions associated with the cognitive learning styles of field-dependence and field-independence; (2) an assessment of the attributes of the instructional technologies used during the study; (3) cognitive theories of learning; and (4) the matrix of cognitive music skills developed by Davidson and Scripp.¹

Field-Dependent Learners

Field-Dependent Learner #1 (FD-1)

Scale and Arpeggio Studies. Each of the interviews with the student included discussions of scale and arpeggio studies in the course. In her responses to questions

¹Lyle Davidson and Larry Scripp, "Surveying the Coordinates of Cognitive Skills in Music," in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992), 392-413.

about how she understood the concept of scales, she stated that she could readily identify specific scales when she saw them in music notation, and that she felt confident about her ability to name the notes of the scales that she had studied. She also indicated that she understood that different scales required unique sets of accidentals, and that they were needed to maintain specific patterns of whole- and half-step relationships. From her comments it was clear that she had developed a clear concept of scales, and that she could verbalize her understanding of scales that were familiar to her.

In discussions about how she had applied her knowledge of scales in her learning to play them on the piano, the student remarked that her understanding of scales and the ways that she practiced them had changed during the course. She explained that in the previous semester of group piano studies her instructor had demonstrated how the notated scales in the textbook could be analyzed and broken down into smaller groups of notes based on the fingerings that were used to perform them. Although she stated that she understood the logic behind this approach, she disclosed that, when she had attempted to apply this procedure to the scales that had not been discussed in class, she had often found it difficult to use the patterns in her practice. She commented that she had eventually resorted to memorizing the individual note names and fingerings of each of the scales that had been assigned. The student remarked that this had been a tedious and time consuming practice technique, but that it had been the most effective way for her to learn to play scales at the time. She noted, however, that in her practice she had observed similarities between the overall fingering patterns of some scales, and that she had grouped these scales in her thinking.

The student's description of her previous learning experiences in scale studies indicated that she had been able to interpret the abstract musical notation of scales and identify groups of notes in the scales based on the fingerings that were used to play them. Despite these skills, the student's comments suggested that she had had difficulty in matching her intellectual understanding of the patterns of notes and fingerings in the notation of scales with specific groups of keys on the keyboard that she could use in her practice outside of class. As a consequence, the student had approached the practice of scales from the more global perspective of memorizing the notes and fingerings of each

scale as a single unit. In interview conversations, however, the student explained that some of the instructional technologies and teaching methods that had been used in her current studies of scales had changed the way that she understood them, and that they had improved the efficiency of her practice. Among technologies that she identified as having influenced her learning, were the handouts that she had received throughout the course. (Appendix J) The student remarked that the handouts that had been distributed in the early and middle sections of the course had been effective in showing her the “shape of the keys on the piano to use” and the fingering patterns to apply in her practice:

Well, just the way that you wrote them on the sheet with the black notes higher up than the white notes in the scale . . . that helped with finding where to put my thumb or where to cross over coming down the scale. (Appendix D, p. 271)

Although the student stated that she had found these graphical representations of scales to be helpful, in the final interview, she remarked that the handouts that had been distributed in the last section of the course had been more effective in her learning. She explained that the handouts containing keyboard diagrams with blank circles on the keys needed to play individual scales had represented even more realistic models of how the scales looked on the keyboard, and that they had enabled her to see patterns of keys and fingerings more easily. In her descriptions of how she had used the handouts, the student stated that she had used them frequently in her practice outside of class, and that they had been important in helping her to see the shapes of the whole scales on the keyboard. She explained that the handouts had also helped her to identify smaller key groups within scales and match them with specific fingering patterns. The student added that she still had written in fingering numbers above the individual note names on the handouts, but that she had also drawn boxes around smaller note groups based on fingering patterns that began with the thumb.

The student’s remarks suggested that the handouts used to support scale studies in the course had influenced her learning in two ways. First, they had provided her with information that she could use to transform the abstract musical notation of individual scales into specific patterns of keys on the piano keyboard. As a result, the student was able to structure her understanding of the keyboard and develop cognitive maps of each scale. Secondly, the graphical nature of the information on the handouts had improved her ability to analyze the shapes of whole scales to identify smaller groups of keys that

she could match with the fingering patterns needed to perform the scales. In both of these instances, the handouts had increased the student's ability to connect different forms of knowledge and to structure her understanding.

In addition to the varying degrees of realistic information that was provided on the handouts, other attributes of this paper technology also seemed to have contributed to its effectiveness. Her regular use of the handouts in her practice outside of class and the significance that she placed on them indicated that their accessibility and ease of use were important characteristics of the technology. Unlike the other technologies that were used in class demonstrations to convey similar kinds of information, the handouts were the only technology that she could take with her to the practice room. She stated, "The handouts gave me things to take to the practice room and work on besides trying to remember how we did things in class. (Appendix D, p. 273) The student's comments about how she had used the handouts in her practice also suggested that interactivity was another meaningful characteristic of this instructional technology. Her descriptions of how she had drawn boxes around note groups and key patterns and connected them to fingerings, indicated that the handouts had provided her with additional opportunities to analyze the structure of scales and connect her understanding to the piano keyboard.

The key/note visualizer had also been used in class discussions and demonstrations to illustrate key groupings in scale and arpeggio studies. During interview discussions the student indicated that some uses of this instructional technology had helped her at specific stages in her learning:

At the times when you played the scale one note at a time, I got an idea about the black and white keys in the scale, but it helped more when you played the blocks of notes in the different patterns . . . and when you played the whole scale as a block for me to look at. That helped me to see the shape of the whole scale at one time. (Appendix D, p. 273)

The student explained, however, that demonstrating scales one note at a time on the key/note visualizer had not been particularly effective for her until after smaller key patterns within scales had been blocked out in class discussions, and she had practiced the blocked patterns herself. The student's comments suggested that her understanding of how scales were structured on the piano keyboard depended on a specific sequence of information and

learning activities. When the student understood and recognized the shapes of whole scales on the keyboard, she was better able to identify smaller groups of keys within the scales based on fingering patterns. The use of blocking techniques to demonstrate scale patterns on the key/note visualizer supported not only her general understanding of whole scales, but also her ability to distinguish substructures within scales. Once this framework had been established, the student was then able to combine her understanding with fingerings and the technical skills that she needed to play the scales. It was at this point that using the key/note visualizer to demonstrate how to play the scales became meaningful to her.

Although the key/note visualizer was less accessible to the student than the handouts, other attributes of this instructional technology had strengthened her understanding of how scales were structured on the piano keyboard. When the key/note visualizer had been used in the early stages of her learning to demonstrate the shapes of whole scales, it had provided her with highly realistic visual information to support the development of cognitive maps of scales on the keyboard. Similarly, when it had been used to illustrate smaller key groups within the scales, the key/note visualizer had supported her understanding of the substructures of scales that she could then relate to specific fingering patterns. In this respect, handouts and the key/note visualizer had served similar functions in the student's learning. Unlike the handouts, however, the key/note visualizer had the capacity to combine the dimension of sound with her intellectual understanding of scales. When it had been used in the final stages of her learning to demonstrate how scales looked and sounded when they were performed on the keyboard, it had provided the student with a way to link her knowledge about scales with an aural performance model.

Although the handouts and uses of the key/note visualizer had helped the student to understand scales on the keyboard, she stated in interviews that instructor-led directed practice sessions had played an important role in her learning to perform scales smoothly and accurately. She explained that directed practice sessions that had included blocking exercises had been effective in helping her to connect her knowledge about smaller patterns of keys in scales with the fingerings needed to perform them. The student also remarked that repeated directed practice sessions had been important to her in memorizing scales and

developing specific practice techniques. She stated, “If I remember to do what you told us in class, I did better in practice usually.” (Appendix D, p. 278) The student’s comments suggested that talking through scales as she played them had helped her to develop structured learning strategies in the form of mental scripts, or routines, that she could use in her practice of scales outside of class. In directed practice sessions, the instructor became the technology that had provided sequenced patterns of thinking and specific verbal cues that had aided the student in transforming her intellectual understanding of scales into performance skills.

Chord Progression Studies. In interview conversations the student remarked that her understanding of chord progressions and the ways that she practiced them had changed during the course. She explained that, in her previous group piano studies, she had learned to play chord progressions by memorizing the notated examples in the textbook. In her responses to questions about how she had learned to play chord progressions in keys that had not been notated, she stated that she had written them out in those keys and memorized them from the notation as well. Although she indicated that it had been explained to her that there were patterns of whole- and half-step motions between the notes of chords in progressions that she could use to learn them, she remarked that she had had difficulty in discovering these kinds of patterns on her own.

In discussions of how her learning had changed, the student stated that some of the instructional technologies and teaching methods that had been used in the course had helped her to find patterns in chord progressions that had made them easier to understand and perform. Although handouts had been distributed during the course to support students’ learning of these kinds of patterns, she stated that they had not been particularly helpful to her. She remarked that the off-the-staff diagrams, indicating whole- and half-step note motions between the chords in progressions, had been “too confusing,” and that the written list of step-by-step instructions to play specific progressions had been “too complicated” to use in her practice. (Appendix J) Although the handouts had contained diagrams illustrating patterns of note motions in individual chord progressions and methods to practice them, they had not provided the student with ways to link these patterns to the keyboard directly.

The student explained, however, that use of the key/note visualizer in class demonstrations had been effective in helping her to see how notes moved between chords in progressions, and how to connect them with fingering patterns and hand shapes to use when performing them. She stated, “Once I saw the chords . . . the hand positions on the visualizer . . . I could find them on the piano better.” (Appendix D, p. 279) She added that the key/note visualizer had also provided her with ways to evaluate her understanding of the patterns in chord progressions, as well as her performance of them. Demonstrations using the key/note visualizer had included discussions identifying the harmony in the key that the progression was written, and the part of the chord (ie. root, third, or fifth) that moved. The student remarked that this information had not been helpful to her until after she had learned the patterns of note motions and could play the progressions smoothly.

The student’s comments indicated that uses of the key/note visualizer in chord progressions studies had influenced her learning in two ways. First, it had helped her to convert musical notation into concrete patterns of keys on the keyboard that she could then relate to hand shapes and fingering patterns that she needed to play the chords. In this regard, it had provided an important link between her knowledge of music notation, the piano keyboard, and her technical skills. Secondly, the key/note visualizer had provided her with visual feedback that she could use to measure her understanding of the patterns in chord progressions.

While the key/note visualizer had helped the student to analyze chord progressions and apply her understanding to the keyboard, she stated that directed practice sessions had been an important factor in her learning to perform them on the piano. She stated, “I got more about the progression when I hear you talk about it and I’m playing it,” (Appendix D, p. 287) and, “Talking through the progression chord by chord helped me think through it better.” (Appendix D, p. 278) The student explained that talking through chord progressions as she played them had helped her to connect her knowledge of the patterns in chord progressions with her playing skills, and that this had helped her to transpose and memorize them more easily. The student’s comments indicated directed practice sessions had served the same purpose in learning chord progressions as they had in her studies of scales. The structured verbal information and cues given to her during group practice

sessions had helped her to develop mental scripts containing sequenced patterns of thoughts and actions that she could use in her practice outside of class. In the student's learning processes, repeated directed practice sessions had provided her with ways to transform her intellectual knowledge into procedural skills.

Sight Reading Studies. Brief discussions about the sight reading activities in the course occurred in the first and second interviews with the student. In these conversations she revealed additional information that reflected some characteristics of her learning style, as well as the kinds of technologies and instructional methods that affected her learning in this aspect of the course. In the first interview the student indicated that she understood that being able to analyze music quickly to find patterns of notes in the melody and accompaniment were important steps in preparing to sight read music. She explained, however, that she often had difficulty in recognizing patterns in the music in the brief time given to her before she had to play examples in class. She stated, "I don't analyze things very fast yet, so I usually just start playing the notes." (Appendix D, p. 275)

She added:

If the chords are stacked up, like triads or something like that, I might do that [recognize patterns], but if they are broken up, I have to look at it for a while before I can figure those kinds of things out. (Appendix D, p. 275)

Despite these difficulties, the student stated that some instructional activities and technologies had helped her to improve her sight reading skills. She remarked that short discussions in which melodic and harmonic patterns were identified and blocked on the keyboard before she sight read an example had improved her understanding of how to identify patterns in the music. In her comments about the use of the key/note visualizer in these discussions, she stated:

If you show us in the visualizer the keys on the piano that are in the hand positions, I kind of know better what to look for on my piano. . . . When we go through the blocking, I know where to put my hands. (Appendix D, p. 277)

The student's remarks indicated that structured discussions and uses of the key/note visualizer had been important in her learning to analyze music notation more effectively and to convert her understanding into concrete patterns of keys on the piano keyboard.

In the interview discussions about sight reading activities, the student restated the

importance of directed practice sessions in her learning. She remarked that, “talking over the headphones when I’m playing helps me get to know how it is supposed to feel on the piano,” (Appendix D, p. 277) and:

When you took an example in one key and talked to us about the kinds of things to look for in that key and practicing it with us, I learned some things to use when I look at sight reading. (Appendix D, p. 276)

As in other learning activities in the course, the student’s comments indicated that directed practice sessions in sight reading studies had been influential in helping her to connect her understanding about the structure of music with performance skills. In addition to providing this important link in her learning, guided practice sessions had also helped her to develop more effective procedures and learning strategies to use in sight reading music.

Repertoire Studies. In the interviews the student provided extensive information about her learning of the repertoire pieces that had been studied in the course. Although different repertoire pieces were discussed in each interview, the student consistently identified similar technologies and instructional methods that had been important to her in her learning. The student stated that the handouts containing reductions of individual repertoire pieces had played an important role in helping her to understand the written score, and that she had used them frequently in her practice outside of class. In her comments about their effectiveness in her learning to play the repertoire piece, “Etude,” she commented:

They showed me where the hands shifted . . . the hand positions, I mean. After I learned those, it was easier to play the notes the way it was written out. (Appendix D, p. 269)

In similar comments about her learning of the repertoire piece, “The Harpist,” she stated:

I played through the handout a lot. It helped with knowing the hand positions for each chord. Once I could play through the handout, it wasn’t hard to play the piece. (Appendix D, p. 280)

The student also explained that it had also made a difference in her learning when the reduction of repertoire pieces had been given to her. In her comments concerning “The Harpist,” she stated:

Getting the reduction first worked best for me. I knew what to expect in the piece. After I practiced the hand positions on the reduction, it made using the music easier. Actually, I memorized the piece from the handout. Once I knew how to break up

the chords, I didn't use the music except when you made us use it in class.
(Appendix D, p. 280)

In a more general comments about how reductions had affected her learning of repertoire pieces, the student remarked, "I could see what you were talking about better, and once I saw a pattern, like a chord that was broken up, it was easier to see others." (Appendix D, p. 285)

The student's comments indicated that the reductions of repertoire pieces had played an important role in helping her to analyze the notated score and structure her understanding of the music. Although the reductions contained abstract notation, they had helped to reduce the complexity of the scores and had enabled her to see smaller patterns of notes and chords that she could link to specific hand positions and fingering patterns on the keyboard.

In her learning to perform repertoire pieces, the student stated that directed practice sessions had been important in the development of her technical skills and practice techniques. In her descriptions of how directed practice sessions had affected her learning she stated:

When you tell us things to do or to think about as we play, it helps me to know how to practice outside of class . . . the things I need to remember and watch out for. (Appendix D, p. 270)

.....

When we work on repertoire pieces, say, and there are broken chords in the left hand, if you have us block them out, I can see the chords a little better. But, if you don't, then I sort of just see notes. It take me a while to figure out patterns on my own. Sometimes it is too frustrating when I have to do it on my own, so I just start playing the music. (Appendix D, p. 277)

Analyses of the student's remarks suggested that directed practice sessions had continued to play an important role in her group piano studies. In her learning to perform repertoire pieces, directed practice sessions had provided her with opportunities to develop procedural scripts of sequenced thought patterns that had helped her (1) to combine her understanding of musical scores with the specific technical skills; and (2) to develop more effective practice strategies and ways to evaluate her learning.

Field-Dependent Learner #2 (FD-2)

Scale and Arpeggio Studies. During interview conversations the student indicated that learning to play scales had always been a challenging aspect of her keyboard studies. She explained that, when she looked at notated scales in the textbook, she could identify specific scales and see some patterns in the finger numbers that were written above the notes, but that she had found it difficult to relate this information to playing scales on the keyboard. The student remarked that the handouts she had been given in the course had helped her “to see the whole scale at one time and get a better idea of how it is supposed to go the keyboard.” (Appendix D, p. 280) In a similar remark about the use of the handouts as overhead projections in class discussions and demonstrations, the student stated that they had also helped her to see how the notes of a scale could be grouped to identify related patterns of keys on the keyboard. She stated:

The overheads are good, too, especially when you demonstrated how to mark off something in the music, like fingering patterns in scales. I can see what you mean better, and it helps me to know what to look for in the music. (Appendix D, p. 296)

.....

I can look at the sheet when I’m practicing and see the next group of keys that I need to play the scale. (Appendix D, p. 299)

The student remarked that scales written in music notation were not particularly confusing to her, but that after she had used the handouts, the notated scales in the textbook “made better sense” The student stated that she had used the handouts more frequently than the textbook in her practice outside of class, but that, when she did use the textbook, she had also used the handout to identify note groups that she matched to key patterns in the keyboard. In a brief conversation in the third interview, the student summarized the influence that handouts had had in her scale studies. She stated, “They showed me how the notes made patterns and the fingers to use. It just made them easier to practice and memorize.” (Appendix D, p. 305)

In interview discussions the student also stated that the key/note visualizer had been beneficial to her in her scale studies during the course. She commented that, when the key/note visualizer had been used to demonstrate how note groups in the scales could be blocked out in the keyboard, she “could see how the scale looked” on her piano. In

another remarks she explained in more detail how the use of blocking techniques on the key/note visualizer had affected her understanding:

Well, I can see what I'm supposed to be doing like when we work on scales. I still have a hard time grouping notes in my head and knowing the patterns of black and white keys in some scales. The visualizer helps me see the pattern of keys better, and when you tell us the fingerings we should be using, it makes better sense to me when I play on my piano. (Appendix D, p. 296)

Analyses of the student's remarks about the handouts and uses of the key/note visualizer in the scale studies of the course suggested that they had had specific effects on her intellectual understanding of the scales and how to apply that knowledge to the piano keyboard. The graphical information provided on the handouts appeared to have helped the student to translate abstract musical notation into more specific concrete topographical patterns on the keyboard. From this understanding the student was better able to analyze the scales to see smaller patterns of notes that represented groups of keys on the keyboard. Similarly, the use of blocking techniques on the key/note visualizer had served to reinforce the student's understanding of the substructures of whole scales on the keyboard and to help her apply effective fingering patterns. The overall effect that these two technologies had on the student's learning was twofold. Both had helped the student to (1) structure information about the scales from more general categories of understanding to more detailed ones, and, (2) to increase her abilities to think more pianistically by developing cognitive maps of scales on the keyboard that she could use in her practice.

Although handouts and uses of the key/note visualizer had improved the student's intellectual understanding of scales, she stated that in-class directed practice sessions had been more influential in her learning to perform them on the keyboard. In her comments the student remarked that they had helped her to connect her understanding of note groups in the scales with key patterns on the keyboard. She added that directed practice periods that included blocking techniques had helped her relate fingering patterns to key patterns and to feel the keys that she needed to play the scale. During the interviews the student indicated that directed practice sessions had also affected the ways that she had practiced outside of class. She stated, "Sometimes I really don't know what to do when I practice on my own, and it helps me to hear how you would do it," (Appendix D, p. 292) and

“to know what to think about as I’m playing.” (Appendix D, p. 298) She explained:

... hearing your piano ... that makes a big difference, too. I like it when we work in class and you tell us, like third finger here or thumb here, because it keeps me going. When I’m working on my own, and I mess up, I’ll stop all the time. (Appendix D, p. 292)

Interpretations of the student’s remarks suggest that directed practice sessions in her study of scales had provided her with ways to combine her new knowledge about the structure of specific scales with the technical skills that she needed to play them. Directed practice sessions provided an important link between her intellectual understanding and the cognitive maps of scales that she had developed from handouts and demonstrations with the technical skills she needed to play the scales. The student’s comments also indicated that directed practice sessions had helped her to develop more effective learning strategies to apply in her practice. Directed practice sessions containing sequenced verbal instructions and cues appeared to have helped her to develop mental scripts of actions and thoughts that she could use to organize and evaluate her practice outside of class.

Chord Progression Studies. The student commented that playing chord progressions had been challenging aspect of her group piano studies. She explained that she often had difficulty translating notated progressions into specific hand shapes on the keyboard. She stated, however, that some uses of handouts and the key/note visualizer in class discussions had been effective in helping her to connect music notation with shapes on the piano keyboard. The student commented that handouts containing off-the-staff diagrams and written procedural lists of step-by-step actions to take when playing a specific progression had been confusing to her when she had tried to use them in her practice outside of class. She noted that when off-the-staff diagrams had been used as overheads in class discussions they had been somewhat more effective:

That made a little more sense to me when you showed us on the overhead and talked about the way the notes moved, but when I tried to use it on my own, it was not very good. I guess maybe that it was a little more confusing because of all the things that I had to try and figure out. (Appendix D, p. 301)

In her remarks the student indicated that uses of the key/note visualizer in class demonstrations had been more important to her than handouts in chord progressions

studies. She stated:

It showed me where my fingers are supposed to be and the keys I'm supposed to be on. I just helps me get a better idea of what to be watching for when I play. (Appendix D, p. 296)

.....

When you made us stop playing and look at it when you were demonstrating something, like a scale pattern, or how to move from one chord to the next in a progression, it helped me to see what I needed to do. (Appendix D, p. 309)

In her explanations of why the visualizer had been important to her in her learning, she explained that, "If I understand what I need to do, I can do it, or play things better." (Appendix D, p. 309)

Although uses of handouts and the visualizer had helped the student to related her understanding of progressions to the keyboard, she repeated remarks that she had made in other discussions about the role of directed practice sessions in her learning to play progressions. She stated, "I could see it [the music] in front of me in the book and hear you telling us what to do, and then I could do it." (Appendix D, p. 293) and:

When we practice in class together, I can tell whether I'm getting better at it. I think, too, that when we go through it in class everyday a little bit, I learn how to practice on my own. (Appendix D, p. 301)

Interpretations of the student's remarks indicated that handouts, uses of the visualizer in class discussions, and directed practice sessions had affected her learning in ways similar to those that she described in discussions of scale studies. While the off-the-staff diagrams of progressions on the handouts were less effective for her when she used them in her practice outside of class, they had helped her to understand the structure of chord progressions and how individual chord notes moved when they were used as overheads in class discussions. The abstract nature of the diagrams, however, did not provide the student with ways to relate this understanding to realistic shapes on the keyboard. From this perspective they were similar to the notated progressions. Uses of the visualizer in class discussions and demonstrations seemed to have provided the link between her understanding of the structure of progressions and the piano keyboard. The key/note visualizer had helped the student transform abstract notation into more concrete groups of keys that represented the notated chords. With this new understanding,

the student was able to apply fingering patterns and hand shapes to develop a kinesthetic sense of a progression.

Although handouts and uses of the key/note visualizer were technologies that had helped the student to structure her understanding of chord progressions, directed practice sessions had provided her with ways to merge this knowledge with the technical skills that she needed to perform them. The structured commentary and specific cues given to her as she played during directed practice sessions had helped her to develop sequenced patterns of thoughts and actions that she could use in her practice sessions outside of class. In addition to new learning strategies and practice procedures, directed practice periods had also provided the student with ways to monitor and evaluate her progress and performance.

Sight Reading Studies. Some discussions about the sight reading activities in the course occurred throughout the interviews. The student's comments about sight reading were often included in more general conversations about the instructional technologies and teaching methods that had been used in class meetings. In her remarks, however, the student indicated that identifying specific patterns of notes in the melody and accompaniment before playing through an example had helped her to sight read more easily. She also mentioned that practicing how to sight read had been important part of her learning experiences in course. She indicated that class periods in which directed practice sessions were used to study and play through specific sight reading examples had helped her to develop a set of procedures that she could use when she was asked to sight read. In her description of how brief discussions before sight reading and directed practice sessions had helped her, the student stated:

When we work on scales and progressions, I can see scales and chords, but when they're written in the music it is a little different. I mean I can see a scale in a piece and know it's a scale, but I don't always know what scale it is or how to play it. After you tell us or discuss it with us, and I know what to look for, I can see what you are talking about and know better what to do. (Appendix D, p. 295)

The student's comments about sight reading activities in the course were limited. Her remarks, however, did provide some additional evidence supporting the nature of her learning style, and the role that directed practice sessions played in helping her to combine

knowledge about music with performance skills.

Repertoire Studies. During discussions of repertoire studies in the course, the student stated that hand coordination and learning to play repertoire pieces smoothly had been challenging for her. She commented that, at the beginning of the semester, analyzing repertoire pieces to find patterns of notes that formed hand positions, and blocking them on the keyboard, had been new experiences in her learning. She explained that, in her previous keyboard studies, she had not looked for any kinds of patterns, and that she had learned to play repertoire pieces by practicing them note-by-note. In descriptions of her current studies the student remarked that analytical discussions, blocking activities, and handouts containing reductions of repertoire pieces had been effective in helping her to understand how patterns of notes found in the music notation could be used to identify hand positions and key groups on the keyboard. In her comments she stated:

I think the handouts with the blocked chords helped me a lot, because I could play the blocked chords and then I would know where my hands were supposed to go. When I went back to the piece as it was written, it was easier to play, because I could feel the patterns of notes in my hands. (Appendix D, p. 306)

The student indicated that she had used the reductions of repertoire pieces often in her practice outside of class, and that they had changed the way that she viewed musical scores. She remarked that she did try to find patterns of notes and fingerings in the music, but that it was often difficult for her to do on her own. She explained that she had relied on the reductions to help her find fingering patterns and hand positions to practice:

I can relate how the hand positions felt in the reduction to the way the music is written out on the page better, I think. (Appendix D, p. 301)

The student also mentioned that analyzing and practicing brief exercises and chord progressions that contained material similar to that in the scores of repertoire pieces had been important to her. In her remarks she stated:

Doing a few exercises before we actually look at the piece gives me a little more knowledge about the piece when we look at it for the first time.
(Appendix D, p. 291)

.....

It helped me understand the piece when we got to it. When you just started a

repertoire piece without any exercises that led up to it, it was like being thrown in the water and told to swim. (Appendix D, p. 308)

Although the student acknowledged the importance of repertoire reductions and the use of blocking techniques in her learning, she made a clear distinction between her understanding of the scores of repertoire pieces and her ability to perform them. She explained that “knowing what the hand positions are doesn’t tell me how to play the music...or doesn’t make my fingers move any better or easier.” (Appendix D, p. 301) In the discussion that followed her comment, the student stated that directed practice sessions had been more effective than other activities in helping her to learn how to practice and play repertoire pieces. She remarked, “When we play the reductions in class, I get a better idea of the hand positions that I need to remember to play the piece,” (Appendix D, p. 301) and, “It helps me to know and understand what I have to do on my own.” (Appendix D, p. 293) In related comments about the lists of practice suggestions that were often given to students after directed practice sessions, she stated:

I like a definite agenda of things to do, especially if something is new. The little checklists of things that you gave us gave me some guidelines to follow in my practice . . . what you should practice and what you should accomplish. It gave me more motivation, too, because I could tell that I was making progress . . . or at least getting things done. I felt better about my practicing. (Appendix D, p. 307)

During interview conversations about directed practice sessions, the student also stated that some uses of the MIDI accompaniment disks provided by the authors of the textbook had been helpful in her learning. She commented that they had provided her with an aural model of individual repertoire pieces and ways to evaluate her practice. She noted, however, that playing along with the disks in class had been difficult and often confusing to her while she was still learning to play a specific piece. She explained:

Well, I try to play it perfectly, like on the disk, but I never have been able to do that yet. Sometimes all the other instruments, or sounds that I hear, get me off, because I think that it is something that I’m supposed to be playing and I’m not. (Appendix D, p. 303)

.....

. . . when I make a mistake, I can’t get back on track usually. I’d much rather play just a few measures at a time, like you have us do when you are playing through with us and practicing with us. That helps more. (Appendix D, p. 302)

She remarked that playing along with MIDI disks in class had usually made her feel more “nervous” about her playing. When she was asked how she would use the MIDI disks if she could use them in her practice outside of class, she stated that she would probably just listen them to remind her of the final performance goals.

Analyses of the student’s comments indicated that the instructional technologies that she had mentioned in discussions of other learning activities in the class had had similar affects on her learning in repertoire studies. The reductions of repertoire pieces had helped her to analyze the score and structure her understanding of the music. From this new understanding she was able to recognize hand positions and fingering patterns that she could apply in her practice. Blocking techniques used in class demonstrations, as well as directed practice sessions, also appeared to support the transfer of her knowledge about the structure of the music to concrete patterns of keys on the keyboard. Although the key/note visualizer had been used to demonstrate how the reductions of repertoire pieces could be used to block key groups and hand positions on the keyboard, the student did not mention it in her comments. However, from her remarks about the key/note visualizer in other discussions, it had played a similar role in repertoire studies in helping her link her intellectual understanding with keyboard topography.

Directed practice sessions in repertoire studies seemed to have served the same functions in her learning as they had in other activities in the course. While other kinds of technologies had helped her to establish connections between the score notation and patterns of keys on the keyboard, instructor-led directed practices sessions had provided her with ways to synchronize her understanding of the music with the sequence of technical skills needed during performance.

Field-Dependent Learner #3 (FD-3)

Scale and Arpeggio Studies. In discussions of scale and arpeggio studies, the student stated that the handouts that he had been given during he course had been helpful to him, and that he had used them frequently in his practice outside of class. The student indicated that the handouts containing a list of the note names in each scale with black key names on a higher level than the white key names had been effective in helping

him to see the shapes of scales on the keyboard more easily. (Appendix J) He explained that being able to see the shapes of whole scales on the handouts had helped also him to find smaller groups of notes that he could match with keys on the piano and specific fingering patterns. The student remarked, however, that other handouts containing keyboard diagrams had been less helpful to him. He stated that he understood the keyboard diagrams, but they had contained “too much information to take in and look at and to try and figure out.” (Appendix D, p. 332) The student explained that he could see the shapes of scales on both kinds of handouts, but that the ones with keyboard diagrams were visually more complicated, and that he had to look at them longer to understand them.

The student’s comments indicated that some of the handouts used to support scale and arpeggio studies had been effective in helping him to convert music notation into patterns of keys on the keyboard. The graph-like information contained on the handouts used in the early sections of the course had provided him with a way to link abstract symbols with concrete patterns on the keyboard. By using only the note names of each scale to illustrate its unique shape on the keyboard, the student was able to develop a separate cognitive map of each scale that helped structure his understanding. The student’s comments about the handouts containing keyboard diagrams used later in the course suggested that characteristics of his field-dependent learning style may have played a role in reducing their effectiveness. His difficulty in disembedding simple shapes in more complex designs on the GEFT appeared to have manifested itself in his difficulty in identifying scale shapes within the context of the piano keyboard. The keyboard diagrams on some of the handouts had represented a complex field of information that made it more difficult for him to see individual scale shapes.

Analyses of his comments also suggested that there was a specific sequence of understanding that was important in his learning. Once he could see the shapes of whole scales on the keyboard, he was better able to find smaller groups of keys that he could match with fingering patterns. In this regard, his understanding of scales and arpeggios on the keyboard depended on establishing hierarchies of information beginning with more general concepts and proceeding to more detailed categories. In addition to helping the student develop a framework of understanding about the shapes of scales on the keyboard,

the handouts had provided him with ways to connect his knowledge with the keyboard.

In interview conversations, the student also indicated that some uses of the key/note visualizer had improved his ability to see patterns of keys that he needed to know when he played scales and arpeggios. He stated that, "Once I understand the shape of the scale and the fingerings, . . . I can pretty much do it on my own." (Appendix D, p. 315) In related comments he explained:

I like to see what you are talking about instead of trying to figure it out with my own hand. Whenever I look at my own hand, I can't really see the shape of a scale or chord. But when I look at the visualizer, I look at the lights and stuff . . . it really helped a lot. (Appendix D, p. 333)

The student also stated that uses of the key/note visualizer had been more effective at specific stages in his learning:

If it is a new scale or arpeggio, it helps to watch you do it and tell me about the things that I need to do. (Appendix D, p. 315)

.....

I'd rather have you do it first. That way I can hear it and would know what it sounds like. If I made a mistake, my ear could tell me I was wrong. (Appendix D, p. 333)

An analysis of the student's remarks about the use of the key/note visualizer in scale and arpeggio studies indicated that it had played a role similar to that of the handouts. It had helped him to transform music notation into concrete shapes on the keyboard, and it had improved his ability to see smaller patterns of keys within scales and arpeggios. In addition to supporting his understanding of the structures of scales and arpeggios, the key/note visualizer had provided him with a way to link his knowledge with fingering patterns and technical skills. The student's comments also suggested that the key/note visualizer played a specific role in the sequence of his learning. His preference for watching demonstrations on the key/note visualizer before he played indicated that it had reinforced in his understanding of the shapes of scales and arpeggios on the keyboard, and supported the development of cognitive maps. Although the handouts and the key/note visualizer had provided the student with similar kinds of information, they had each played a specific role in his learning. While the handouts had helped the student develop a global concept of scales and arpeggios on the keyboard, the key/note visualizer had been effective

in helping him to see smaller groups of keys that were directly related to the development of his performance skills.

In his learning to perform scales and arpeggios, the student indicated that directed practice sessions that included blocking patterns on the keyboard had been important to him in scale and arpeggio studies. In his remarks about role that these instructional activities had played in his learning, he stated:

... when we played one note at a time, it helped to get my fingers to move through the scales and arpeggios. The blocking helped me to be able to set my fingers up on my hand for a certain spacing on the right keys. (Appendix D, p. 319)

This comment and others made by the student during interviews suggested that directed practice and blocking key and fingering patterns on the keyboard had helped him to connect this framework of knowledge about scales and arpeggios with performance skills.

Chord Progression Studies. During interview conversations the student stated that his understanding of chord progressions and how he practiced them had changed since his last semester of groups piano studies:

At the beginning of the semester, chord progressions were really hard to grasp. Last semester I didn't grasp them at all. I mean, even though there were patterns there, I was like still kind of lost. In my last class they didn't use the visualizer. She would explain it, but I couldn't see the patterns for some strange reason when I was looking at the music. And this semester, I'll look up here [points to the key/note visualizer] and say, "Hey, there's a pattern!" (Appendix D, p. 338)

In addition to his reference to the key/note visualizer, the student explained that handouts containing off-the-staff diagrams had also helped him to see patterns in how individual notes moved in chord progressions. The student added that, after he had used the diagrams on the handouts in his practice, it had been easier for him to find patterns in the notated progressions in the textbook. In his descriptions of how learning patterns in chord progressions had helped him, he stated, "Once I figured out which finger moves a half-step and which finger moves a whole-[step], I could do it in any key." (Appendix D, p. 320)

Analyses of the student's comments indicated that he had difficulty in relating the abstract notation of chord progressions to keyboard topography. Although he seemed able to identify patterns of whole- and half-steps in the notation, he had not been successful in connecting them to similar patterns of key relationships on the keyboard. From his

remarks, the diagrams on the handouts and uses of the key/note visualizer had supplied him with that link. Although the off-the-staff diagrams were still abstract in nature, they had provided the student with a graphic illustration of how the individual notes of the chords in progressions moved. With this framework of understanding, the student was then able to connect the sequenced pattern of note motions with specific fingerings to perform the progressions. The student's remarks also suggested that uses of the key/note visualizer in class demonstrations had supported and expanded his understanding of these patterns. The key/note visualizer had provided the student with more realistic information about the shapes of individual chords and how notes moved when progressions were performed on the keyboard.

In interview discussions the student commented that directed practice sessions had been important to him in the early stages of his learning to play chord progressions. He explained that talking through chord progressions as he played had helped him to connect his understanding with his technical skills. He noted, however, that once he understood the patterns of progressions and had played through them a few times in class, he did not need regular directed practice sessions as often. While directed practice sessions had helped the student to establish a general procedural understanding of how to perform chord progressions on the piano, his comments indicated that he had not needed them to maintain his understanding or develop effective practice strategies.

Sight Reading Studies. In discussions about sight reading activities, the student remarked that analyzing examples to find patterns in the melodies and accompaniments prior to sight reading them was a new aspect of his learning. In his comments he stated:

Before this class I really didn't look for things like that much. Before, I usually just more or less went note by note and tried to practice things I needed to fix.
(Appendix D, p. 316)

.....

When we practiced sight reading last semester, we didn't talk about looking for patterns very much, so I pretty much had to read each note as fast as I could and then try to play the right finger. I really didn't do very well at sight reading then, I don't think. (Appendix D, p. 316)

The student stated, however, that his current group piano studies had changed how he looked at sight reading examples and how he practiced them outside of class. He explained

that class discussions of how to practice sight reading had improved his ability to analyze musical examples more quickly to find patterns that he could use when he played. He remarked, "I'm starting to see things more in the music now that I know what to look for," (Appendix D, p. 316) and, "When you talk to us about the patterns and the fingerings as I'm playing, it all sort of comes together." (Appendix D, p. 317) The student also stated that specific ways of studying and practicing sight reading examples in class had influenced his learning:

I got a better feel for the key when we did a number of examples in the same key. When you told us the kinds of things to look for in a particular key . . . the patterns and chords and stuff . . . I could see them in the music easier if I had more than one chance at it. When we played in different keys, one right after the other, I really didn't have enough time to learn to think in that key very well.
(Appendix D, p. 316)

He added that he thought that practicing sight reading in this way had improved his coordination, and had made him feel more confident about his playing.

A task analysis of sight reading music on the piano indicates that it requires students to coordinate different forms of knowledge and sequence complex sets of thinking and playing skills within a short period of time. In addition to being able to translate abstract musical notation into concrete keyboard topography, students must also be able to coordinate hands and individual fingers to perform sequences of notes and rhythms quickly and accurately. The student's description of his previous approach to sight reading indicated that parts of these complex sets of skills were missing or undeveloped. Although he could read music notation, he did not have a way of organizing his understanding of notation and connecting it to the keyboard and his playing skills. He sight read music in much the same way that an individual might read the letters of words rather than the word itself: one note at a time. Discussions and demonstrations of how to structure music notation to find patterns of notes that could be matched with patterns of keys on the keyboard had provided the link that he needed in developing his sight reading skills. As his comments indicated, studying how analyzing sight reading examples and talking through them had provided him with ways to organize and sequence his skills more effectively.

Although blocking techniques and the key/note visualizer had been used during

demonstrations and directed practice sessions, the student did make direct references to them in his comments. From his remarks about their effectiveness in other learning activities in the course, it could be inferred that they had had similar influences in his sight reading studies. The data indicated, however, that the human technology had played a central role in the student's development of his sight reading skills. The sequenced information given to him during class demonstrations and directed practice sessions had provided him with ways to structure his understanding and link it to performance skills.

Repertoire Studies. The student remarked that learning repertoire pieces had been a challenging part of the course, and that learning new ways to study and practice them had been important to him. In his studies the student stated that handouts containing reductions of repertoire pieces had been particularly important in helping him to analyze the music and find patterns of notes and chords that he could relate to the piano keyboard. In his remarks he stated:

I really didn't look at music as a logical thing, of why it was written that way. Now I can see more patterns, and sometimes there is something that doesn't fit, I can see that it doesn't fit. I guess I see a lot more things. (Appendix D, p. 339)

He commented that he had used the reductions regularly in his practice outside of class, especially in the early stages of his learning. The student noted that, after he had become familiar with the patterns on the handouts, he had used the full score more often. He also indicated that it had made a difference to him when the reductions had been given to him. He explained that not having the reduction of "The Harpist" before he looked at the full score had made it difficult for him to identify the seventh-chord structures in the broken chord patterns. Consequently, he felt that he had not understood the music as well, and that it had taken him longer to learn to play the piece. In his remarks, the student explained that, when reductions had not received a reduction for some repertoire studies, he had used a computer-based music notation program to make one for use in his practice.

Analyses of the student's comments suggested that they had influenced his learning in two ways. First, they had reduced the visual complexity of fully notated scores and helped him to find patterns of notes and chords that he could use to understand the structure of the music. In this regard, the reductions had provided him with an analytical perspective

that was not a natural part of his learning style. Secondly, the reductions had improved the student's ability to convert abstract notation into patterns of keys and hand shapes on the keyboard. In his learning the reductions had helped him to link different forms of knowledge about music and the piano keyboard. The significance of reductions in the student's learning was demonstrated by his initiative in making reductions of his own for repertoire studies in which none were provided.

The student also mentioned that using the key/note visualizer to block note groups and hand positions from the score after he had used the reductions had helped him to connect patterns on the keyboard with fingerings and hand shapes. During these activities the student explained that he often drew boxes around groups of notes in the score and labeled them with chord names or symbols. He stated that these were landmarks that he used in his practice outside of class. The student's remarks indicated that the use of blocking techniques and the key/note visualizer had played an influential role at a specific stage in his learning of repertoire pieces. After using the reductions to help structure his understanding of the music, the student was better prepared to apply other analytical techniques using the score. Combining these techniques with blocking exercises and the key/note visualizer had aided the student in developing a sequence of learning that connected his understanding with technical skills.

In interview conversations the student stated that practicing short preparatory exercises containing elements related to repertoire pieces had also been important to him in his learning processes. He explained that playing exercises before practicing from the score had given him a better understanding of the kinds of things to expect when he played and general technical skills that he could apply in his practice. The student's comments suggested that these exercises had been a form of kinesthetic preparation in his learning to play repertoire pieces that had resulted in a deeper understanding of the music.

In addition to the technologies and instructional methods that had improved the student's understanding of repertoire pieces, he stated that directed practice sessions had been important to him in learning how to practice them. The student explained that guided practice had helped him improve his hand coordination and develop practice strategies that he used outside of class. In his remarks he stated, "It helps a lot to hear someone tell me

about what I need to do, and then I get it," (Appendix D, p. 312) and:

I have a better idea of how to go about practicing now. When you explain the kinds of patterns to look for and practice with us in class it has helped me to know what to practice better. (Appendix D, p. 313)

Interpretations of the student's comments suggest that directed practice in repertoire studies had functioned in much the same way as they had in other learning activities in the course. They had helped him to sequence his thinking and playing skills in a procedural context, and assisted him in developing more effective practice techniques.

Field-Dependent Learner #4 (FD-4)

Scale and Arpeggio Studies. Throughout interview conversations, the student repeatedly stressed the importance of the handouts that she had received in scale and arpeggio studies in the course. (Appendix J) She stated that they had played a significant role in her studies, and that she had used them regularly in her practice outside of class. In her descriptions of how the handouts had influenced her learning, the student made the following comments:

When I used at the sheet, I could see patterns of notes that I could relate to the keyboard, and that helped me with the fingerings. . . . They helped me to visualize the things that I needed to play the different scales and arpeggios.
(Appendix D, p. 350)

.....

All I had to do was look at that and I knew where my fingers needed to be when I played the scales. (Appendix D, p. 357)

.....

Seeing where the black notes are in the scale on those sheets has helped me with my fingering when I play. After looking at the way the scales are written out on the sheets you gave us, I can see how the keys on the piano are grouped together.
(Appendix D, p. 345)

In the third interview the student remarked that the handouts containing keyboard diagram has been even clearer and easier to use. She explained, however, that she had not used these handouts as much:

. . . I didn't like to rely on that one too much, because it tells you exactly what to play, and I didn't know if I'd really learn, or memorize, the scale patterns as well.

I think the ones with just the note names with the black keys on a higher level helps to learn the scales better. (Appendix D, p. 357)

She added, "I understood the concept of the scale better with the one with just the note names on it." (Appendix D, p. 357)

In her descriptions of how she had used them in her practice, the student stated that she matched groups of notes on the handouts with patterns of keys on the keyboard and that marked the notes where the thumb was used to begin a new group. She stated, "I found where I needed to put my thumb first then where the other notes of the scale were and the fingers that I needed to finish the pattern." (Appendix D, p. 350)

The student's comments about the handouts indicated that they had helped her to understand the overall shapes of scales and arpeggios, as well as their substructures. Although she did not state that she had difficulty in finding patterns in the notation of scales and arpeggios, the importance that she placed on them and the frequency with which she used them in her practice, suggested that she had not established a strong connection between music notation and keyboard topography. In her learning, the handouts had provided her with a way to analyze scales and arpeggios and combine her understanding with her knowledge of the piano keyboard. The student's comments also indicated that her ability to apply fingerings to perform scales and arpeggios was directly linked to her understanding of scales were structured on the keyboard.

During the interviews, the student indicated that directed practice sessions had been important in her learning to perform and practice scales and arpeggios. In her comments she remarked:

It gives me a way, or a procedure, to follow in my own practice. After we talked through things, I kind of know better what I need to do on my own.
(Appendix D, p. 361)

.....

After we talked through things a few times, I can remember what you said to think about, or be sure to do, and then practicing on my own was easier, I think.
(Appendix D, p. 361)

The student's comments about directed practice sessions in scale and arpeggio studies were not as extensive as those in discussions of other learning activities of the course. However,

her remarks indicated that they had helped her to develop more effective practice techniques and ways to evaluate her progress.

Chord Progression Studies. The student stated that chord progression studies had not been as difficult for her as other activities in the course. In her learning, the student explained that she focused on understanding the shapes of chords and how individual notes moved between the chords in a progression. She commented that handouts containing off-the-staff diagrams had helped her to see patterns of motion in chords progressions more easily, and that she had used them in her practice outside of class. She stated, “When I used the diagram, I could see patterns of how notes moved and know which key to play next.” (Appendix D, p. 351) She noted, however, that she had not considered them to be an essential part of her learning, and that she thought she would have eventually discovered the patterns in individual chord progressions on her own. (Appendix J) In her remarks about the sequenced list of instructions to perform specific chord progressions that were also included on handouts, she stated that they had been too confusing, and that she had not used them in her practice.

In discussions about the use of the key/note visualizer to demonstrate chord shapes and note motions in chord progressions, the student explained that it had been somewhat confusing to her:

I think its the orange background. It’s hard to see what key to play sometimes. I think it’s the combination of all the things to look at that confuses my eye a little. (Appendix D, p. 352)

.....

The visualizer is confusing to me most of the time...at least the staff line side of it. The keyboard side of it is helpful sometimes, though. Like when we’re working on a progression, and I absolutely can’t find the place where my fingers are supposed to go, I’ll look at it if it’s on. (Appendix D, p. 347)

Despite these difficulties, the student indicated that some uses of the key/note visualizer had been helpful to her in learning chord progressions. She explained that, when she had watched demonstrations of chord shapes and patterns of note motions before she played, the key/note visualizer had reinforced her understanding of these elements in chord progressions. In contrast, the student stated that, when it had been used to support sequenced verbal instructions during directed practice sessions it had been less effective:

By the time I look up and then look at my keyboard, I'm already behind. It just takes me a little time to look back and forth. I'd rather just try and concentrate on what you are telling us over the headphones. (Appendix D, p. 347)

Although some handouts and uses of the key/note visualizer had improved the student's understanding of chord progressions, she stated that directed practice sessions had been important in her learning to play chord progressions. She stated that talking through progressions using the textbook had often been more effective than handouts and the key/note visualizer in helping her to connect her understanding of note and finger patterns with her playing skills:

When we talked through them in class, I learned how, or what, to think about, and what to watch for when I played. I think it helped me to know how to practice them on my own better. (Appendix D, p. 357)

In her responses to questions about whether directed practice was important at all stages of her learning of chord progressions, the student replied:

I would probably be easier if you talked us through them, but I would probably get them on my own, too. It probably would be good to talk us through a new key one or two times, then after that, I could get it. (Appendix D, p. 358)

Analyses of the student's remarks indicated that, in the early stages of her learning, the off-the-staff diagrams on handouts had been effective in helping her to find patterns in chords progressions more easily. Although these diagrams had provided her with a graphical analysis of the structure of individual chord progressions that had made her practice more efficient, they had not been essential in her learning processes. The student's comments suggested that she had already developed skills to find patterns in notated chord progressions and link them to the piano keyboard and her playing skills. In this respect, the diagrams had served only to reinforced her understanding and learning sequences. In spite of the difficulties that the student mentioned concerning the key/note visualizer, her remarks suggested that it had also played a role in her studies of chord progressions. When it had been used in demonstrations, the key/note visualizer had supported her understanding of patterns of key motions, and had provided her with realistic models of how chord progressions looked and sounded when they were performed on the keyboard.

While these two technologies had been somewhat useful in improving the student's

understanding of chord progressions, directed practice sessions had been more influential in her learning to practice and play chord progressions. The sequenced verbal instructions given to her as she played progressions had helped her to synchronize her understanding with performance skills, and develop more effective learning strategies in the form of mental scripts that she could use in her practice outside of class. Although directed practice sessions were not essential at all stages of her learning, they had been an important activity in completing her learning sequences.

Sight Reading Studies. In discussions throughout the interviews, the student stated that learning how to practice sight reading had been important to her. In her description of some of the difficulties she had in this learning activity, she remarked that she could often see patterns in the music, but that knowing that they were there had not improved her ability to play them at sight. Even after recognizing patterns in the music, she explained that, when she played, “I just see the individual notes in the music, and then find the key I need to play.” (Appendix D, p. 352) She commented that discussions of how to analyze sight reading examples followed by directed practice sessions had helped her to connect her understanding of the music with the piano keyboard and her playing skills:

It’s better to hear you explain things first and show me what to look for. If it’s something that we have talked about before, then it’s helpful to talk about them as we play. I get a better idea of what I should be watching for or thinking about when I play. (Appendix D, p. 347)

The student also indicated that talking through a series of sight reading examples in the same key had also been helpful to her in her learning:

I get to know what to look for or expect in that key when I come across it again. I think I get a better feel for how that key feels on the piano, too. I learn the patterns better. (Appendix D, p. 347)

The student indicated that she felt confident about her abilities to analyze music notation and find patterns that she could apply to the keyboard. However, her comments suggested that there were two weaknesses in her learning processes that affected her learning to sight reading. Although she could identify groups of notes in the music notation, she had not developed a procedural kinesthetic response to these patterns. As a result, a pattern, such as a scale, that she could understand intellectually, was still performed one note at a time. The student also indicated that she had not developed a

sequence of learning strategies that she could use to connect her understanding of the music with her playing skills in sight reading. In this regard, the skills that she used to analyze and understand the music were more or less separate from the skills that she used to perform it.

From the student's comments, analytical discussions of individual sight reading examples followed by directed practice had provided her with ways to strengthen these weaknesses in her learning. Discussion in which patterns in the music were identified and practiced had helped her to link her understanding of individual patterns with specific performance skills. Similarly, directed practice sessions of complete examples after discussions had helped her to develop procedures and sequenced patterns of practice techniques that she could use on her own.

Repertoire Studies. During interview conversations, the student commented that repertoire studies had always been more challenging for her than other learning activities in group piano studies. She stated that finding ways to improve her hand coordination and learning how to practice repertoire pieces had been important to her. In her remarks about her current studies, the student stated that reductions had changed the way that she viewed the printed scores of repertoire pieces, and that she had used them often in her practice outside of class. In her comments about how the reductions had helped her, she made the following statements:

They helped me in my coordination, because they showed me where my hands were supposed to be on the keyboard. Knowing that some notes were part of chord helped, because it was easier to play individual notes after that.
(Appendix D, p. 342)

.....

Seeing how things are grouped helps me understand the music a little better, I think. (Appendix D, p. 343)

.....

They helped me see the things the pieces are based on, like chords and scales. It was easier to see how the notes could be grouped into patterns that I could practice on my own. They helped me see what my hands needed to do.
(Appendix D, p. 359)

.....

. . . they helped me to know ways to practice. Once you showed us how to use the handouts, when I went to the practice room, I had kind of an idea of what I was going to do. (Appendix D, p. 361)

The student also remarked that having reductions of repertoire pieces before she used the full score had made a difference in her learning:

I like getting the reductions first, because you get into the piece knowing what to look for, or things you are going to find." (Appendix D, p. 359)

Although the student stated that she had not had difficulty in finding structures in the musical examples used in other learning activities, her comments indicated that her analytical skills in repertoire studies were less effective. The student's remarks also suggested that these skills were somewhat contextual. Her skills in finding patterns in isolated studies of scales, arpeggios, and chord progressions appeared not to have been fully transferred to repertoire studies. This may have been related to some of the characteristics of her learning style. Her difficulty in finding smaller structures in the complex designs on the GEFT seemed to have been reflected in the difficulty she had in finding smaller musical structures in the scores of repertoire pieces.

The student's remarks about the use of reductions in repertoire studies indicated, however, that they had helped her to improve the effectiveness of her analytical skills in this learning activity. In the early stages of her learning, reductions had helped to simplify and structure the scores of repertoire pieces and to improve her understanding of the music. From this framework of understanding, the student was then able to relate the patterns she found on the the reductions to specific hand positions and key groups on the piano keyboard and connect them to her technical skills. The student's comments also suggested that, once she had established this understanding from using the reductions, she was more successful in developing effective learning strategies to use in her practice outside of class.

During interview discussions the student also stated that practicing preparatory exercises related to specific repertoire pieces had been important in her studies. In her remarks she made the following statements:

After we work on those kinds of exercises related to the piece, I kind of know better what to expect when I look at the music. The exercises help me with knowing hand positions better. (Appendix D, p. 353)

I like working on exercises first. Working on exercises first helps me to see things in the piece better, and know how to practice it. I think it helps me to see and remember better some of the patterns that I'm going to need to know to play the piece, too. (Appendix D, p. 355)

Interpretations of the student's comments suggested that preparatory exercises had provided the student with another layer of understanding about repertoire pieces in her learning sequences. They had provided her an opportunity to combine her knowledge about the structure of the music with the specific technical skills that she would need. In this way, preparatory exercises represented a kinesthetic preview of the kinds of things that would find and experience in her practicing to perform repertoire pieces.

In addition to preparatory exercises, the student stated that directed practice sessions had been an important influence in her learning. In her remarks she explained why these sessions had been important to her, and how they had changed the ways she practiced repertoire pieces:

I didn't have any practice techniques, I don't think. I just opened the book and worked on things that I needed to work on. I just sort of played through things a lot. (Appendix D, p. 361)

.....

I think talking about different ways of looking for things in the music and finding different ways to practice were the most important things to me about the class this semester. The handouts and things like that helped me a lot, as I mentioned before. I think it was more organized this semester than my first semester. Last semester we just went through different exercises and repertoire pieces and then had a test. Sometimes I didn't feel like I was making any progress. I did okay on the tests, I think, but I really didn't know if I was learning to play the piano better. (Appendix D, p. 362)

.....

I like to know what I'm doing and why. If the class seems too loose, I don't feel like I know where I'm going with it. I like to know what I need to do, and like to feel that, if I do these steps in my practice, that I'm going to get better. (Appendix D, p. 363)

The student's comments indicated that directed practice sessions had played an important role in completing the sequence of learning skills that she used in repertoire studies. In addition to providing her with opportunities to combine her knowledge about repertoire pieces with technical skills in a performance/procedural context, they had

strengthened her ability to develop learning strategies that she could use to organize her practice outside of class.

Field-Independent Learners

Field-Independent Learner #1 (FI-1)

Scale and Arpeggio Studies. During interview conversations the student stated that scale and arpeggio studies had not been a difficult learning activity in the course. He explained that he understood the concept of scales and arpeggios, and that he felt confident about his ability to identify them in music and name the notes of the scales and arpeggios that he had studied. In describing how he applied his knowledge to the piano keyboard, he stated that, when he looked at the notation of scales and arpeggios, he tried to visualize their shapes on the keyboard and then looked for groups of keys that he could relate to specific fingering patterns. He also explained that sometimes he had looked at the fingering numbers printed above the notes of scales and arpeggios in the textbook to find patterns of notes that began with the thumb and then practiced playing these groups. At other times, the student commented that he had taken a more tactile approach in his learning: “I just played the scale and the fingerings just fell into place as I played them.” (Appendix D, p. 374)

In discussions about the handouts that were used in scale and arpeggio studies, the student remarked that he understood their purpose, but that he had not needed them to understand the shapes of scales and arpeggios, or to analyze them to find patterns of notes that he could relate to the keyboard. He explained that he usually discovered these kinds of patterns in scales and arpeggios when he practiced them on his own:

They just sort of fell into place as I practiced them. I mean, I didn’t even look at the sheets that you gave us with the fingerings on them . . . except when we used them in class. (Appendix D, p. 374)

The student made similar remarks about the use of the key/note visualizer in class discussions and demonstrations of scales and arpeggios. He stated that he thought that it had added variety to class presentations, but that he had not needed it to understand how scales and arpeggios looked on the keyboard, or how to match key patterns with

fingerings.

The student's comments indicated that, in his studies of scales and arpeggios, he had developed a unified sequence of learning strategies based on his ability to analyze information and connect different forms of knowledge. Although handouts and the key/note visualizer had been used to support the development of these kinds of skills, the student's remarks suggested that his understanding of scales and arpeggios was already strongly linked to his knowledge of the piano keyboard and his playing skills. In his learning processes the handouts and uses of the visualizer had served only to reinforce the learning skills and practice strategies that he had already developed.

In discussions about his learning to practice and play scales and arpeggios, the student commented that he thought that directed practice sessions had been a useful activity in the early stages of his learning. He explained, however, that he already had specific practice techniques that he used, and that group practice had not always been necessary:

I just like working on things on my own, especially if I already understand what I need to do. (Appendix D, p. 368)

.....

I prefer to work on my own, I think. I'd get it done faster, I think. I have my own way of working on things that I like to do that I know will get the job done. I can stay focused on the things that I need to work on if I work by myself. (Appendix D, p. 368)

The student's ability to analyze and structure different forms of information appeared to have also manifested itself in his ability to develop effective learning strategies that he could use to organize his practice. Although directed practice sessions were designed to provide the student with structured opportunities to coordinate understanding with technical skills in a performance context, they had not been essential in his learning. The student's comments suggested that he had a clear understanding of performance objectives and ways to achieve them.

Chord Progression Studies. The student described chord progression studies as one of the easier learning activities in the course. In descriptions of how he studied chord progressions, he stated that, in the early stages of his learning, he generally focused on

understanding the structures of chords in the progressions and how individual chord notes moved. Although handouts had been distributed to illustrate these concepts, the student stated that he had not needed or used them in his practice. He explained that, when he looked at the notated progressions in the textbook, he could “see what needed to happen on the keys,” (Appendix D, p. 374) and that, after playing through a progression a couple of times, he had memorized the patterns of note motions between chords. He added that, once he understood these patterns, it had been easy to transpose the progression to other keys.

Although the student had focused on finding patterns in chord progressions in the initial stages of his learning, he stated that he had used other techniques in his learning to increase his understanding of individual progressions. The student explained that he also tried to think of the individual chords in a progression as part of a key structure, and that he used a visualization technique to connect his understanding to the keyboard:

I try to visualize how I'd play them on the piano. Doing that helps me to look to connect what I see on the page with what it would be like to play it on the piano. (Appendix D, p. 365)

.....

When I look at a chord progression, or a piece of music really, I try to visualize how my hands would play it and see it in my mind . . . the fingers that I would use and how it would feel. (Appendix D, p. 366)

.....

. . . in the progressions we have done, some of them are in minor and others are in major, and you need to know when to use the raised-sixth, say, or the raised-seventh. It works better for me when I know the harmony, or chord, that I'm trying to play. (Appendix D, p. 383)

.....

I'm thinking in the key we are playing in. I know that there are patterns to the progression, but to me they're patterns within the key signature. (Appendix D, p. 384)

In his responses to questions about the kinds of class activities that he thought had helped him to understand chord progressions better, he replied that no one kind of presentation or learning activity had been more important than others. Although

handouts and the key/note visualizer had been used in class discussions and demonstrations to provided students with ways to analyze and practice chord progressions, the student stated that they had not been essential in his learning:

I think that I'd learn the patterns better if I found them myself. I might have to look at it for a couple of minutes though, but I could find the patterns that I would need to know to play the progression. (Appendix D, p. 369)

As in other activities of the course, the student's ability to analyze and structure different forms of information had helped him to develop an integrated series of learning strategies that he used in his study of chord progressions. In the early stages of his learning, the analytical nature of his learning style had provided him with skills to find patterns in the notation of chord progressions and sequence his understanding of how notes moved between individual chords. Similar uses of his analytical skills had enabled the student to link these patterns to his structured knowledge of the piano keyboard. The student's comments provided clear evidence that he had used a cognitive map of the keyboard to visualize how shapes of chords and patterns of note motions looked on the keyboard. From this understanding the student then applied fingerings to develop a pattern of technical skills that he used to perform progressions. In addition to the student's ability to structure his own learning, his comments also revealed that he had expanded his understanding of chord progressions by linking them to other forms of musical knowledge. Although he had already developed the fundamental skills needed in the course to understand and learn chord progressions, he had strengthened his learning by connecting it a larger framework of knowledge about music theory.

In discussions about how he learned to perform chord progressions, the student stated that directed practice sessions had been useful in the early stages of his learning:

I think talking us through the process as we're doing it a couple of times works the best. I like when we play one chord and then play the next chord and then try to visualize what we did to get there. That teaches me more than any other way how to think my way through a progression. After we've done that a couple of times, I pretty much can visualize how to do it in other keys. (Appendix D, p. 369)

The student explained however, that group practice had not been necessary in later stages:

Sometimes when you talked to us over the headphones, telling us which finger to move and how far, it kind of bothered me, because I was thinking about it in a different way. (Appendix D, p. 384)

I think that I could learn it faster than going step-by-step. Maybe if you gave the people who wanted individual time a chance to work on their own, you could do a walk-through with just the ones who wanted it or needed it. (Appendix D, p. 370)

Although the student had found directed practice sessions to be useful in the early stages of chord progressions studies, they had not been an essential part of his learning to practice and perform chord progressions. Analyses of his comments suggested that he had not needed structured sequences of verbal information and cues to develop a procedural understanding of individual chord progressions or effective practice strategies.

Repertoire Studies. The student stated that some repertoire studies in the course had posed a challenge to his technical skills and hand coordination. He remarked, however, that the practice techniques he used had helped him to master these pieces. In discussions of how he studied repertoire pieces he stated that he usually used an analytical approach in his learning processes:

I look for patterns and things that help me understand the music better, because that gives me ways to practice. Once I know what's there, I can usually apply different kinds of practice techniques to learn the music. (Appendix D, p. 370)

.....

I usually look for patterns, like scales, chords, things like that, and try to make sense of what's in the music as I practice it. (Appendix D, p. 383)

.....

I like breaking things down into sections and working on parts, or sections, first. That's part of practicing, I think. I don't like looking at things as a whole first. I like analyzing different sections of the music to find things to work on, and then put it all together after they are in pretty good shape. (Appendix D, p. 387)

In his studies the student stated that reductions of repertoire pieces and blocking patterns from the score had sometimes been useful. He explained that they had helped him "to visualize how to play the chords a little easier on the piano." (Appendix D, p. 365) He noted, however, that he had not used the reductions very often in his practice outside of class, and that finding patterns in music was usually easy for him to do. He explained that, after he had used the reductions one or two times, he had not needed them:

I learned what each chord felt like on the piano about the second or third time I used it, and after that I just looked at the music and knew what each measure was going to feel like on the piano. (Appendix D, p. 346)

I really didn't use the reductions very much. I mean, like in the repertoire piece "Etude" that we did at the beginning of the semester, it really didn't matter very much if I used the music in the book or the sheet of blocked chords. (Appendix D, p. 379)

.....

I basically used them as references sometimes. I could see the chords in the piece itself, and if I needed to work on finger patterns or hand positions, I'd just blocked them from the music. (Appendix D, p. 386)

The key/note visualizer had also been used in class discussions to help students relate the music notation in the scores and reductions to specific patterns and shapes on the piano keyboard. In his responses to questions about the importance of these kinds of demonstrations in his learning, he replied that the key/note visualizer had added to the overall quality of the presentations, but that he had needed it to find patterns in the music and relate them to the piano keyboard:

... it's a good thing to do maybe, but I can usually see the patterns that I need to practice, so I like to practice it on my own first. ... I'm pretty independent when it comes to learning. I like figuring things out on my own. (Appendix D, p. 379)

During conversations about how he preferred to study repertoire pieces, the student stated that analyzing the scores in class to identify hand positions and other kinds of patterns had been more helpful to him than reductions or practicing preparatory exercises. He explained that studying repertoire pieces using score had made his learning and practice more meaningful and efficient:

When I see something in the music, I can practice it the way it's written there, instead of working on an exercise type of thing that I might never find in the piece. (Appendix D, p. 388)

The student's descriptions of how he approached the study of repertoire pieces confirmed the presence of strong analytical skills in his learning processes. His remarks illustrated once again how he had used these skills to structure his understanding of the scores of repertoire pieces and relate his knowledge to the piano keyboard and his playing skills. As quotations of his remarks reveal, the student's ability to analyze, understand, and transform information were so closely linked that they appeared to be a part of a single learning process. Although instructional technologies and teaching methods had been used in the class to sequence and support the development of these skills, the student

clearly had not needed this more structured approach throughout his learning processes.

In interview conversations about the effectiveness of directed practice sessions in his learning to practice and perform repertoire pieces, the student made comments similar to those he had made in discussions about other learning activities in the course. While he indicated that they had not been counterproductive, he stated that he preferred having short individual practice periods after class discussions and demonstrations to apply what he had learned:

I get things we talk about pretty easy. Usually, if it is something that I haven't heard about before, it's usually a matter of me just thinking it out for myself and deciding what I need to do in my own practice. (Appendix D, p. 368)

.....

It didn't bother me, but I really didn't need it . . . sometimes I really didn't listen to what you were telling us over the headphones. I just went ahead and practiced what I needed to do in the exercise or piece. (Appendix D, p. 387)

In his comments about the use of MIDI disks to support directed practice sessions in repertoire studies, the student stated that he thought that they had provided him with good aural models of pieces that he was not familiar with. He added, however, that playing along with them to practice keeping a steady tempo had not been effective until after he had learned to play repertoire pieces:

I can pretty much keep a steady tempo on my own. If I can't, it's that I'm having a problem with notes or fingerings that I need to work on myself. (Appendix D, p. 389)

When he was asked how he would use the MIDI disks and sequencer in his practice if he had regular access to them, he replied that he might use the sequencer to record his performances of repertoire pieces to evaluate his playing or make his own arrangements of them. Although he commented that the MIDI disks had been an interesting way of practicing repertoire pieces in class, he stated that they had not played an important part in his learning.

In his practice to perform repertoire pieces, the student's comments indicated that he had not needed structured group practice sessions to help him develop effective learning strategies or ways to evaluate his progress. His abilities to analyze information and structure his understanding in other aspects of repertoire studies was reflected in his

capacity to evaluate his own playing, identify performance problems, and apply practice techniques to solve them.

Field-Independent Learner #2 (FI-2)

Scale and Arpeggio Studies. In interview conversations the student stated that scale and arpeggio studies had not been a difficult part of the course for him. In his descriptions of how he studied and practiced them, the student explained that, in the previous semester of groups piano studies, he had played through them using the textbook and looked for key groups and fingering patterns to practice. The student commented that the handouts that he had received in the present semester had helped him to find patterns in scales and arpeggios more quickly, and that they had made his practice easier. He explained that playing through scales and arpeggios in class using the handouts had helped him to learn how they felt on the piano keyboard and the fingering patterns to use. The student noted that the key/note visualizer had also been useful when it was used during class discussions and demonstrations:

... seeing the note groups in the scales when you do it on the visualizer helps me see the patterns better when I practice scales. It still helps at the beginning to have you talk through it a couple of times, though. (Appendix D, p. 396)

.....

Sometimes just hearing about something, like finger patterns, doesn't translate to the keyboard easily, especially if you haven't had a lot of piano studies. It's kind of nice to see and hear it at the same time. (Appendix D, p. 403)

He added, however, that he did not have much trouble finding patterns in scales and arpeggios when he played them on the keyboard, and that the handouts and the key/note visualizer had not been essential to him in his understanding of them.

In learning to play scales and arpeggios, the student stated that, once he understood the patterns of keys and fingerings, he did not have difficulty in devising ways to practice them. He noted, however, that group practice sessions had been a good activity in the early stages of his learning, but that they had not been necessary after that:

Talking through the scale, as least a couple of times helped, but after that, I pretty much had the patterns down, so I guess I didn't need the talk-throughs all the time. (Appendix D, p. 392)

Although the technologies and instructional methods used in course had improved the efficiency of the student's learning and practice, they had not been essential in his learning to understand scales and arpeggios or how to relate his knowledge to the piano keyboard. His descriptions of how he learned them indicated that he had established an effective series of learning strategies that combined his analytical skills with his playing skills to find meaningful patterns in scales and arpeggios and formulate practice strategies. In his learning the use of handouts and the key/note visualizer in class discussions, as well as directed practice sessions, had served only to reinforce the sequence of learning skills that he had already developed.

Chord Progression Studies. In chord progression studies the student explained that he concentrated on learning the shapes of chords and the patterns of how notes moved between chords. In his descriptions of how he learned these shapes and patterns, the student stated that he usually played through chord progressions using the textbook and looked for patterns on the keyboard that helped him understand the sequence of note motions needed to perform them. He explained that, once he understood the patterns of individual progressions, he had not had difficulty in transposing them to other keys. The student noted, however, that handouts (Appendix J) and uses of the visualizer in class discussions had helped him in his learning:

The little diagram helped me. It showed me how the notes moved from one chord to the other. Looking at the music . . . the way it is written out in the book . . . it is a little intimidating at first. It was easier to learn it seeing how the note moved . . . and also being talked through it a couple of times helped out. (Appendix D, p. 395)

.....

I think seeing you do it and then letting me practice it on my own piano worked best for me. That way I can think through what I need to do myself. (Appendix D, p. 395)

.....

When you demonstrated the progression on the visualizer and I just watched, it helped me see relationships better. I kind of knew better how the notes should move when I play. (Appendix D, p. 413)

The student's comments indicated that the technologies used during instruction to support his learning of chord progressions had been somewhat more effective than in other

activities of the course. Although he had developed a relatively effective way of analyzing the structure of chord progressions by playing through them using the notation in the textbook, the handouts and the key/note visualizer had helped him to see patterns in notated chord progressions and relate to the piano keyboard more quickly. Analyses of the student's remarks suggested that these technologies had supported his existing analytical skills and improved the efficiency of his learning and practice.

Repertoire Studies. The student stated that he usually began the study of a new repertoire pieces by looking for patterns of notes in the score that represented hand positions and fingering patterns on the keyboard. He commented that analyzing the music to find these kinds of patterns had usually reduced the amount of practice time he needed to accomplish repertoire pieces, and that it had also helped him to develop ways to practice them. The student stated that class discussions using reductions of repertoire pieces to analyze the scores had been useful, but that they had not been necessary to help him see hand positions and other patterns of notes in the music:

The reductions just made it easier. It saved me some time in my practicing. I usually just jump in and find patterns as I'm practicing the music.
(Appendix D, p. 393)

The student commented, however, that he had used the reductions in his learning of the "Etude" and "The Harpist." He explained that the reductions had helped to remind him of the patterns in the music, and that he had used them to memorize the music:

I used the reduction instead of the score most of the time. The rhythms in each measure were all the same, so it was easier to just look at the chords on the sheet.
(Appendix D, p. 393)

.....

They kind of got me to where I think about it even if I don't have it right in front of me. It's gotten me to where I can look at a measure and see the notes that form patterns that help me to practice. (Appendix D, p.409)

.....

Once I understand the pattern, I pretty much get to the point where I don't need to look at the music much. I just remember the patterns. (Appendix D, p. 410)

In his learning to perform repertoire pieces, the student stated that directed practice sessions had sometimes been helpful to him in the early stages of his studies. He explained

that, after he had become familiar with the hand patterns and technical challenges of a piece, short individual practice sessions after discussions and demonstrations had been more meaningful to him.

The student's remarks indicated that he had developed an strong sequence of learning skills to use in his studies of repertoire pieces. Although a variety of instructional technologies and teaching methods had been used in the course to structure his learning and support the development of specific skills, these clearly were not essential to him in his learning processes. His analytical approach to repertoire studies had provided him with the skills that he needed to find meaningful structures in the scores of repertoire pieces, connect them to piano keyboard, and develop effective practice strategies. The instructional technologies and teaching methods only reinforced skills he already possessed.

Field-Independent Learner #3 (FI-3)

Scale and Arpeggio Studies. During interview conversations, the student stated that scale and arpeggio studies had not been a difficult part of the course for her. Although she described major and minor scales beginning on black keys as having been somewhat more challenging than others, she explained that, once she understood the fingering patterns, they had not been hard for her to learn. She stated that she understood the concepts of scales and arpeggios, and that she felt confident about her ability to identify them in music and name the notes of those that were familiar to her. In describing how she applied her knowledge of scales and arpeggios to the piano keyboard, she stated that it was usually easy for her to identify patterns in the notation and to relate them to shapes and groups of keys on the keyboard. She added, however, that she had not always been successful in developing effective fingering patterns to use. To solve this problem, the student commented that she had sometimes used the handouts she had been given to match fingering patterns with key groups on the piano. She explained that, when she had used them in her practice, she had drawn boxes around groups of note in the scales and arpeggios that began with the thumb. Although she thought that the handouts had been useful, she stated that she had not considered them to be essential in her learning, and that she probably could have determined the fingering patterns from using the notated scales in

the textbook. In her remarks she stated:

They got me started. After I used the sheets a couple of times, though, I pretty much had the scales memorized by the way they looked and felt on the piano. (Appendix D, p. 430)

In discussions about the use of the key/note visualizer in her studies, the student stated that she had not needed it to see the shapes of scales and arpeggios or patterns of keys on the piano keyboard:

I usually get what you are trying to get across just by listening to what you are saying over the headsets and looking at the piano. (Appendix D, p. 426)

.....

I just don't need it, I guess. I mean, when you tell us to look at it when you demonstrate something, I look at what you are doing, but I think I most of the time already get what you are telling us. (Appendix, D, p. 426)

Analyses of the student's remarks indicated that she had developed a sequence of effective learning strategies based on her capacity to structure and connect different forms of information and knowledge. Her analytical skills had provided her with ways to connect the notation of scales and arpeggios with concrete shapes and patterns of keys on the piano keyboard. The ease with which she did this in her learning suggested that she had developed a strong link between her understanding of music notation and a cognitive map of the keyboard. Once this framework had been established, the student was then able to connect her understanding to fingering patterns and performance skills. Although the student stated that directed practice sessions had been useful in the early stages of her learning to perform scales and arpeggios, her remarks indicated that she had not needed them to develop effective practice strategies or ways to evaluate her playing. In her studies of scales and arpeggios, the instructional technologies and teaching methods used in the course to structure the student's learning served to support the skills that she already possessed.

Chord Progression Studies. Analyses of the interview discussions revealed that the student's understanding of chord progressions and how she practiced them had changed during the course. In the first interview the student commented that the chord progression she was required to perform on the recent five-week examination had been

difficult for her to learn. Although she stated that she understood the notation and how to related it to the piano keyboard, she explained that she had not been able to “process the information fast enough” to perform the progression smoothly. In her description of how she learned the progression, she remarked that the handout containing the written list of step-by-step instructions to perform the progression had been more helpful than other ways that had been discussed in class. In the second interview, however, the student stated that chord progression on the ten-week examination had been easier for her to understand and learn. When she was asked to explain how her approach to learning chord progressions had changed, she explained:

I found that I did better when I looked at the music and analyzed how the notes moved, and you talking us through it. I like that sort of verbal talk-through that you do often when we work on chord progressions in class. (Appendix D, p. 424)

By the third interview the student’s comments indicated that her learning strategies had continued to evolve. In a series of remarks the student explained how her learning had changed and the technologies and teaching methods that had helped her:

I think that I recognize things in music faster when you talk about note groups and hand positions or fingering patterns. Before, I pretty much looked at music one note at a time. I mean that I understood from theory that notes sometimes form chords and things, but I wasn’t used to looking at music that way. I think that I am getting better about seeing things in the music and working out ways to play them on the piano, whereas, before, I’d probably just try to plunk it out note by note. (Appendix D, p. 420)

.....

In the first part of the semester, I was more focused on learning the pattern of whole-steps and half-steps between chords, but now I go for the shape of the chord more than anything. (Appendix D, p. 431)

.....

Well, it’s kind of complicated, but I think that when I learn the shape of the chords in a progression and how it fits into the key we are playing in, I learned the progression easier. Knowing what moves by whole-step or half-step helped me fix my mistakes, but I did better when I looked for the shape of the whole chord. I don’t know, though, maybe it was that I finally began to be able to think in a key better and know what the chords in a particular key look like when I have to play them on the piano. (Appendix D, p. 431)

In addition to handouts, the key/note visualizer had been used throughout the semester to provide realistic illustrations of how chord shapes and patterns of note motions

in progressions looked on the piano keyboard. The student indicated that she understood why the key/note visualizer had been used in class discussions, she stated that it had not been essential in her learning processes to understand how to relate notated chord progressions to the keyboard. In her comments she stated:

Usually, I'm a pretty visual person, but for some reason the visualizer doesn't help me much with things like that. I understood what you were talking about when you used it, but it wasn't that useful. I guess I just didn't need it to get what you were explaining. (Appendix D, p. 434)

.....

When you were talking and using the visualizer at the same time, I just listened to what you were saying and tried to translate what you were saying to my own keyboard, I didn't look at the visualizer much. (Appendix D, p. 434)

.....

Seeing things on the visualizer is different than looking at them on my piano. I did better when you talked as I played or looked at my keyboard. (Appendix D, p. 434)

Despite the use of handouts and the key/note visualizer to support the student's understanding of chord progressions, she commented that directed practice sessions had been more helpful in her learning to connect the patterns in chord progressions with hand shapes and fingering patterns. She explained that talking through chord progressions as she played them had helped her to learn and memorize the sequence of hand shapes and finger motions needed to perform individual progressions, and that this, in turn, had helped her to transpose the progressions to other keys more easily.

The student's comments and descriptions of her learning experiences in chord progression studies provided exceptionally clear information about the evolution of her learning processes. Initial interpretations of her remarks in the first interview indicated that she might have had difficulty in analyzing the patterns in notated chord progressions and relating them to the piano keyboard. However, further analyses suggested that her problems were more closely related to the development of procedural skills and learning strategies. Her remarks about the key/note visualizer indicated that she did not have difficulty in transforming abstract notation into shapes and patterns on the keyboard. In addition, her choice of using the written list of steps to perform the progression in the

first examination implied that she was not so concerned with identify hand shapes or key patterns as she was with sequencing her performance skills. The strongest evidence supporting this interpretation, however, appeared in the comments she made about the importance of directed practice in her studies of chord progressions. These remarks revealed that this instructional activity played a central role in helping her to coordinate her understanding of chord progressions with technical skills in a procedural context.

Repertoire Studies. The student stated that her primary concerns in repertoire studies had always been related to improving her technical skills and hand coordination. In early discussions about how she studied repertoire pieces, she explained that she did not have a specific set of procedures that she used, and that she usually began by playing through the score and working on problems as they occurred. In successive interview conversations, however, the student's comments indicated that her approach to learning repertoire pieces had changed during the semester. In the first interview the student stated that the reductions of repertoire pieces she had been given had shown her how to group notes in the scores to identify hand positions and fingering patterns that she could use in her practice outside of class:

... once I played through the blocked version, I could generally remember what the chords felt like, and then I just played the notes one at a time like they were written in the music. (Appendix D, p. 417)

In the second interview, the student's comments suggested that the use of blocking techniques to identify patterns from scores of repertoire pieces had changed the way that she approached her studies and the learning skills that she used. She stated that she could find meaningful patterns in the scores more easily, and that the reductions had become less important to her in her learning:

Once you showed me how to block the chords in each measure, I could see the chords in the music, so I used the music more often than the reductions. (Appendix D, p. 425)

.....

Well, now when I look at the music, not only repertoire pieces, but other things, too, I sort of know what they are supposed to feel like on the keyboard, It makes it easier to practice, because I don't have to go note by note. (Appendix D, p. 425)

In the final interview the student's remarks indicated she had applied her own

analytical skills to develop effective learning strategies that made reductions unnecessary in her learning of repertoire pieces. In her comments she explained how her learning had changed and summarized her experiences:

... I knew what you were trying to do with them. I guess I just didn't need them to learn the things that you were using them for. In the pieces that had a lot of broken chords, I guess I could see them in the music fairly easily, so, it was a matter of blocking out the hand positions and deciding on the fingerings to use. (Appendix D, p. 432)

.....

Before this class, I usually just sat down and just played through things that we were assigned to do. Now, I can actually sit down and have a way of looking at things that helps me practice better. I look for patterns more and practice them. That has been something new to me. (Appendix D, p. 436)

.....

I saw hand positions that I needed to use to play the piece. That was a "magic moment" for me, because I actually knew from looking at the music what I needed to do to learn it. I was actually able to play the right hand almost immediately, and that never happened to me before. (Appendix D, p. 437)

.....

I just saw more in the music that made sense and that gave me ideas about how to practice. (Appendix D, p. 437)

In addition to repertoire reductions, the key/note visualizer had also been used in class discussions and demonstrations to support the student's ability to connect the patterns on reductions and in the scores with shapes on the piano keyboard. Although she made brief references to the key/note visualizer during interview conversations, her comments indicated that it had not been necessary in her learning processes to help her do this.

Analyses of the student's comments indicated that reductions of repertoire pieces had played an important role in helping her to organize and apply her existing analytical skills to develop a more effective sequence of learning strategies. Although her comments in the first interview seemed to suggest that she had difficulty in analyzing the scores of repertoire pieces and grouping notes into meaningful patterns, her later remarks indicated that it was the technique of analyzing that she lacked, not the skill. When she saw how the reductions could be used to restructure her understanding of the music, she also understood how they could be used to strengthen the development of her technical skills.]

Once this link had been established, she was able to devise more effective practice techniques that improved her performance and completed her learning processes.

Field-Independent Learner #4 (FI-1)

Scale and Arpeggio Studies. During interview conversations the student stated that she had not found scale and arpeggio studies in the course to be difficult for her. In a description of how she practiced scales and arpeggios she explained that she had usually played through them slowly and looked for patterns of black and white keys and memorized them. When the student was asked if she had had any difficulty matching patterns of notes in the notated scales with patterns of keys on the keyboard, she replied that she had not. She explained that finding patterns of notes in scales to practice had not been difficult for her, and that she had been able to transfer her understanding to the keyboard easily. The student indicated that the handouts she had been given during the course had sometimes been useful in her practice outside of class. She commented that handouts with fingerings placed in boxes below note groups in the scales and arpeggios had made her practice easier, and that others containing keyboard diagrams (Appendix J), had been more realistic representations of how the scales looked on the keyboard. She added, however, that she had not considered them to be essential in her learning, and that she thought that she would have learned to play the scales as well without them. In related discussions of the other instructional technologies that had been used in scale and arpeggio studies, the student stated that none had played a particularly important role in her learning to understand or play scales. The student noted, however, that uses of the visualizer and the MIDI disks in class had worked together to make instruction more interesting.

In interview conversations the student was also asked to describe the instructional methods or class activities that had been helpful to her in scale and arpeggio studies. She stated that no single teaching method or class activity had been more important than others in her learning. She added that directed practice sessions had been “good things” to do in class, but that they had been “just more practice” for her. The student remarked that class meetings in which she had been given short practice periods after discussions and demonstrations to apply what she had learned had been more meaningful to her than group

practice sessions.

The student's comments about her learning of scales and arpeggios suggested that she had developed strong connections between her knowledge about the structures of scales and arpeggios and the topography of the piano keyboard. Her description of how she practiced scales and arpeggios indicated that her abilities to recognize patterns in abstract musical notation and to convert her understanding into concrete groups of keys on the keyboard were intertwined in her learning processes. In addition, the student's remarks suggested that this combined understanding was also closely linked to her playing skills. From her description, it appeared that recognizing patterns in the notation of scales, transforming them into groups of keys on the keyboard, and performing them occurred almost simultaneously in her learning. The student's capacity to structure these forms of information and integrate them into a more or less single sequence of learning skills may reflect the influence of the more analytical nature and tendencies of her field-independent learning style.

Although the student stated that the handouts she had received had been useful, and that uses of the visualizer and MIDI disks had made class presentations more interesting, they clearly were not central to her understanding of how to translate notated scales into structures on the keyboard. Her remarks suggested that she was able to analyze and process information effectively on her own, and that she had developed strong cognitive connections between abstract musical symbols and concrete patterns on the piano keyboard.

In her learning to perform scales and arpeggios, the student indicated that the highly structured and sequenced verbal information contained in directed practice sessions was unnecessary in her learning. While she considered group practice sessions to be relevant class activities, her comments suggested that she was able to use her understanding of scales and the keyboard to develop effective learning strategies to use in her practice.

Chord Progression Studies. The student indicated in each of the interviews that she had not had any unusual difficulties in chord progression studies in the course. In her responses to questions about the kinds of technologies or instructional activities that she thought had helped or influenced her learning, she replied that no single technology or

instructional approach had been more effective or important to her than others. She stated, “Actually, I think I learned [them] by looking at the way [they] were written in the book and learned where my fingers went from that.” (Appendix D, p. 454) In discussions of the handouts that she had been given in chord progression studies, the student remarked that she had not needed them to understand the chord progressions that had been studied, and that she had not used them much in her practice. She noted, however, that she had used the printed list of procedural steps on one of the handouts to practice the chord progression for the ten-week examination to check her playing and correct her mistakes. (Appendix J) The student mentioned that some uses of the visualizer in class presentations had been generally effective in illustrating the shapes of chords on the keyboard, but that she had used the visualizer more often as a reference to check of her hand positions.

In brief discussions about the effectiveness of directed practice sessions in chord progression studies, the student commented that they had been helpful to her in the early stages of learning a new progression. She stated that talking through chord progressions one or two times in class to identify the pattern note motions between the chords of a new progression had been helpful, but that, after that, she had not needed them to understand progressions or how to practice them on her own.

The student’s comments about chord progression studies were less detailed than those that she had made in discussions of other learning activities in the course. Analyses of her remarks, however, revealed that the instructional technologies that had been used in the class had played relatively minor roles in her learning processes. Although the handouts had been developed to help students analyze notated chord progressions and identify patterns of note motions between chords, the student had not needed them in her learning to achieve this understanding. Similarly, uses of the visualizer in class demonstrations to link notated chords with patterns of keys on the piano keyboard had been unnecessary for her to establish these connections. Her description of how she had studied and practiced chord progressions suggested that

Repertoire Studies. Discussions of repertoire studies occurred in each of the interviews with the student. In her comments she indicated that some repertoire pieces had been challenging for her, but she stated she had not had any unusual difficulties in

learning to play them. During conversations about the class activities that she thought had helped in her repertoire studies, she remarked that looking at the score of repertoire pieces and identifying patterns of notes and chords had helped improved her playing. The student also explained that the reductions of some repertoire pieces had been useful in helping her to see patterns in the music more quickly, and that they had often made her practice outside of class easier. In her responses to questions about the importance of using reductions in her learning, she stated they had not been an essential part in her learning to see patterns in the music, and that she had not used them much in her practice outside of class. She explained, "I usually can just look at the notes on the page and I can figure it out." (Appendix D, p. 441) and:

... they were helpful, but I didn't use them much after the first couple of times we talked about them and how they were related to the pieces. I used them as references a few times, but I really didn't practice the piece with them very much. (Appendix D, p. 457)

In related discussions, the student indicated that blocking patterns of notes and chords contained on reductions had been a good class activity, but she stated that she usually did not have difficulty in relating patterns that she found in music to the keyboard.

Interview conversations with the student also included discussions of the various instructional methods that had been used in repertoire studies. In the design of instruction for the course, two ways of introducing and studying repertoire pieces had been developed for use in the class. In one approach, short preparatory exercises containing musical elements similar to those found in the full score were used as warm-up exercises in each class period prior to looking at the musical score. In instruction the exercises were related to the content of score and students were given suggestions about how to use the exercises in their practice. In the second approach, instruction began with the score and specific exercises were derived from the musical and technical challenges that were found in the musical material itself. In both methods reductions of the repertoire pieces had been given to the students, and directed practice sessions had been used to help students connect their understanding of the score with their playing skills. In her responses to questions about whether either of these ways of studying repertoire pieces had been effective for her, she stated that, in general, both had worked equally well. In the last interview, however, the

student modified her opinion, stating:

I think that exercises are okay and are good to do for developing general kinds of skills, but they might not be written exactly the same as in the piece we have to learn. I like looking at the music so I can find things that I need to work on right away. That way, when I practice, I am learning to play the piece from the beginning. (Appendix D, p. 455)

In her remarks about directed practice sessions in repertoire studies, the student explained that, in the early stages of her learning, they had been helpful in alerting her to the specific trouble spots in individual repertoire pieces, but that, after she understood what she needed to do, they were not necessary. She add that she had preferred class periods in which short directed practice sessions had been followed by individual practice periods. She stated, "I think it is better when we just work on the trouble spots. I can usually get the other things myself." (Appendix D, p. 450)

Analyses of the student's comments indicated that the technologies and teaching methods that had been used to support instruction had not been essential in her learning to understand and perform repertoire pieces. Although the she stated that some uses of repertoire reductions and directed practice sessions had made her practice easier and more efficient, interpretations of her remarks suggested her ability to structure information and find relationships between different forms of knowledge had resulted in the development of a combination of cognitive skills that she used in her studies. The analytical characteristics associated with her field-independent learning style appeared to have supported her abilities to interpret the abstract musical notation of scores, find meaningful patterns, relate them to keyboard topography, and develop effective practice strategies on her own.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

Instructional technologies have played an increasingly important role in college group piano instruction during the past three decades. Despite the interest and enthusiasm among many teachers for using educational technologies in group piano instruction, keyboard educators have continued to pose questions about how educational technologies affect students' learning processes and their achievement of specific kinds of instructional goals. Attribute-treatment interaction research conducted in the field of music education since the early 1980s has provided persuasive evidence that significant relationships exist between students' individual learning styles and instructional methods supported by some kinds of educational technologies. While the results of these studies have established that the use of technologies in the educational environment does affect the learning of different types of learners, they have not described the characteristics of the technologies that influence their learning, or how individual learners use the technologies to achieve specific learning goals.

To explore these issues, this investigation was designed to study how individual students with a specific learning style responded to the educational technologies used in college group piano instruction. The study was conducted during the 1998 Spring semester at the University of Oklahoma. Students enrolled in two sections of Level II Group Piano for non-keyboard music majors served as the population from which the study sample was selected. Following completion of an Advised Consent Form by all students enrolled in both sections of the class, the researcher determined that 25 students (N=25) had volunteered to participate in the study.

The cognitive learning style of field-dependence/independence was selected for study in this investigation. To measure this learning style in the students of the study population, the *Group Embedded Figures Test* (GEFT) was administered.¹ Following an analysis of the test results, four (4) field-dependent and four (4) field-independent learners in the population were selected for the study sample (N=8).

Instruction in both sections of the course was based on the learning activities and materials contained in Lancaster and Renfrow's *Group Piano for Adults, Book I*.² Instruction delivered in the course was designed using the instructional systems design procedures developed by Dick and Carey.³ These were applied to provide a framework to (1) identify instructional and learning goals for the class; (2) develop specific teaching strategies; and (3) select the individual instructional technologies that supported the learning skills required of students to achieve learning goals. To assure equity in the learning experiences of students in both sections of the class, the researcher conducted all instruction.

Two types of data were collected from the study sample during the course of the study. Descriptive information about each student's general characteristics and previous experiences in music and keyboard studies was gathered using a researcher-designed Student Profile Questionnaire. Qualitative data were collected in a series of three individual interviews conducted with each student in the sample. During the interviews students were asked to respond to open-ended questions about the kinds of instructional technologies that were important to them in their learning and how they influenced their learning processes. Students were encouraged to identify the instructional technologies that they thought were

¹H. A. Witkin, P. K. Oltman, E. Raskin, and S. A. Karp, *A Manual for the Embedded Figures Tests* (Palo Alto, CA: Consulting Psychologists Press, 1971)

²Emmanuel L. Lancaster and Kenon D. Renfrow, *Group Piano For Adults, Book I* (Van Nuys, CA: Alfred Publishing Co., Inc., 1995).

³Walter Dick and Lou Carey, *The Systematic Design of Instruction*, 4th ed. (New York: HarperCollins Publishers, Inc., 1996).

important in their learning experiences, and to describe how the technologies influenced their learning in achieving the learning goals of the class.

To analyze the data collected from the students in the study sample, the researcher used the following sources of information: (1) the characteristics of the cognitive field-dependent/independent learning style described by the authors of the GEFT; (2) the cognitive learning theories of Brunner and Ausubel; (3) the matrix of cognitive music skills developed by Davidson and Scripp;⁴ and (4) Dillon's analytical model and procedures to identify and describe the attributes of instructional technologies.⁵ Separate interpretations of the data collected from each of the students in the study sample were developed to understand their individual responses to the educational technologies used in instruction. Each of the interpretations included discussions of (1) the instructional technologies that students identified as important to them in the learning activities of the course; (2) the ways that students used specific technologies in their learning and how they influenced their learning processes; (3) the kinds of learning skills that individual technologies supported; and (4) the attributes of the instructional technologies that were used to support instruction in the class.

From the interpretations of the data, conclusions were drawn about the learning experiences of the four (4) field-dependent and four (4) field-independent learners in the study sample. The conclusions reached can be used only to understand the individual learning experiences of the students in the study sample. The nature of the study and size of the sample precluded any attempt on the part of the researcher to generalize the conclusions to a larger population of students. However, the information collected in this study can serve to deepen keyboard educators' understanding of students in group piano classes, and how educational technologies, old or new, can be used to support and strengthen their learning.

⁴Lyle Davidson and Larry Scripp, "Surveying the Coordinates of Cognitive Skills in Music," in *Handbook of Research on Music Teaching and Learning* (New York: Schirmer Books, 1992), 392-413.

⁵Connie Dillon, "Identifying and Analyzing Attributes of Technologies," (lecture given at the University of Oklahoma, Norman, OK, October 7, 1996).

Conclusions

The conclusions presented in this chapter were developed from the researcher's analyses and interpretations of the data collected from the four (4) field-dependent and (4) field-independent learners in the study sample. Analyses of the data revealed that the students within these two groups responded in similar ways to the educational technologies that were used during instruction in their group piano studies. Patterns emerged in (1) the kinds of instructional technologies that students identified as important in their learning experiences; (2) the kinds of learning skills that these technologies supported; and (3) how the technologies were used in instruction. Despite the similarities, the nature of the study and size of the study sample does not support generalization of the researcher's conclusions to the other field-dependent and field-independent learners that were identified in the study population, or to similar groups of learners that may be present in other group piano classes. Any validity attributed to the researcher's conclusions extends only to their use in understanding the learning experiences of the eight students in the study sample.

The learning activities in the Level II Group Piano course selected for the study included studies of scales and arpeggios, chord progressions, sight reading, harmonization exercises, two-hand accompaniment activities, ensemble playing, improvisation, and solo repertoire. Although each of these learning activities was mentioned by students in the sample during individual interviews, only discussions of scales and arpeggios, chord progressions, sight reading, and repertoire studies yielded sufficient information from which conclusions could be drawn. Common to each of these learning activities, however, were the kinds of learning skills that students needed to apply throughout their group piano studies: intellectual and verbal skills, kinesthetic and psychomotor skills, and cognitive/metacognitive skills. Discussions of the researcher's conclusions have been structured using these categories of learning skills. The learning skills required in group piano studies that are related to these categories have been included in the discussions. The researcher's conclusions are presented in two parts. The conclusions reached surrounding the learning experiences of the field-dependent learners and field-independent learners in the sample are discussed and presented separately.

Field-Dependent Learners

Analyses of the data collected from the four (4) field-dependent students in the sample indicated that helping them structure their understanding and organize their learning skills had been important to them in achieving the learning and performance goals of the course. Throughout the interviews their comments revealed that they had responded positively to instruction that included well-defined goals and structured sequences of learning activities designed to establish hierarchical categories of knowledge and skills. Interpretations of their remarks also suggested that there was a tentative relationship between the ways that they learned and the kinds of instructional strategies that were developed for use in the study.

In interview conversations, the field-dependent learners in the sample demonstrated that they had effectively applied their learning skills in the previous semester of group piano studies to develop concepts and bodies of knowledge about (1) how to interpret abstract musical symbols in the ways that they are used to write music for the piano; (2) the nature and structure of the piano keyboard; and (3) the kinds of technical skills needed to perform music on the piano. However, the students' comments in the early interviews suggested that they had difficulty linking these forms of knowledge during their learning processes. In their descriptions of their learning experiences, each of the students in this part of the study sample indicated that specific educational technologies and how they were used during instruction had improved the effectiveness of the kinds of skills that they used in the learning activities of the course.

Intellectual and Verbal Skills. In the studies of scales, arpeggios, and repertoire, that data indicated that the kinds of information contained on handouts and some uses of the key/note visualizer had improved the students' use of their intellectual skills to structure their understanding of music and link it to the piano keyboard. The handouts that the students had received early in the course had visually linked the names of notes in scales and arpeggios with graphic shapes that they could link to keyboard topography. This connection had improved the students' abilities to form cognitive maps of whole scales and arpeggios, as well as smaller patterns of keys, that they could use to relate to fingering patterns. Later handouts containing keyboard diagrams on which circles had been used to

indicate the patterns of keys needed for specific scales and arpeggios had, however, been less effective. The researcher concluded that the increased realism on these handouts had also increased the density of visual information that made the shapes and structures of individual scales and arpeggios more difficult to see. In the early stages their learning, the handouts containing the essential information about the shapes of scales and arpeggios on the piano had been more effective.

Analyses of the data indicated that, in repertoire studies, handouts containing score reductions had also been effective in helping the students to relate abstract musical notation to the piano keyboard. The reductions had helped students to group of notes in the music in ways that they could link to hand positions and key patterns on the keyboard. In this regard, the reductions had improved the students' abilities to structure and link their understanding of music and the keyboard.

The handouts used in the studies of scales, arpeggios, and repertoire had also been used as overhead projections during class discussions and demonstrations. Although it could be inferred that these overheads had also supported to the students' learning processes, the absence of any references to these during interviews suggested that other characteristics of the paper technology used for handouts had contributed to its effectiveness. In addition to its capacity to convey different kinds of visual information, the importance that the students placed on the handouts, and the frequency with which they had used them in their practice outside of class indicated that the portability of this technology had increased the access to information that they needed in their learning.

In studies of scales, arpeggios, chord progressions, sight reading, and repertoire, analyses of the interview data suggested that uses of the key/note visualizer had also played a role in helping the students improve the effectiveness of their intellectual skills. The data indicated that using the keyboard side of the key/note visualizer to demonstrate the shapes of chords in progressions and how to block note groups in the music used in sight reading and repertoire studies had increased students' ability to connect notation with patterns and shapes on the keyboard. The students' comments indicated, however, that some uses of this technology had been more effective than others. When it had been used to block the shapes of scales and arpeggios, chord progressions, and broken chord patterns, it had

supported the understanding that the students had achieved from discussions and uses of handouts. However, when the key/note visualizer had been used to demonstrate how these elements looked when they were performed on the keyboard, it had been less effective. The students' comments about these uses of the key/note visualizer suggested that the added dimension of motion had increased the complexity of visual information which made the shapes and patterns of keys being demonstrated less clear. Analyses of the data indicated, however, that uses of the key/note visualizer in the early stages of the students' learning had provided them with forms of realistic visual information that had helped them to convert abstract musical notation into concrete structures on the keyboard.

Kinesthetic and Psychomotor Skills. In their studies of scales, arpeggios, chord progressions, sight reading, and repertoire, the students stated that two technologies used in directed practice sessions had been effective in helping them to combine their understanding of patterns and shapes on the piano keyboard with their playing skills. Two forms of directed practice had been used in these learning activities. In one form of directed practice the key/note visualizer had been coupled with verbal instructions given by the instructor while the students blocked out patterns of notes and chords on the keyboard from both scores and handouts. Analyses of interview data suggested that, in this kind of directed practice, the students had used the key/note visualizer as a reference to reinforce their visual understanding of patterns of keys on the keyboard as they were establishing a kinesthetic link to support hand shapes and fingering patterns. The second form of directed practice used in the learning activities of the course was procedural in nature. During these sessions structured verbal instructions, containing sequenced patterns of thoughts and cues, were given by the instructor over the headsets as the students performed. The interview data indicated that these group practice periods had been effective in helping the students to connect their knowledge about the music and their technical skills in a performance context.

In these two forms of directed practice, the instructor represented the important technology. Although the verbal scripts used in directed practice varied between learning activities and from one session to another, the students' remarks in interviews suggested that they had provided the students with a rich source of organized information about

how to integrate and synchronize their learning skills. In addition, the active presence of the instructor in the performance process had furnished the students with a source of feedback to monitor and evaluate their playing. Although access to the instructor and these forms of information was limited to class meetings, repeated directed practice sessions had reinforced the students' development of their performance and procedural skills.

Cognitive/Metacognitive Skills. Interviews with the field-dependent learners indicated that developing effective practice techniques and ways to evaluate their learning had been important to them in the course. Although the use of verbal and written lists of practice suggestions that had been given in class were discussed, each of them stated that repeated directed practice sessions had been more effective in helping them to develop sequenced learning strategies to apply in their practice outside of class. The value that the students placed on these sessions suggested that the procedural information they had received had supported the development of mental scripts and routines that they used to organize their practice and monitor their progress. In this aspect of their learning, the kinds of information provided by the human technology had been the most important.

Field-Independent Learners

All learning activities of the course were discussed during individual interviews with the four (4) field-independent students in the study sample. However, only conversations about their learning experiences in studies of scales, arpeggios, chord progressions, sight reading, and repertoire had yielded sufficient information from which to formulate conclusions. Analyses of the interview data indicated that the field-independent students in the sample had responded in similar ways to the educational technologies that had been used to support their learning in the course. Interpretations of their comments also suggested that characteristics of their learning style had influenced their responses to specific technologies and how they used them in their learning.

The students' descriptions of their learning experiences in the course indicated that each of them had developed a well-defined sequence of integrated learning skills based on their abilities to analyze different forms of information and link them together. Discussions of the roles that individual instructional technologies had played in their learning

experiences revealed that they had been useful to them in improving the speed and efficiency of their learning, but that they had not been central in learning how to apply their learning skills to achieve the goals of the course.

Intellectual and Verbal Skills. In their studies of scales, arpeggios, and repertoire pieces, the students stated that the kinds of information contained on the handouts that were distributed to support these course activities had been helpful to them in the early stages of their learning. Analyses of their remarks indicated that the handouts had been useful in demonstrating how to combine the notes in scales, arpeggios, and the scores of repertoire pieces to form patterns that could be related to groups of keys on the piano keyboard. Interpretations of the students' comments suggested, however, that the information on the handouts had not been essential in their ability to do this. Although the students noted that the handouts had improved the speed and efficiency of their learning, the data indicated that the analytical characteristics of their learning style had already provided them with ways to analyze and structure abstract musical notation and link their understanding to concrete patterns on the keyboard.

Analyses of interview discussions about the uses of the key/note visualizer to strengthen the development of these kinds of skills revealed that it had played a similar supporting role in their learning experiences. In the early stages of learning new scales, arpeggios, chord progressions, and repertoire pieces, the students agreed that this technology had been effective in illustrating the kinds of shapes and patterns of keys on the keyboard that they needed to know to succeed in their learning. However, in their remarks about the importance that they placed on the use of this technology in their studies, the data indicated that it had not been essential to their ability to connect notation with keyboard topography.

Interpretations of the data suggested that the information contained on handouts and uses of the key/note visualizer had been effective in the early stages of the field-independent students' learning. While the students had not considered these technologies to be essential in their learning to understand and connect forms of musical information in their keyboard studies, they had supported the intellectual skills the students used and reinforced their learning sequences.

Kinesthetic and Psychomotor Skills. Throughout instruction in the course, the key/note visualizer had been used during directed practice sessions to support students' abilities to connect their understanding of music with their playing skills. In these sessions blocking techniques had been used to establish physical connections between specific patterns in the notation and the hand shapes and fingering patterns needed to perform them. Although the field-independent students in the sample acknowledged that these sessions had been generally helpful to them, they stated that directed practice had not been crucial in this aspect of their learning. During interview conversations, each of the students disclosed that, in their practice, they had often played through scales, arpeggios, chord progressions, and repertoire studies to discover relationships between the music and the piano keyboard. Interpretations of their remarks suggested that these students had used their analytical skills to establish strong links between their understanding of patterns in music notation, the structure of the keyboard, and their technical skills.

In directed practice sessions designed to help students sequence their skills in a performance context, the field-independent students indicated that these had been helpful in the early stages of their learning to perform scales, arpeggios, chord progressions, and repertoire pieces. They added, however, that, once they had become familiar with the music and performance procedures, repeated directed practice sessions had not been necessary. In this aspect of their learning, the students stated that they preferred instructional sequences that included short review sessions followed by individual practice periods in which they could apply what they had learned.

Cognitive/Metacognitive Skills. Directed practice sessions had also been used to help students in the class develop practice techniques and ways to evaluate their progress and performance in the learning activities of the course. In the interview data, the field-independent students indicated that these sessions had been helpful to them, especially in their learning of new exercises and repertoire pieces. However, once they understood the musical and technical challenges of the music, the students stated that these sessions had not been as necessary to them in developing effective learning strategies to use in their practice outside of class. Interpretations of their comments suggested that the analytical skills that they had used in other aspects of their learning processes had also helped them

to organize their practice sessions. In the later stages of their learning, the structured procedural information given to them in directed practice sessions had served only to reinforce the sequence of the learning skills they used in their learning processes.

Recommendations for Further Research

The results of this study indicated that the field-dependent and field-independent students in the study sample responded differently to some of the instructional technologies used in their group piano studies. The data also suggested that the characteristics and kinds of information provided by some of the instructional technologies influenced the learning processes of the students within these two groups of learners. Although patterns of possible relationships emerged in the data, the size of the sample does not support conclusions that can be applied to larger groups of learners. Additional research in the field of piano pedagogy is needed to understand how instructional technologies influence the learning process, and how they can be applied to support the kinds of learning skills that are required of students in group piano studies. To explore these kinds of questions, the researcher suggests that the following types of studies be undertaken:

- 1) similar qualitative studies using the characteristics and dimensions of other cognitive learning styles to interpret students' responses to the kinds of instructional technologies that are used in group piano instruction.
- 2) replications of attribute-interaction studies conducted in other areas of music education to study the possible relationships that may exist between such things as students' learning styles, teaching methods, instructional technologies, the learning skills unique to keyboard studies, and learner achievement.
- 3) studies of the attributes of different instructional technologies that influence students' development of the learning skills unique to keyboard studies.

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APPENDIX A
INFORMED CONSENT FORM

Informed Consent

Dissertation Research Project

University of Oklahoma

Norman, Oklahoma

Students enrolled in *Group Piano - Level II* (MuTe 1321), sections .002 and .003, during the Spring semester 1998, have been selected to participate in a doctoral dissertation study conducted by Dennis C. Widen. To comply with University Policies and State and Federal laws governing the use of human subjects in research, each student in the class must be given the opportunity to consent or decline to participate in the study.

The study, *Field-Dependent/Independent Learner Responses to Instructional Technologies Used in College Group Piano Classes*, will explore how students with a certain learning style respond to the educational technologies used in group piano instruction, and how they describe the importance of these technologies in their learning. Information collected during the study is expected to provide new knowledge about how educational technologies affect the learning of students in college group piano classes.

All students participating in the study will be asked to (1) complete a *Student Profile Questionnaire* designed by the researcher to gather general information about each student, and previous experiences in music and keyboard studies; and (2) take *The Group Embedded Figures Test*, a brief standardized learning style examination measuring each student's degree of field-dependence/independence. In addition, four students in the class will be selected to provide additional detailed information in three videotaped individual interviews during the 5th, 10th and 15th weeks of the semester.

All information collected during the study will be kept completely confidential and viewed only by the researcher. Students' names and any other information that could be used by others to identify individuals participating in this study will not appear in the final report. Instruction you receive during the course, your grades on tests, and your final course grade **will not** be affected by your decision to participate or not participate in this study.

Should you have any questions or concerns about your participation in the study at any time, please feel free to contact the following persons on the School of Music faculty at the University of Oklahoma:

Dr. Roger Rideout
Music Education
325-4641

Dr. Jane Magrath, Chair
Piano Department
325-4681

Please indicate your decision by providing the information requested below. Upon completion of this form return to your instructor. A copy of this form will be given to you at the next regularly scheduled class meeting.

Name _____ Date _____
(Please Print Clearly)

Check One:

- _____ I understand the above information and I **consent** to participate in the study described.
- _____ I understand the above information and I **decline** to participate in the study described.

Student Signature _____

APPENDIX B
STUDENT PROFILE QUESTIONNAIRE

**Group Piano for
Non-Keyboard Majors
Level II
MuTe 1321**

Student Profile Questionnaire

Directions: This survey has been developed to gather information about you and your previous experiences in music and piano/keyboard studies. Please read each question carefully. When you have completed the questionnaire, return it to your instructor.

Part I

General Information

1. Name _____

2. Date _____ 3. Student ID # _____

4. Sex (Check one): ☐ Male ☐ Female

5. Age: _____

6. Current Academic Classification (Check one):

☐ Fr. ☐ Soph. ☐ Jr. ☐ Sen.

7. Please indicate the degree program in which you are currently enrolled (Check one):

☐ Bachelor of Music Education

☐ Bachelor of Music

☐ Bachelor of Fine Arts

☐ Other

 Please Specify: _____

8. Area of major emphasis (Check one):

☐ Instrumental Music

☐ Vocal Music

☐ Composition

☐ Other

 Please Specify: _____

9. Please indicate your major instrument or performance area on the list below (Check one):

☐ Voice

☐ Piano

☐ Brass

Specify instrument: _____

☐ Percussion

☐ Woodwind

Specify instrument _____

☐ String

Specify instrument _____

☐ Composition

10. Have you ever been diagnosed as having a reading or learning disability?

☐ Yes

If yes, please explain: _____

☐ No

11. Have you ever been diagnosed as having a hearing loss that you feel might impair your performance in this class?

☐ Yes

If yes, please explain: _____

☐ No

12. Have you ever been diagnosed as having a visual disability that you feel might impair your performance in this class?

☐ Yes

If yes, please explain: _____

☐ No

13. Have you ever been diagnosed as having any other physical disability you feel might impair your performance in this class?

_____ Yes

If yes, please explain: _____

_____ No

Part II

Previous Experience in Music Studies

14. Are you currently enrolled in applied instruction (ie. lessons) in your major performance area?

_____ Yes

_____ No

15. On the scale of numbers below, circle the number that most closely approximates the number of years of **formal instruction** in your major instrument you have received. (**Formal instruction** = regular lessons with a teacher for at least 3 months)

0 1 2 3 4 5 6 7 8 9 10 11 12 13

16. Are you currently receiving formal instruction at The University of Oklahoma or from a private teacher in any instrument other than your major instrument, **excluding** this class?

_____ Yes

If Yes, please specify the instrument(s): _____

_____ No

17. Please indicate any other instrument(s) you have studied, or in which you have received formal instruction other than your major instrument at any time prior to enrolling in this class:

Instrument(s) _____

18. Indicate the performance ensembles below in which you have been or are now a member. (Check all that apply):

- ☐ Orchestra
- ☐ Concert Band
- ☐ Wind Ensemble
- ☐ Jazz Band
- ☐ Choir
- ☐ Swing/Show Choir

19. Prior to enrolling at the University of Oklahoma, were you ever selected to participate in any of the following performance ensembles? If yes, check all that apply and indicate the number of years you participated in each ensemble.

☐ Yes	☐ All-State Orchestra	years
	☐ All-State Band	years
	☐ All-State Chorus	years
	☐ An Honors Band	years
	☐ An Honors Orchestra	years
	☐ An Honors Chorus/Choir	years

☐ No

20. Prior to enrolling at the University of Oklahoma, have you performed as a vocal or instrumental soloist for adjudication at a state or locally sponsored music contest?

- ☐ Yes
- ☐ No

21. Prior to enrolling at the University of Oklahoma, have you been a member of a small vocal or instrumental ensemble that performed for adjudication at a state or locally sponsored music contest?

- ☐ Yes
- ☐ No

22. Have you ever attended a summer music camp?

☐ Yes

☐ No

23. Prior to enrolling at the University of Oklahoma, have you ever attended a class or received private instruction in music theory?

☐ Yes

If so, please explain _____

☐ No

24. Have you ever received instruction or are you currently in enrolled in a course on the use of MIDI instruments or technology?

☐ Yes

☐ No

25. Do you own or have daily access to a computer?

☐ Yes

☐ No

26. Have you ever received music instruction using computer games or computer music programs?

☐ Yes

☐ No

27. Have you ever received musical instruction using a MIDI sequencer prior to enrolling in group piano classes at the University of Oklahoma?

☐ Yes

☐ No

28. Have you ever used a music sequencing computer program such as Performer?

☐ Yes

☐ No

29. Have you ever used a music notation computer program such as Finale?

____ Yes
____ No

30. Prior to enrolling in group piano classes at the University of Oklahoma have you ever received group instruction in voice or any other musical instrument?

____ Yes
____ No

Part III

Previous Piano/Keyboard Experience

31. Do you now or have you ever owned a keyboard instrument (i.e. electronic piano/keyboard, digital piano/keyboard, acoustic piano, organ)

____ Yes
____ No

32. Prior to enrolling in the group piano studies at The University of Oklahoma, have you ever received formal instruction in any keyboard instrument?

____ Yes
____ No

33. Prior to enrolling in group piano classes at The University of Oklahoma, have you ever had group instruction in piano/keyboard?

____ Yes If yes, how long _____ years.
____ No

34. Prior to enrolling in group piano studies at The University of Oklahoma, did you ever attempt to learn to play the piano/keyboard on your own without the aid of a teacher?

____ Yes
____ No

35. On the scale of numbers below, circle the number that most closely approximates the number of years of **formal lessons** in piano you have had **before enrolling** in group piano courses at The University of Oklahoma.

0 1 2 3 4 5 6 7 8 9 10 11 12 13

36. Have you served as a piano/keyboard accompanist for a vocal or instrumental soloist, small group, or church choir?

___ Yes

___ No

37. Have you ever played a keyboard instrument as part of jazz band, rock n' roll group, or other kind of performing group?

___ Yes

___ No

38. Have you ever used a computer program or other self-paced program to learn to play the piano/keyboard?

___ Yes

___ No

**Thank you for your responses to the questions on this survey.
Please review your responses to be sure you are satisfied with your
answers. When you have done so, please return it to your instructor.**

**Remember, your responses will be kept entirely confidential and will
in no way affect your grade for this class.**

APPENDIX C
INDIVIDUAL STUDENT INTERVIEW QUESTIONNAIRE

**Group Piano for
Non-Keyboard Music Majors
MuTe 1321**

Individual Student Interview Questionnaire

Student Interviewed: _____

Date Interviewed: _____ **Time Interview Begun:** _____

Time Interview Concluded: _____

Location of Interview: _____

Audiotaped: _____ **Videotaped:** _____

Greeting (To Be Read To The Student Being Interviewed)

Thank you for coming today and agreeing to be interviewed. Before we begin, I want to reassure you that your responses to the any of the questions that I will ask you will be completely confidential. No one else, other than myself, will be allowed to listen to the tapes. Your answers will not affect your grade in the class in any way.

The questions I am about to ask you are designed to collect information about your personal opinions and perceptions of how the instructional technologies used in class have or have not helped you in your learning. In some questions, I will give you choices of answers, and in others, I will ask you to tell me your thoughts in your own words. There are no right or wrong answers to any of the questions. I encourage you to include anything in your answers that you think makes your opinions and perceptions clearer.

In the final dissertation I plan to include a written transcription of all of the interviews that I will be conducting for the study, but your name will not be used, and no other information that anyone could use to identify you will appear in the final paper.

Do you have any questions about the interview or how it will be conducted? If not, please initial below to indicate that I have clearly described the purpose and scope of this interview, and that you understand what I have just explained to you.

Student Initials: _____

With your permission, I would like to tape the interview for later reference when I begin analyzing the information collected during the study. Do I have your permission to turn on the tape/video recorder?

Indicate Student Response: _____ Yes _____ No

If you are ready, let's begin.....

1. How is this course going for you?
2. What kinds of problems, if any, have you experienced in the class so far?
3. How would you describe the overall level of difficulty of the course for you to date?
4. What about the pacing of the class?
 - a) If too fast: What kinds of activities or presentations would you like to spend more time on?
 - b) If too slow: What kinds of activities or presentations seem to repetitive or unnecessary to you?
5. Tell me a little about your practicing outside of class.
 - a) What kinds of things do you usually do when you practice?
 - b) What kinds of class activities or discussions have been helpful to you in your general practice outside of class?
 - c) Can you describe how they was helpful to you?
6. What kinds of activities or assignments have been the most challenging for you in the class so far?
 - a) What is it about those kinds of activities or assignments that you find difficult?
 - b) What kinds of presentations or class activities have helped you in improve in those areas?
 - c) Can you describe how those presentations or activities helped you in a particular way in your learning?
 - d) What kinds of presentations or activities have been least helpful or confusing to you in your work in class?
7. What kinds of activities or assignments have been the easiest or least challenging for you in the class?
 - a) Can you describe why those activities or assignments were easier for you compared to others?
 - b) Where there any specific kinds of presentations or discussions that made those activities or assignments easier for you?
 - c) Can you describe how they were helpful to you in your learning?
 - d) What kinds of class discussions or activities have been least helpful to you?

8. At the beginning of the semester in Chapter 16 we discussed information related to playing the i-iv6/4-i-V6/5-i chord progression in minor keys on the piano.

- a) What kinds of class discussions or activities helped you to understand and remember the pattern of how the notes of one chord move to the notes of next chord in the progression?
- b) How did that kind/those kinds of discussions or presentations helped you?
- c) What kinds of presentations or discussions seemed to confusing or least helpful to you in your learning the pattern of note movement between chords?
- d) Can you describe what it was about those presentations that confused you?

9. When practicing to play the progression in different minor keys on the piano:

- a) What kinds of presentations or class activities helped you to be accurate in you playing?
- b) Can you explain how they were helpful to you?
- c) What kinds of presentations were not very helpful in your learning to play the progression?

10. One of the criteria set for measuring your ability to play the progression in minor keys was to play it in an even rhythm and steady tempo.

- a) What kinds of presentations or activities helped you the most to do that?
- b) How did those things help you?
- c) Were there any that were not very helpful or confusing to you?

11. In most of our class meetings we have worked on repertoire pieces in each chapter that use various concepts and information we discussed in class.

- a) Overall, what kinds of presentations or activities helped you in your practice of repertoire pieces?
- b) Was there a particular repertoire piece that seemed to learn more easily or quickly?
- c) Can you describe what made that piece easier to learn?
- d) Was there a particular kind of presentation, discussion, or activity that seemed to help more than others?
- e) How did that help you?

12. One of the keyboard skills that we have worked on developing in the class so far is creating accompaniments to melodies using chord symbols.

- a) How is that going for you?
- b) If well: Are there any kinds of discussions, presentations, or activities that have helped you develop that skill? How have those helped you?
- c) If not well: What has been difficult or challenging for you in developing that skill? Have there been any particular kinds of things that we have done in class that have been more confusing to you than others? What kinds of presentations, discussions, or activities do you think would be more helpful to you in developing that skill?
- d) How about two-hand accompaniments? I know that this skill entails using both hands for creating the accompaniment patterns, but are you having the same difficulties or success in developing that skill?
- e) Are the things you mentioned about using just the left hand to add accompaniment to melodies true about developing the two-hand accompaniment skill?

If not, can you describe the differences between the two skills in your learning? What kinds of presentations or activities do you think would you to get better at making two-hand accompaniments?

13. Sight reading is another skill that we have been working on in the class.

- a) How is that going for you?
- b) If well: Are there any kinds of discussions, presentations, or activities that have helped you develop that skill? How have those helped you?
- c) If not well: What has been difficult or challenging for you in developing that skill? Have there been any particular kinds of things that we have done in class that have been more confusing to you than others? What kinds of presentations, discussions, or activities do you think would be more helpful to you in developing that skill?

14. During most class meeting some part of each period has been used for general discussion and lecture activities, individual practice time, and small group activities, like duets etc.

- a) Have these kinds of things been beneficial to you in any way?
- b) In what kinds of learning goals have these been most helpful to you?
- c) How have they been helpful to you?
- d) Have there been any that have been unhelpful to you, or less effective?

- e) What kinds of activities have been less helpful? Can you describe why or how they were not helpful to you.

15. In the past few questions we have explored your opinions and thoughts on some specific kinds of class activities and how they have helped or not helped you in your learning. Before we finish the interview, I would like to ask you just a few general questions.

- a) Overall, what kinds of things have been done in class that have been most helpful to you?
- b) How have they helped you?
- c) What kinds of presentations or activities would you like to have more of in class meetings?
- d) How would they be helpful to you?
- e) Are there any other things about class activities that I haven't asked you about that you would like to mention or talk about?

Thank you again for coming to today and agreeing to be interviewed. I'm sure that the information you have given me will be helpful in my study. I appreciate your willingness to take the time to tell me your thoughts and opinions. If you have any questions about this interview or think of any other things that you might want to talk about related to class activities, please don't hesitate to call me or stop by my office. Thanks.

APPENDIX D
INTERVIEW TRANSCRIPTS

Field-Dependent Learner #1 (FD-1)
Interview I
February 1998

- Researcher (R): Thank you for coming in today to talk with me about your experiences in the class. I'd like to start with some general questions. Can you tell me how the class has been for you so far?
- Student (S): Pretty good. About the same as last semester, I think.
- R: How did the class go for you last semester?
- S: Not too bad. I had a little keyboard training before I started the class, so that helped a little.
- R: In this class have you had any particular problems or found anything that was particularly challenging?
- S: Just the usual things for me, I guess. The technique and getting hands together when I play. Sometimes fingering is a little hard, because I'm a string player and the fingers are numbered differently.
- R: So, the different way that piano players number their fingers has bothered you in your piano studies this semester?
- S: Well, not too much any more, I don't think, but at first it did.
- R: Of all the different kinds of activities that we do in class, is there anything that you have more trouble with or have to work harder on?
- S: The solos.
- R: The repertoire pieces?
- S: Yes.
- R: What makes the repertoire pieces more challenging for you?
- S: The coordination between the hands . . . doing different things in both hands at the same time.
- R: Has there been a repertoire piece that we have worked on this semester that has been more difficult than others?
- S: Yes, "Scherzo."
- R: What kinds of things did you find hard about that piece?
- S: It was the coordination. I can deal with things where the hands are doing . . . are going in the same direction, but when they have different rhythms at the same time, that's hard for me.

- R: Was there anything that we did in class that helped you with your practice on that piece?
- S: Well, I've never have really gotten it very well. I didn't pick that one to play on the test, but practicing block chords helped when we were doing it in class.
- R: Blocking out the chords in both the right and left hands helped?
- S: Yeah, especially when we practiced playing them together in rhythm.
- R: You played "Etude" on your test, right?
- S: Yeah.
- R: How was learning that piece different for you than "Scherzo"?
- S: It was easier, because the two hands didn't go at the same time.
- R: When we worked on "Etude" in class, was there anything that we did that helped you learn that piece?
- S: The handout with the blocked chords helped the most.
- R: Did you use that reduction of the piece quite a bit in your practicing outside of class?
- S: Yeah, quite a bit.
- R: How did that help you?
- S: It showed me where the hands shifted . . . the hand positions, I mean. After I learned those, it was easier to play the notes in rhythm the way it was written out.
- R: In our discussions in class about "Etude," I talked to you and showed you how some of the chord motions in the piece were related to the chord progression that we were also working on. Did that help you to understand the piece better?
- S: Yeah, I think so.
- R: Did it help you when we practiced the chord progression a little first and then went to "Etude" and found the similarities between the chord progression and the piece?
- S: Yeah, I could see how they were similar in some measures.
- R: In general, does it help you in your learning to do exercises like a chord progression that might be similar to the kinds of things that you might find in a repertoire piece before we look at the music?

- S: Yeah, that helps me a lot.
- R: Would it work for you if we started with the music and looked for things that might be similar to exercises that we have done in class before?
- S: Well, I suppose so, but I like doing the exercises first. It gives me things to look for in the music. Playing exercises before we start the music gets my hands ready for the piece, too. When I play an exercise and there is something in the music that is like it, I can sort of recognize that I have felt something like that before, and that helps.
- R: When we work on repertoire pieces in class so far this semester, sometimes we have talked about the things that are in the music and I have demonstrated for you how you might go about practicing the piece and gave you a few minutes to work on the things that we talked about. Other times, we have talked about things and I have talked you through the piece. Does either of those ways of working repertoire pieces help you?
- S: Yeah. Going through the piece with us helped more after we talked about it than practicing on my own in class.
- R: How does talking through things help you more?
- S: When you tell us things to do or to think about as we play, it helps me to know how to practice outside of class . . . the things I need to remember and watch out for mostly.
- R: After we have talked through a piece a couple of times, do you feel better about practicing the piece on your own?
- S: Yeah.
- R: Is it important in your learning to play a repertoire piece that we talk through the pieces in class regularly, or is a few times enough to get you started?
- S: I like doing it in class every day a little, at least until I can play through it sort of smoothly. It helps me know if I'm doing it right when I practice on my own outside of class.
- R: How about the pace of things in the class so far?
- S: It's okay, I guess.
- R: On days when it's not okay, what would you have done differently?
- S: Some days we went through a lot of different things kind of fast. We didn't spend a lot of time practicing together.

- R: I think on those days we were more or less reviewing things that we had done in an earlier class, but why was that not good for you?
- S: Well, it helps to review things the we have done, but I like to spend more time in class working on the details, I think. It gives me things to practice on my own, and it helps me check to see if I'm doing things right.
- R: Is talking through things like chord progressions and scales helpful that way, too?
- S: Yeah.
- R: When we worked on the scales that you had to play for the test that you just had, was there anything that we did aside from talking through them helped you learn to play them?
- S: The sheets that you handed out to us helped.
- R: How did they help you?
- S: They showed me the shape of the keys on the piano to use and it helped with the fingering?
- R: How did the sheets help with fingerings?
- S: Well, just the way that you wrote them out on the sheet with the black notes higher up than the white notes in the scale . . . that helped with finding where to put my thumb or cross over coming down the scale.
- R: When you look at the scales that we did as they are notated on the staff, do you see or are you able to find those things?
- S: Yeah, somewhat. I mean, I know the names of the notes of most scales, but it's different playing them on the piano than on my own instrument. The patterns are different like with the keys and the fingers you have to use. It just takes me a while to find the patterns to play the scales on the piano.
- R: When you are practicing scales on the piano, do you usually look for patterns to help you understand and play the scales?
- S: When we talk about them in class, yeah, but in the past I just usually wrote in the fingerings for each note and memorized them that way.
- R: Did that work for you most of the time?
- S: Yeah, I guess, but it it took me a while. Well, sometimes I did group scales when I was learning them because some scales have the same fingering, like the ones that begin on white notes. Once I learned that most of them have the same finger patterns, I could play

them easier.

- R: When you used that sheet that you mentioned earlier, was there any way that you used it that helped you more than another?
- S: When I used it in my practicing, I wrote in all the finger numbers and marked off the notes in one group that started with the thumb, like you showed us in class.
- R: When I uses the visualizer to demonstrated the pattern of black and white keys that belong to a particular scale, did that help you at all?
- S: Yeah, somewhat . . . sometimes and sometimes not very much.
- R: Can you tell me about when the visualizer worked and when it didn't work for you in your learning?
- S: The times when you played the scale one note at a time, I got an idea about the black and white keys in the scale, but it helped more when you played the blocks of notes in the different patterns, and when you played the whole scale as a block and held it for me to look at. That helped me to see the shape of the whole scale at one time.
- R: So playing the scale in blocked finger patterns or the whole scale helped more than one note at a time?
- S: Yeah. The one note at a time didn't do much for me when you were talking to us about the patterns of notes or fingers to look for.
- R: Did playing one note at a time seem more confusing to you?
- S: When we worked on a new scale, it did at first, but after we blocked it and you and talked about the fingerings it was better. After I played through it a few times, seeing one note at a time was okay.
- R: How about progressions? Was there a way that we worked on then in class that helped you more than another?
- S: Going through and finding how the notes moved by whole- and half-steps helped the most.
- R: The pattern?
- S: Yeah.
- R: On the days that I talked you through the progression identifying the harmony and the note of the chord that moved, like the third or the fifth, did that help?
- S: No. I'm not that fast at thinking or finding the note of the chord. I like learning the pattern of how the notes move by whole and half steps.

- R: After you have learned the pattern of whole and half steps in a progression, is it easier to go through and talk about the harmony in relationship to the key?
- S: Yeah, kind of, but I just like to learn the pattern to be able to play the chords. Thinking about what chord it is in the key and what part of the chord moves is too much to think about all at one time. It slows me down when I try to play.
- R: Has your studies in theory helped you in the things that we have done in the class so far?
- S: No, not much.
- R: Have some of the things that we have done in the class helped you with your theory studies at all?
- S: Yeah. Learning how to recognize different things in the things we do in here has helped me see them better when we talk about them in theory class.
- R: Can you think of something particularly when that happened?
- S: When you use the overhead to show us the shape of different inversions and where to look for the root of the chord. That helped a lot, because just after that we started talking about that in theory.
- R: So, looking at the shape of different inversions of chords was helpful?
- S: Yeah.
- R: If you could make any changes in the class, what kinds of things would you add or subtract?
- S: I think things are going fine the way they are.
- R: Are there things that we have done in class in the way of presentations or the way we have worked on things that you would like to continue or do more of in the next section of the course?
- S: The talk through kinds of things and the handouts. I like those.
- R: So you find those helpful to you?
- S: Yeah. The handouts give me things to take to the practice room and work on besides trying to just remember how we did things in class. Having you practice through the pieces and exercises with us in class helps a lot, too. I remember better the thing that I need to do on my own when we play through things in class together.

- R: Can you tell me a little about how you go about things in your practicing outside of class?
- S: I usually start with scales and arpeggios and then go to the progression that we are working on. After that, I work on the repertoire pieces.
- R: Do you have any special practice techniques that you use in your learning outside of class?
- S: No not really. I just work on the things that I have assigned. I try to practice the things the way you tell us to in class.
- R: Does it help you if I give you specific ways to practice outside of class?
- S: Yeah. When you tell us how we should practice or show us, it helps to me to know what to do on my own.
- R: Would it be helpful in your learning in the class if I gave you a short list of things to do on your own in your practice between classes?
- S: Yeah, maybe. Well, yeah. It would give me things to think about.
- R: How about the sight reading activities that we have done so far in the course? Have they been going okay for you?
- S: Yeah, I guess.
- R: When we work on sight reading in class does it help to go through a number of examples in one key, or does it help you to do examples in different keys one right after the other?
- S: Probably going through different keys, because that's probably more like the things I'd have to do in a job. Not everything is always going to be in an easy key.
- R: When we talk about the pieces that we sight read, and I tell you about the patterns of broken chords that might be there or finger groups in the melody, do you see them in the music when I call your attention to them before we begin playing?
- S: No, usually not.
- R: When you look at a piece that you are about to sight read, what things do you look for?
- S: I look at the key signature, the time signature and the dynamics. After that I just start to play.

- R: Do you look for patterns of notes that might form chords or groups of notes that might organize the music better?
- S: No, doing that kind of thing usually takes me too much time to do in just a couple of minutes. I don't analyze things very fast yet, so I usually just start playing the notes.
- R: When you look at a sight reading example and you have named the key, do you look for things like the tonic or dominant chord or harmony and how it might be used in the example?
- S: No, not usually. If the chords are stacked up like a triad or something like that, I might do that, but if they are broken up, I have to look at it a while before I can figure those kinds of things out. I usually just start playing.
- R: Would there be anything that I could do in class that might help you to see patterns of chords or note groups in the music better or more easily?
- S: Probably just doing it more in class and showing us what to look for.
- R: When we work on sight reading in class, has it helped you when we have talked through an example in one key, pointing out things like broken chords and other patterns in that key as a kind of practice exercise, and then gone to another example in the same key to really sight read?
- S: Yeah. That helps a little, but I don't always see the patterns that we talked about very fast. When we do that in class, it is a little easier to see the chord patterns in the left hand.
- R: We've talked about a number of different things this morning, but is there anything that we haven't touched upon that you would like to talk about related to your experiences in the class?
- S: No, don't think so. None that I can think of.
- R: Thank you again for coming in today. We'll meet again in about five weeks to talk more about your experiences in the class at that time. Thanks again.

Field-Dependent Learner #1 (FD-1)
Interview II
March 1998

- Researcher (R): Thank you for meeting with me again to talk about your experiences in the class since the last time we talked about a month ago. Generally, how has the class been for you since then?
- Student (S): Pretty good. A little better, I think. I've learned some things that have helped me in my theory, and I think I'm understanding things about playing the piano better.
- R: What kinds of things have improved for you in this class?
- S: Sight reading and playing hands together has gotten a little easier.
- R: What was it that helped you with sight reading?
- S: I think maybe just doing it more, and the way we practice sight reading in class.
- R: What ways have helped?
- S: When you took an example in one key and talked to us about the kind of things to look for in that key and practicing it with us, I learned some things to use when I look at sight reading.
- R: Did that help with developing a method or procedure to use when you are asked to sight read?
- S: Yeah.
- R: How was that different than what you were doing before?
- S: Before, I just started playing one hand and then tried the other and then tried to put it all together. I didn't think to look for things like fingerings or chords.
- R: Do you mean patterns?
- S: Yeah, patterns. Last semester the teacher told us a little about finding hand positions, but I never was good at seeing them very well. I think he just said to use this or that hand pattern and then we'd just start playing. I never could really do it that way very well.
- R: What kind of things have we done in class that has helped you find or see those kinds of patterns in sight reading examples, or music in general?
- S: Mostly, I think having us block out things in the music and tell us what things are as we go along, and the fingers to use.

- R: When we block things out, is it better when I talk to you over the headphones as you are doing it, or does it help if I demonstrate it on, say, the visualizer?
- S: Both, I think. If you show us on the visualizer the keys on the piano that are in the hand position, I kind of know better what to look for in my piano. But talking over the headphones when I'm playing helps me get to know how it is supposed to feel on the piano. When we go through the blocking, I know where to put my hands.
- R: Does that help with feeling finger patterns?
- S: Yeah, if I use the ones that you tell us to. Sometimes, though, I'm looking for the right key, or hand position to play in a block first, and then I worry about the fingers.
- R: What helps you with fingering?
- S: Writing them in more than anything.
- R: After we have blocked out the hand positions, or broken chords that might be in a piece of music or exercise, is it easier to see similar patterns somewhere else?
- S: Yeah, but I never really looked for any kind of patterns before. I mostly went note by note when I played.
- R: Now that you have learned about blocking or looking for patterns, is it easier to look at music and see groups of notes that might make practicing a little easier?
- S: Kind of, I guess. When we work on a repertoire piece, say, and there are broken up chords in the left hand, if you have us block them out, I can see the chords a little better. But if you don't then, I sort of just see notes. It take me a while to figure out patterns on my own. Sometimes it is too frustrating when I have to do it on my own, so I just start playing the music.
- R: Has that worked for you?
- S: Yeah, it just take me a while to learn the piece, but I get it done, I guess.
- R: When you look at scales, for example, do you see patterns of fingerings or note that might form a group of keys on the piano?
- S: No, not right away. I just see a scale.
- R: On the scales that we have worked on for this last test, was there anything that we did in class that helped you learn them?

- S: The scale sheets helped with knowing how the scale looks on the keyboard. When you gave us the sheet with the black notes up higher and the white notes lower, it helped me see the notes on the piano . . . how the scale looked on the piano.
- R: Did that help with learning the fingering, too?
- S: At first, no. But after you showed us how the thumb starts a group and then we blocked the notes out on the piano, I did better with playing them.
- R: Did it help when I had you put a box around the pattern of notes in a group?
- S: Yeah. I could see the pattern better, I think.
- R: When you practiced the scales on your own outside of class, did you use that technique of blocking?
- S: Yeah, most of the time. Well, sometimes. Sometimes, though, I just read the finger numbers on the sheet and followed the letter names.
- R: Did that work?
- S: Yeah, kind of. But it didn't help with remembering the scale when I had to play it from memory in class.
- R: What helped you memorize the scales?
- S: Learning the blocks, and talking through the scales in class together.
- R: Is talking through such things as scales helpful in some particular way?
- S: When I hear you talk us through the scales telling us the patterns, or blocking the patterns with us, it helped me to remember the scales better.
- R: Why was that, to you think?
- S: Well, I don't know exactly, but when I'm practicing on my own, I kind of remember what you were telling us in class when we played together.
- R: Did talking through the scales together in class help you find ways to practice then?
- S: Yeah, maybe. If I remembered to do what you told us in class, I did better in practice usually.
- R: Did talking through things help you with other activities in the class?

- S: With progressions.
- R: How did that help you?
- S: With the pattern of what notes moved and what notes stayed, and with remembering the whole- and half-steps.
- R: Did anything else help you?
- S: The visualizer. When you showed us the way the chords looked on the piano.
- R: Did the visualizer and talk-through practice work together then?
- S: Yeah. Once I saw the chords. . . the hand positions . . . on the visualizer, I could find them on the piano better. Talking through the progression chord by chord helped me think through it better.
- R: If you had to learn the progression just from the notation in the book, would you have found the same patterns that we talked about in class?
- S: Maybe, eventually. I don't know. When I see a progression written out like in the book, I just play the notes that I see, I really don't look for things like patterns...whole-steps and half-steps. I just read the music.
- R: When you have to play a progression in a key that is not in music notation in the book, how do you go about that?
- S: Well, before, I usually had to write it out and memorize it mostly.
- R: Did that work okay for you?
- S: No, it took a lot of time, and I didn't do well sometimes.
- R: When I handed out the sheet with the diagram of the progression using just circles and arrows indicating how the notes moved from one chord to the next, did that help in any way?
- S: No, that was too confusing to me.
- R: How about the list of step-by-step things to do to play the progression?
- S: I didn't even try that. It looked too complicated.
- R: So, looking at the visualizer to see the shapes of chords on the keyboard and talking through the progression helped the most?
- S: Yeah, I learned it that way mostly.

- R: How about repertoire pieces that we did in this second section of the course? Which one or ones did you find easier to do?
- S: I liked the “Harpist” a lot.
- R: Why was that?
- S: I learned that one pretty fast . . . for me at least.
- R: That was the one with all the broken seventh-chords, right?
- S: Yeah.
- R: What made that easier to learn?
- S: The handout that you gave us with the chords all blocked out. I played through that handout a lot. It helped with knowing the hand positions for each chord. Once I could play through the handout, it wasn’t hard to play the piece.
- R: On that piece I think I gave you the hand out before we actually looked at the score of the “Harpist.” With other repertoire pieces, I gave you handouts after we looked at the score and found basic patterns. Did either of those ways of working on repertoire pieces help more?
- S: Getting the handout first worked best for me. I knew what to expect in the piece. After I practiced the hand positions on the handout it made using the music easier. Actually, I memorized the piece from the handout. Once I knew how to break up the chords, I didn’t use the music except when you made us use it in class.
- R: When we used the music in class, was it confusing in any way to look at the score and not the reduction?
- S: Once I memorized the blocks, no. I just thought of the hand patterns.
- R: How about the pace of the class for this section of the course?
- S: It’s okay.
- R: I think the last time we met you mentioned that it was better for you if we covered three of four topics in a class period and spent more time working together practicing. Is that still true?
- S: Yeah. The days that you worked with us on talking through things three or four times, I get more done in class.
- R: So, in your learning you like the directed practice . . . hands on kind of approach?

- S: Yeah.
- R: On the days that we worked, say, on the progression and reviewed the things to remember when playing it that we had talked about in earlier class periods, was it helpful to give you a few minutes to work on it on your own?
- S: No, not really. Even though I understood the things that I needed to do, the pattern, it was still better when we talked through it in different keys together.
- R: Why was that important to you as you were learning the progression?
- S: Because playing it in different keys feels different and it looks different on the piano.
- R: So, knowing the pattern in one key doesn't always help with playing the progression in another key?
- S: No. When I had to play the progression in a new key, the pattern seemed different to me. I don't know, it just did.
- R: Was it the different combination of black and white keys that made it seem like a new pattern?
- S: I don't know, maybe.
- R: We've talked about a number of things today that have helped me understand you better as a learner. Is there anything about the class that we have not talked about that you would like to mention?
- S: No, I can't think of anything.
- R: Is there anything that you would like to change or add to the class as we go into the last section of the course?
- S: I kind of like the way things are going. I think I'd still like to have the same kinds of handouts that you have been giving us, especially for scales and progressions.
- R: How about repertoire pieces?
- S: I like the practice together and the practice suggestions that you give us in class.
- R: Has it been helpful when I have given you a specific list of things to do or ways to practice outside of class?
- S: Yeah. I think that helps me know what, or how I should be practicing on my own.

- R: When you practice on your own do you have a particular routine or way of working on things?
- S: Well, lately, I've been trying to practice the things and the way you have told us in class.
- R: Has that helped you?
- S: Yeah, I think so. At least I have specific things to work on. Otherwise, I'd just probably just start playing and fix things as I go along.
- R: Is there anything else that you would like to mention today . . . the kinds of presentations that help you . . . or the way we work on things in class?
- S: No, I don't think so.
- R: Thanks again for coming in today. I appreciate you taking the time to talk with me about the class and the things that make a difference in the way you learn things. We'll meet one more time at the end of the semester to talk about your experiences in the semester as a whole and any other things that you might want to go over.
- S: Okay.

Field-Dependent Learner #1 (FD-1)
Interview III
May 1998

- Researcher (R): Thank you for coming in today again to talk with me about your learning experiences in the class this semester. As you know, this is the last set of interviews that I will be doing for my research project. I'd like to begin today with some general questions. Looking back over the whole semester can you tell me how the course as a whole has gone for you?
- Student (S): I think as far as piano I could have done a little better.
- R: How so?
- S: I wasn't really happy with my final.
- R: What things could have gone better for you in the final?
- S: My memorization . . . like the scale patterns and notes and fingerings . . . I'm still mixing them up.
- R: Why do you think that happens?
- S: I don't know.
- R: Was there anything that we could have done in class that would have helped you do better at scales?
- S: Probably me just practicing more, I guess.
- R: You mentioned that you have trouble with the note and fingering patterns for the scales that we studied for the final. Although you said that you could have practiced more, was there anything that we did in class that helped you when we worked on scales?
- S: The charts . . . I mean the handouts with the keyboards.
- R: What made that more meaningful than other things?
- S: I just like could see the patterns on the keys and know how the scale started. If I could remember what finger it started on, I could remember the rest better, usually.
- R: Okay. Just so I'm clear on the sheets that you mentioned, do you mean the keyboard diagrams that had the little circles on the keys used in the scale?
- S: Yeah.
- R: Was that better for you than the other sheet I handed out that listed the names of the notes of the scale but separated the white keys from

the black keys on two different levels?

S: Yeah.

R: So the one that had the more realistic keyboard worked better for you?

S: Right.

R: How about the modes? What tripped you up on them?

S: Just remembering which one started on which note of the scale. And then there were different fingerings for those, too.

R: I remember when we started working on the modes in class that it was important to relate the modes to your knowledge of major and minor scales. I didn't give you a handout like the ones we just talked about, but would it have helped if I had done that?

S: Yeah, I think so.

R: Was there anything else that we did in class during the semester that seemed to be more challenging than you expected?

S: Improvisation.

R: What made that hard do you think?

S: Just doing the two hands together. I can do things like the repertoire pieces with both hands, but I don't know why it doesn't work in improvisation.

R: How about repertoire pieces that we did this past semester?

S: They were okay. I didn't mind practicing them.

R: If you could design a class session that would fit the way you learn, what kinds of things would you put in it to do?

S: I guess I'd start with scales, but would try to make them more interesting to work on.

R: What would make them more interesting to work on do you think?

S: Well, like if there is a scale in a piece that I'm trying to learn, it is easier to practice on it because it's part of the piece.

R: So, it would help you to start with a repertoire piece and work on the technical things related to the piece?

S: Uh-huh.

- R: So, working on exercises that relate to the repertoire pieces first and then going to the piece is not as good as starting right away with the piece?
- S: Yeah.
- R: How about the reductions that I gave you for some of the repertoire pieces?
- S: They worked pretty good for me.
- R: How did they help you?
- S: They showed me the patterns in the music that I needed to know.
- R: If I hadn't given you the reductions, do you think that you would have been able to see, or find, the patterns?
- S: Yeah, I think so. Well, eventually.
- R: Sometimes I gave you the reduction to a piece just before we discussed the piece in class as a group. At other times, we talked about a piece while looking at the score to find patterns and note groups. Did either one of those ways work better for you?
- S: I think having the reduction first helped more. I could see what you were talking about better.
- R: Do you mean the patterns were easier to actually see in the music, or that you understood the patterns better using the reduction?
- S: Both, I think. Once I saw the pattern, like a chord that was broken up, it was easier to see the others.
- R: Did seeing and understanding the patterns help with the practicing of that piece?
- S: Yeah. I knew what to practice.
- R: Did it make a piece easier to play?
- S: Yeah, sometimes. Sometimes I'd just played using the reduction, because I knew what the piece should sound like. It helped with me putting my hands on the right notes, I think. Then I used the music more.
- R: Did you need the reductions all the way through learning a piece, or was there a time when they weren't needed anymore?
- S: I used them most of the time just because they were easier, but I guess I really didn't need them all the time. After I learned the piece, I just played it.

- R: Getting back to the way you might design a class, how would you pace the class?
- S: I'm not sure what you mean.
- R: I guess I'm thinking about how fast you might move through various topics or activities, or the number of things to do that you might put in one class session.
- S: I would do just a few things and work on them more times.
- R: How about a short period of individual practice time at the end of the class period like the ten minutes I usually gave you at the end of each class this past semester? Would you include that?
- S: No. I don't like that very much.
- R: Why is that?
- S: It's better for me if we just work together all the way to the end of the class time. I don't get much done during that time. I'd rather practice outside of class.
- R: Can you tell me about the things you do when you practice on your own?
- S: Usually I start with scales and then go to the progression, or something like that, and then to the repertoire pieces.
- R: Would it be helpful to you if I gave you a short list of specific things to do in your practice before the next class period?
- S: Um. I don't know. Maybe. I don't know.
- R: You mentioned working on progressions during your practice routine. What sort of things do you do when you work on them?
- S: I think about the whole- and half-steps and what finger I have to move.
- R: When we worked on the progressions that we studied this semester, I tried to present them to you in a number of different ways. For example, I talked everyone through the motions . . . the notes and fingerings . . . that needed to be made while you played, and I gave you a written out list of steps that you could refer to, and there was a diagram of how the notes moved from one chord to the next and the distance. Did any of those things help?
- S: Talking through it mostly helped more.
- R: So, it helps to go through the details of the progression as you are actually doing it?

- S: Yeah.
- R: How would it be if I discussed the progression and demonstrated it using the visualizer, and then gave you a few minutes to work on it on your own. Would that work for you at all?
- S: No.
- R: Why wouldn't that work for you, do you think?
- S: I don't know, it just wouldn't. I get more about the progression when I hear you talk about it and I'm playing it. I'd rather practice on my own outside of class. Somebody else might get it learned during the time you gave us in class, but it might take me twice as long, so I really wouldn't get anything done.
- R: Does practicing together in class often help you think of ways that you might work on the progression outside of class?
- S: Yeah.
- R: We talked about using the visualizer a few minutes ago when we were discussing working on progressions. Does the visualizer help you with other things, too, or in some way that is important to what we do in class?
- S: Yeah. I used it to check to see if I'm playing the right notes sometimes. When we worked on scales, I used it to check what I was doing sometimes, too.
- R: Was, or is, there a specific kind of activity that using the visualizer seemed important in your learning in the class?
- S: Yeah, progressions.
- R: When I use it, is it better if I talk to you about the chords in the progression and demonstrate the progression on the visualizer as you watch, or is it more helpful when I use it as I'm talking you through the progression as you are playing.
- S: As I'm playing. Then I can use it just to check that what I'm doing is right.
- R: When I discussed things and demonstrated the concepts about the progressions we studied, and, say, scales using overheads, or gave you a handout of an overhead for you to use after I talked to you, did either one of those ways of presenting things work better for you?
- S: Both were okay, but I liked having the handout.
- R: Why was that?

- S: Because I could look at it when I was practicing.
- R: Looking back on the semester, is there anything that you would like to have done that we didn't do, or something that you would do differently?
- S: More repertoire pieces, I think.
- R: How would you that have helped you?
- S: I like learning music more than playing exercises.
- R: Even if the exercises are close to the kinds of things that you will be doing in a repertoire piece?
- S: Yeah.
- R: Is there something that you would do differently in learning repertoire piece that we did this semester?
- S: Yeah. More work on them in class.
- R: Do you mean working together more in-depth in class?
- S: Yeah.
- R: Why is that?
- S: I practiced better when we went over them in class. I mean, when I did them on my own, sometimes I didn't seem to have to practice them as much.
- R: So, it helps if you have someone kind of pushing you a little?
- S: Yeah. Well, I can do it on my own, I think, but, yeah, it helps.
- R: How do you feel about your piano studies in general now that you have finished the second semester?
- S: Pretty good, I guess. I still have problems, but I think I'm getting better.
- R: Do you feel like you are getting the kinds of things that will be helpful to you in your career in music after you graduate.
- S: Yeah, I think so.
- R: How about the feedback you got from me during the semester? Did you get enough chances to ask questions that you needed to ask?
- S: Yeah.

- R: Do you like to get a lot of feedback in your learning?
- S: Well, at the beginning of something, yeah.
- R: After that it isn't so necessary?
- S: Yeah.
- R: What kinds of things would help you at the beginning of studies to get the feedback that you might need?
- S: Just repetition of things, I guess.
- R: Repetition in the form of a lot of talk-throughs maybe?
- S: Yeah.
- R: So, in the beginning of studying something new talk-through kinds of things as you are playing is important?
- S: Yeah. They help me feel like I'm doing it right.
- R: So, they give you a little more confidence?
- S: Yeah, I think so.
- R: I know that you have another final to go to in a little while, but is there anything else that we didn't talk about today that you would like to mention?
- S: No.
- R: Thank you for your help. I appreciate you taking the time to come in and talk with me again today about your experiences in the class this semester.
- S: You're welcome.
- R: Good luck on the rest of you finals.
- S: Thanks.

Field-Dependent Learner #2 (FD-2)
Interview I
February 1998

- Researcher (R): Thanks for coming in today to talk with me about your experiences in the class since the semester began. I guess the first thing that I would like to ask you how the class has been for you so far.
- Student (S): Fine, I think.
- R: Have you come across any problems in the class, or things that are more challenging than you thought they would be?
- S: Yeah, the whole coordination thing. Well, there hasn't been anything that you've asked us to do that's insane, or that can't be done, but I think that I'm behind.
- R: Has coordination always been an issue in your piano studies?
- S: Yeah.
- R: Has there been anything that we have done in class that has helped you in that area of your playing?
- S: Yeah. I think the exercises that we have done that have required me to play two things simultaneously, or, like in "Etude," playing one hand after the other. That helped.
- R: Of the different ways that we studied the repertoire piece, "Etude," was there a way that helped you learn that pieces?
- S: The blocking thing that we did in class really helped, I think.
- R: How did it help you in your learning?
- S: It helped me really with my hand positions and where my hands needed to go the next time my hands had to change position.
- R: Have you used that blocking technique before in your piano studies?
- S: I can't remember, but I don't think so. At least it seemed new to me when we did it in class.
- R: In learning repertoire pieces do you think that blocking things out first before playing the piece as written would be helpful to you?
- S: I think that definitely would be a good way to start, but I think that playing the piece over and over again helps more than anything.
- R: As you look back on the course so far, how would you describe the level of difficulty?

- S: I think it's good. It's sufficiently challenging.
- R: When you think about your practice outside of class, what can you tell me about the things that you do?
- S: Well, I really don't have a lot of spare time because of my major and I work, but I get time in before class.
- R: Tell me a little about what kinds of things you do when you have the chance to practice.
- S: I usually get a chance to practice about three times a week. When I practice, I usually start with the progression that we are learning in class, and do all the things that you tell us to do. Then I start working on the repertoire pieces. Then I work on scales.
- R: Has there been any kinds of things that we have done in class that you have used in your practice sessions outside of class?
- S: Yeah. The chord progression kinds of things that you gave us and knowing about the hand positions. Knowing about hand positions helps me with repertoire pieces, too. Like when we are working on a repertoire piece and you tell us that the hand positions in the pieces are a lot like such-and-such chord progression that we have done, then I can relate the two a lot easier.
- R: Sometimes when we have worked on repertoire pieces in class, we have done a few short exercises that are related to the the repertoire piece we are working on, and other times, we have started right with the music itself and gone back to find and do exercises that might help with that part of a repertoire piece. Does either of those ways help you more?
- S: Yeah. I like the first way better. Doing a few exercises before we actually look at the piece gives me a little more knowledge about the piece when I look at it for the first time.
- R: What kinds of other activities that we do in class do you find challenging?
- S: Scales are really challenging for me, because...the hardest part is turning my thumb under when that happens in a scale. That has been really hard.
- R: Have there been any kinds of things that we have done in class . . . either ways of practicing them or looking at them . . . that have been helpful to you?
- S: I looked at the way they are written in the book, and that has been good for seeing the fingers that I need to use in a particular scale, but I also like the worksheets that you gave us. They have shown me how the notes are grouped, and that's really nice, too.

- R: Are you referring the the ones with just the letter names off the staff?
- S: Yeah, and then you can go and write in your finger numbers, too.
- R: When you use those kinds of worksheets, do you do anything particular with them when you practice?
- S: I write out the finger numbers above the letter names. I really don't go through and draw out the groups of notes or fingers like we do in class sometimes, though.
- R: Have there been any ways that we have practiced scales in class that you would like to do more of?
- S: No. I can't think of anything. There probably isn't any other way to approach it other than just doing them. I just probably need to just do them more.
- R: Has it helped you to hear me talk about playing the scale over the headphones as you do it, maybe telling you the fingers to use, and things like that?
- S: Yeah. That helps a lot when you tell us what to do . . . and hearing your piano . . . that makes a big difference, too. I like it when we work in class and you tell us, like third finger here or thumb here, because it keeps me going. When I'm working on my own, and I mess up, I'll stop all the time.
- R: Is it important to you in your learning in the class so far that you have that kind of directed practice in scales or other activities that we do?
- S: Yeah. It keeps me going. Sometimes I really don't know what to do when I practice on my own, and it helps me to hear how you would do it.
- R: Have there been any kinds of presentations in class that have been confusing to you?
- S: Well, sometimes when we start something new, I'm not sure where you are in the book, or maybe I was turning a page or something. But once we get into it I can figure out what we are doing.
- R: So, sometimes I move too quickly from one thing to another?
- S: No, I just think it helps after you tell us what we are going to do next that you give me time to get set mentally.
- R: Okay. You mentioned progressions earlier today. When we worked on them in class, I gave you a short written list of step-by-step things to do as you played the progression, a diagram of how the notes moved from one chord to the next, and we looked at the

notation in the book as I talked you through the progression as you played it on you piano. Was there a way the we worked on them in class that helped you?

- S: I think you talking us through it as we played it and looked at the book helped me the most. I could see it in front of me in the book and hear you telling us what to do and then I could do it.
- R: So, that kind of guided practice was helpful to you?
- S: Right.
- R: What kinds of things have been easy for you to do?
- S: Well, nothing has been really easy, but it is easier to do things when you talk us through things. It helps me to know . . . understand what I have to do on my own.
- R: After we have talked about an exercise or repertoire piece in class, and maybe found the important things to remember to do, or ways of looking and understanding it, is it better for you to have time on your own to work out things, or is it more important that we work together in class regularly, for example talking you through it a number of times.
- S: Definitely talking through things a lot is really helpful. More time in class working together helps with ways to practice and think about things. Of course, it's up to us to fine tune things on our own.
- R: Have there been any kinds of presentations that have been least helpful or confusing to you?
- S: No. I think everything has been helpful to some degree.
- R: What about our work on learning to play in a steady rhythm? Has anything been of particular help to you?
- S: When you count outloud as we play, it helps me be more aware of the beat. I like the disks, too.
- R: What about the disks has been of help to you in rhythm studies?
- S: When you play just the drum part, or the part that has the beat in it. it helps me to feel the rhythm better. And they're kind of fun to listen to.
- R: Sometimes I have you listen to what we will be studying and how it should sound after you master it. Has that helped you?
- S: Yeah, it helps to know what I should be listening for when I practice on my own.

- R: Would it be helpful to you to hear the exercise or piece often in class as a way of reminding you of what the end product will sound like?
- S: Yeah Well, maybe not every class period, but every now and then to remind me of what it sounds like and what I should be hearing when I play.
- R: Does it help to play along with the disks when we work in class?
- S: After I have learned to play a piece it is kind of fun. But while I'm learning a piece, no. It is confusing to me to hear all the other stuff going on while I'm trying to play my part.
- R: What about when I just have you play say the melody along with the just the left hand part on the disk?
- S: Sometimes that's okay, but if I don't really play the melody that well, it's kind of distracting to me. I mean, I'm think about the notes and fingerings and I can't keep up sometimes.
- R: If you had a chance to use the disks on your own in your practice, how would you use them?
- S: Well, I probably wouldn't use them too much, at least until I had learned the piece. I think that I would just listen to the disk, maybe as a way of reminding me of what a piece or exercise is supposed to sound like mainly.
- R: Since you can slow down the music on the disk, or play just on part of an exercise at a slower tempo, do you think that you might use it in your practice in some way to help you?
- S: No, not really. When I practice, I really have to think about what I'm supposed to be doing and listening to the same thing that I'm playing would be totally confusing to me, I think. I think I'd be more worried about trying to match the disk exactly, and I know I wouldn't be able to do that. I probably wouldn't use the disk much for practicing.
- R: How about the sight reading things we have done in class? How has that gone for you?
- S: Well, I'm fine if I can just sit there and name the notes that I have to play, but when I have to play on the spot, my mechanics aren't fast enough. It's not that it is hard, but I'm just not fast at it yet.
- R: Today we worked on a couple of pieces in the key of F major. Before we played the first one, I asked you to take a minute or two to look for patterns of notes or chords that you could find in the music, and then we played through the piece. On the second one, we found and talked about the specific kinds of patterns that were in the music and then we played. How did either of those ways of practicing

sight reading go for you?

S: I think that when you pointed out the patterns before we played helped me. I know what scales and chords are, but it's hard for me to see them in the music right away sometimes.

R: Can you tell me about what you see when you look at music?

S: When we work on scales or chord progressions, I can see scales and chords, but when they're in the music it's a little different. I mean I can see a scale in a piece and know it is a scale, but I don't always know what scale it is or how to play it. I think I just probably need to do that kind of thing more often, though. After you tell us or discuss it with us and I know what to look for, I can see what you are talking about and know better what to do.

R: What about things like broken chords or triads? Are they fairly easy to see?

S: Once we talk about them, yeah, but before that . . . I guess I don't know what I'm supposed to be seeing.

R: Once you know what to look for, is it easier to see that kind of pattern in other places?

S: Yeah, most definitely. Once we talk about the patterns in the music, I have a better idea about the fingering I need to use.

R: What about some of the other kinds of activities that we do in class? Are there things that you like to do or things that you like to avoid?

S: Ensemble things are hard for me. I like to avoid them if at all possible. When we're all playing together like that, I know by listening to the others that I'm behind, so I turn my piano way down. I know I don't play that well, so I don't like people to hear me mess up. "Alexander's Ragtime Band" was fun, though.

R: What made that fun?

S: Because I could do it. On that one, we worked on it a lot in class going step-by-step and practicing in little sections. It was hard at first, but after we had talked about everything and practiced it over the headphones, I knew what I was doing and I really enjoyed it. Also it helps if I know the piece, like that one. It's more motivating to me to know what the piece is supposed to sound like than to try and play something that I have never heard before...or don't have a clue about.

R: That kind of playing two-hand accompaniments might be something that you might use in your teaching career. How do you feel about the other skills that we work on in the class? Do you think they are things that you might use also?

- S: Yeah. I think everything we have done so far is good. Some things we do might be more useful to me when I'm out of school, but other things are helping me with playing better. I don't mind working on a lot of different kinds of things. It all goes together, I think.
- R: Thinking of more general things about the class now, have there been certain kinds of presentations or activities that you would like to do more of or continue to do in the class?
- S: Definitely the talking through things together and hearing your piano as we play is something that I hope you continue to do a lot. The overheads are good, too, especially when you demonstrate how to mark off something in the music . . . like fingering patterns in scales. I can see what you mean better and it helps me know what to look at in the music.
- R: How about the visualizer? Has that helped you in your learning in the class?
- S: Yeah. It helps me to see the things about patterns of notes that help me see them on my piano. When I get confused, I usually look at it, if you are using it, to get back on the right track if I mess up.
- R: Can you tell me how it helps you get back on track?
- S: Well, I can see what I'm supposed to be doing like when we work on scales. I still have a hard time grouping notes in my head and knowing the pattern of black and white keys in some scales. The visualizer helps me see the pattern of keys better and when you tell us what fingers we should be using it make better sense to me when I play on my piano.
- R: Does it also help that way when we talk about chords in a progression?
- S: Yeah. I can see where my fingers are supposed to be and the keys I'm supposed to be on. It just helps me to get a better idea of what to be watching for when I play.
- R: Are there any things that you would want to differently in the next section of the course that would help you in your learning?
- S: Sometimes. Well maybe one of the things that I would do differently would be to spend more time on things like exercises or pieces . . . working on them together more. I don't like going to fast through things or having too many things to do in one class. I guess I don't feel like I have enough time to think about things sometimes before we move on to something new.
- R: So, it would help if we did fewer things in one class period and maybe work more in detail when practicing together?

- S: Definitely. For me that would be better. Sometimes if we went too fast and moved on to a new things to soon, I felt like I needed to work more on what we just did.
- R: Okay. Did you feel like you were getting too little feedback about how you were doing sometimes?
- S: Sometimes. Once or twice, I can remember thinking that I wanted to ask a question, and we were already on something different.
- R: Did you eventually get that question answered?
- S: Yeah. At the end of the class, when you gave us time to practice on our own, I asked then.
- R: Would it have been better for you, do you think, if you had had the opportunity to ask the question at the time you thought of it?
- S: No. I mean, I eventually got to ask you about what I needed to know.
- R: Is there anything else that you would want to change about the class?
- S: No. I don't think so. I think it is going okay.
- R: Is there anything that we haven't talked about today that you would like to mention or go over?
- S: No. I can't think of anything right now.
- R: Thank you again for coming in today. We'll meet again in about five weeks to talk about your experience in the class since this interview. Thanks again for sharing your ideas and comments with me.
- S: You're welcome

Field-Dependent Learner #2 (FD-2)
Interview II
March 1998

- Researcher (R): Thanks for coming in today for the second interview. In this interview I'd like to continue our discussion of your experiences in the class. I'll start with asking you how the class has been going for you since the last time we talked.
- Student (S): I think that it is going better for me.
- R: What things are going better for you?
- S: I think that I have a better idea of what I need to do to practice outside of class. The little practice suggestions that you give us in class are really helping me. I'm still not great at playing the piano, but I think that I'm getting more confidence in myself.
- R: What do you think has improved in your playing to give you more confidence?
- S: Being more coordinated with my hands, I think. Some things are still hard for me, but I'm getting better at putting hands together when each hand has something different to do.
- R: Has there been anything that we have done in class that has helped you to do that?
- S: Talking through the exercises, like the scales, arpeggios, chord progressions, and the repertoire pieces, helps me to know what I need to think about as I'm playing. It helps going through things step-by-step like we do in class.
- R: Has that kind of work together in class helped in any particular kind of activity or exercise?
- S: In just about everything, I think.
- R: How does talking through things help you in scales, for instance?
- S: I think when you told us about the patterns of notes in the scales . . . the finger groups, and where to put your thumb, that has helped. And also having us play the patterns in blocks. I can feel the keys that I need to play the scales.
- R: Has there been any kind of presentation or demonstration in class that has helped you with learning the finger patterns in the scales that have worked on in the class?
- S: The scale sheets and maybe how you show us the scales on the visualizer.

- R: What about the scale sheets has helped the most?
- S: I can see the whole scale at one time and get a better idea of how it is supposed to go on the keyboard.
- R: Do you use the scale sheets quite a bit when you practice outside of class?
- S: Definitely. Most of the time I don't use the book. I just use the sheets.
- R: Is looking at the notation in the book more confusing to you?
- S: No, not confusing so much. It's just that the scale sheets show me how the scale is shaped better?
- R: Shaped how?
- S: The black and white notes on the piano. I can look at the sheet when I'm practicing and see the next group of keys that I need to play the scale.
- R: After you have looked at, or used the scale sheets, is looking at the way the scales are written down in the book a little easier?
- S: Yeah, somewhat. If I mark in the patterns of fingers, or something, then it makes better sense to me.
- R: When you mark in the book, what kinds of things do you mark in?
- S: I write in the fingering, if I use the book, and then sometimes I put a box around the notes in one group, or I might put a circle around the note where the thumb goes. But, I use the sheets most of the time.
- R: Is it easier to memorize the scales from the sheets?
- S: Yeah. It took me a while, but eventually I got them memorized.
- R: When you were memorizing the scales, what did you memorize?
- S: The finger patterns and the keys of the scale on the piano mostly.
- R: You mentioned the visualizer earlier. How did that help you in learning the scales that you had to play for the last test?
- S: I think that it helped the most when you play the finger patterns blocked out. I could kind of see how I . . . or how the scale looked on my piano.
- R: Did it help when I used the visualizer as I talked you through the scales in class?

- S: Well, yeah, but most of the time I was looking at my piano when you were talking us through the scale. I looked at the visualizer if I got lost and needed to know where I was supposed to be in the scale.
- R: Was the visualizer ever confusing to you?
- S: One time when you were playing . . . I think it was the E-flat scale . . . and you were showing us the scale and telling us about the fingerings to use, I wasn't sure what I should be looking at or doing. First, I wasn't real sure of the notes of the scale or how it was supposed to look on the piano, and when you were telling us about the fingering and the notes, I couldn't think fast enough to find the right note and finger at the same time to keep up.
- R: Was it better when I talked you through the scales without the visualizer?
- S: Yeah, I think so. Then I could keep up. When you said the note and the finger to use when I was playing, it was easier to follow along.
- R: Did that work the same way when we worked on arpeggios in class?
- S: Yeah. They're harder for me to do, but it was better when you talked me through them, too.
- R: When I used the visualizer to show you the arpeggios . . . either note-by-note, or in blocks of notes, did that help?
- S: Yeah, I got an idea of the notes to play, but I think I learned to play them better when I played and you were giving us directions over the headsets.
- R: When we were working on chord progressions in class, what kinds of things helped you with that?
- S: Going through them slowly and talking about how the notes moved from one chord to the next.
- R: So, it helped you when I talked you through a progression telling you which finger moved and how far?
- S: Yeah. Once I got the pattern down, I kind of knew better how to practice it.
- R: How about the handouts that I gave you for the progressions?
- S: They helped some. The step-by-step list of directions was really confusing to me. I couldn't follow that very well.
- R: How about the diagram of the progression, the one with the circles

and arrows showing you the direction that the notes moved and how far?

- S: That made a little more sense to me when you showed us on the overhead and talked about the way the notes moved, but when I tried to use it on my own, it was not very good. I guess maybe that was a little confusing because of all the things that I had to try and figure out.
- R: Was it as confusing as the step-by-step list?
- S: No, not as much, but the thing that worked best was going through the progression together over the head phones. I could hear how it sounded on you piano, and, if I made the right moves with my fingers, I could tell that is was right.
- R: Was it important that we talked through the progressions often in class?
- S: When I'm first learning a progression, yeah. It helps to go through it a lot. When we practice in class together, I can tell whether I'm getting better at playing it. I think, too, that when we go through it in class everyday a little bit, I learn how to practice it on my own.
- R: How about the repertoire pieces? How are they going for you?
- S: Pretty good, I think, but it still take me a while to get them so that I can play them smoothly enough.
- R: As we work on repertoire pieces in class, what seems to help you in your learning?
- S: Talking through them and pointing out hand positions mostly, and having us block out things. That helps a lot.
- R: How about the reductions? Have they helped?
- S: Yeah. When we play the reductions in class, I get a better idea of the hand positions that I need to remember to play the piece.
- R: Do you use the reductions in your practice outside of class?
- S: Yeah, I do. I practice them for the hand positions mostly.
- R: After you have practiced the with the reductions, does looking at the score seem different to you?
- S: Yeah, I can relate how the hand positions felt in the reductions to the way the music is written out on the page better, I think. I still have trouble playing the piece, though, sometimes. I mean knowing what the hand positions are doesn't tell me . . . or doesn't make my fingers move any better or easier.

- R: What helps you with that, do you think?
- S: Going through the piece in class together mostly. After I have used the reduction to practice the hand positions, I think I feel better about knowing what I need to do, but practicing in class when you play through a piece with us helps me with learning to play better. I get practice at doing it, I guess.
- R: In our last interview, you mentioned that hearing the piece on the disks helped you with knowing how the finished product was supposed to sound, and that that helped you in your practice. Is that true still?
- S: Yeah, if I know what the music is supposed to sound like, I can tell if I'm doing it right in practice.
- R: Has it helped you to play along with the disk, say, the right hand part as the disk plays the left hand, or the left hand as the disk plays the right?
- S: Yeah, but it depends on how well I know the hands alone. If I can't play one hand or the other very smoothly, it is a mess most of the time. I get nervous about playing the right notes, and then I mess up the rhythm and can't keep up.
- R: Has it helped to slow the disk part down and play slowly?
- S: Sometimes, but when I make a mistake, I can't get back on track usually. I'd much rather play just a few measures at a time, like you have us do when you are playing through with us and practicing with us. That helps more.
- R: If you could use the disks in your own practice, would you use them in any particular way that you think might help you in learning a repertoire piece?
- S: I think that I would probably use them mostly to listen to the piece before I practiced.
- R: So, you'd use the disks as a model to sort of follow?
- S: Yeah. I don't think that I would use them much to play along. It's too stressful to try and keep up with them.
- R: After you have learned a piece, would it be helpful to play along with the disks?
- S: I don't know. When we have done that in class with a piece that I feel pretty comfortable with, I usually make some kind of mistake that throws me off and I just give up.
- R: Are the disks distracting in any way when you try and play along?

- S: Well, I try to play it perfectly like on the disk, but I have never been able to do that yet. Sometimes all the other instruments, or sound that I hear, get me off, because I think that it is something that I'm supposed to be playing and I'm not.
- R: So, maybe there is too much going on in the accompaniment sometimes that makes it hard to play along?
- S: Yeah, sometimes. Maybe if I felt more confident about my playing, I would enjoy playing along with the disks. They just mostly make me nervous, though.
- R: How about the way the class has been paced since we last talked?
- S: It's pretty good, I think. Some days we go through things a little faster than others, though.
- R: On those days what would you have liked to have done differently?
- S: I still like it when we do just a few things and work on them a little longer together in class. You know, practicing through things together.
- R: How about the times that we have talked about ways to practice, either an exercise or repertoire piece, and then I've given you a chance to work a few minutes on your own.
- S: It depends on what we're working on. If it's something new, it helps to have a few minutes to try it out, but if it is something that we have worked on before, I'd rather go through it . . . practice it together.
- R: As we enter the last section of the course, are there things that you would like to change about the way we do thing in the class, or kinds of presentations that you would like to continue?
- S: On the whole, I think things are okay the way you have been doing them. I guess I wouldn't change much. The things that we have done in the class are helping me. I'm never going to be a great piano player, but at least I think that I am making progress, I'm slower at it than I'd like to be.
- R: Are you getting enough feedback about your progress in the class?
- S: Yeah. I think so. The last ten minutes of the class that you give us to practice gives me time to ask questions when I have them.
- R: Is there anything that we haven't touched upon today about your experience in the class that you would like to mention or talk about?
- S: No, I don't think so.

R: Thank you again for meeting with me again today. We'll meet again at the end of the semester to talk about the class as a whole, and any other things that you might want to mention about your learning experiences in class. Thanks again.

S: Okay.

Field-Dependent Learner #2 (FD-2)
Interview III
April 1998

- Researcher (R): Thank you for coming in today for the last interview. Today, I'd like to chat with you about your experiences in the class since we last talked, and also about how the class has been for you in general. Can you tell me a little about how the class has gone for you?
- Student (S): It's gone pretty well, I think. The first part of the semester I had more practice . . . things weren't quite so busy then, but the class has been good.
- R: So, practice time has been at a premium lately, then.
- S: Yeah. It's been hard to find a lot of time to practice in the past few weeks, but I think I get a lot done when I practice. Some of the things that we have done in class have helped make my practice go better.
- R: What kinds of things have helped you?
- S: I think that the way of handling scales, and then in repertoire pieces, telling us what to look for . . . finger patterns, blocked chords and things like that . . . how to spot things that make practice go a little quicker, because then I wouldn't just have to paw through it myself.
- R: So, it helped when I gave you a little list of things to practice.
- S: Yeah, and then telling us about things to look for . . . like the measures in a piece that were the same or similar . . . and pointing out chords . . . things like that.
- R: You mentioned scales. Was there anything that we did in class that helped you with learning the scales that we did for the final, or the other ones we did during the semester?
- S: I think learning the finger patterns, like the ones on the handouts you gave us, have been the most helpful.
- R: Which one of the handouts helped you the most?
- S: The ones with the letter names with the sharp or flat notes on top and the finger numbers underneath.
- R: Can you tell me how they helped you?
- S: They showed me how the notes made patterns and the fingers to use. It just made them easier to practice and memorize.
- R: You mentioned repertoire pieces just a little bit ago. Was there anything that we did in class that made the repertoire pieces we did

easier to learn?

- S: I think the handouts with the blocked chords helped me a lot, because I could play the blocked chords, and then I would know where my hands were supposed to go. When I went back to play the piece as it was written, it was easier to play, because I could feel the patterns of notes in my hands.
- R: So, knowing the patterns helped.
- S: Yeah.
- R: Were the patterns easy to see in the music most of the time?
- S: After I worked with the reduction, they were.
- R: Do you think that you would have found those patterns in the music without the reduction?
- S: No, not really. Before you started giving us reductions, I pretty much went note by note when I practiced. I really didn't look for patterns much . . . or maybe didn't know what to look for.
- R: How about the pace of the class?
- S: Sometimes it seemed to go a little fast, but most of the time it was okay. I never felt like it was too slow, though.
- R: If you could set the pace of the class and the number of things we do in a class period, what would you do?
- S: I'd like fewer things to work on in class and work more in depth on things. I mean, I'm not a quick learner, especially when it comes to piano. I think it is better for me to do more practicing in class together.
- R: Is it better for you if I talk you through a piece as you are playing it, or is it more helpful if I tell you about the things to look for or work on, and then give you time to work on it on your own for a few minutes?
- S: I like it a lot better when you talk to us over the headsets when we're playing through things. I think it's better, too, to go through a repertoire piece or an exercise a number of times together like that. If we go too fast, I kind of feel like it's hit or miss then. I either get it or I don't.
- R: How does doing a lot of in-class practicing help you with your practice outside of class?
- S: If I didn't get something that we did in class because we went too fast, I got kind of frustrated when I went to practice on my own.

I like to understand things really well before I go out on my own to practice.

R: What sort of activities that we did in class helped you more in developing your piano skills?

S: I think the little exercises we did, and the scales and progressions, because, if you can do them well, then practicing a piece of music seems to go better. I think that warm-ups at the beginning of the class are definitely a good thing, too, because they get you into thinking about playing the piano for the rest of the class period.

R: You mentioned that talking through exercises or repertoire pieces is important in your class experience. When I gave you a list of specific things to be sure to practice outside of class, did that help in you practice?

S: Yeah, because I had a definite agenda of things to do, especially if it was something new. The little checklist of things you gave us gave me some guidelines to follow in my practice . . . what you should practice and what you should accomplish. It gave me more motivation, too, because I could tell that I was making progress . . . or at least getting things done. I felt better about my practicing.

R: Would it have helped you if I had given you a list of things to practice at the beginning of each week, or for a specific chapter?

S: Yeah! That kind of thing helps me stay focused on what I need to do or get done. The checklist of things to do for the final that you gave us, helped me organize my practice. It really helped me be more efficient, I think. If I know what I have to do, then I'll get it done.

R: You mentioned earlier that you got frustrated sometimes. What kinds of things frustrated you the most in you piano studies this semester?

S: I guess the coordination kinds of things. I mean, my hands just don't move fast enough most of the time. Sometimes I couldn't keep up and I felt pressured.

R: Did you feel like you weren't keeping up most of the time throughout the course, or in just certain kinds of activities?

S: Most of the course, I think. I mean, I got things done and was able to do most of the things pretty well, but I always felt like I was little behind everyone else in the class.

R: What kinds of things could I have done to help you feel more comfortable about your playing?

- S: Well, I think that I could probably have made more time in my schedule to practice outside of class. But, the things we just talked about helped me a lot. Maybe it's just me. I don't have a lot of confidence in myself when I'm learning something new, like playing the piano, especially when I'm working things on my own.
- R: You have told me about the frustrating things you have experienced this semester. Are there things that you feel have improved in you playing?
- S: Yeah, I think my sight reading has gotten better. I can read the notes better, and sometimes I surprise myself when I get through an exercise and I didn't have as much trouble as I thought I would.
- R: Have there been anything that we did in class that has helped you with your sight reading?
- S: I think doing the sight reading examples over and over helped. When we did a little sight reading every day, I could see an improvement in my playing just from doing it regularly.
- R: Did it help when I talked you through the sight reading examples we did, as opposed to just going from one example to another?
- S: Yeah. Most definitely.
- R: Have there been any kinds of study techniques or ways of presenting things to you that has helped you in your learning in general?
- S: Um. When we analyze things before we practice them, it helps me a lot.
- R: Can you give me an example of what you mean, or where that worked for you?
- S: Like learning a repertoire piece, it helped to do exercises that related to the piece before we actually worked on the piece itself. It helped me understand the piece when we got to it. When you just started a repertoire piece without any exercises that led us up to it, it was like being thrown in the water and told to swim.
- R: When we started a repertoire piece without working on preparatory exercises, did that, or how did that, affect the way you practiced it outside of class?
- S: Well. I looked for patterns of notes and finger patterns, I looked at the rhythm and tried to find things in the piece that were the same.
- R: Were patterns easy for you to spot?
- S: It has gotten better, but at first they were a little hard to see.

- R: Was there anything that we did in class that has helped you to see, or find, patterns in the music a little better?
- S: I think just doing it together in class, and you telling us what kinds of patterns to look for helped me to learn to find them better. And the handouts that you gave us that broke the music down . . . I mean blocked it out . . . helped me see what to look for when I was working on my own.
- R: Did that work for you in learning scales and arpeggios, too?
- S: Yeah. It helped to know the pattern, or see the pattern on the handouts or on the visualizer, before I practiced them on my own.
- R: Did you rely on the visualizer a lot in class presentations?
- S: Well, it depended on what we were working on. If you were talking us through things, I usually just looked at my hands and tried to do what you were telling us.
- R: Was the visualizer helpful to you in any particular type of activity that we did in class?
- S: Well, when you made us stop playing and look at it when you were demonstrating something, like a scale pattern, or how to move from one chord to the next in a progression, it helped me to see what I needed to do.
- R: Were things easier to understand after I used the visualizer in a demonstration?
- S: Yeah, I think so.
- R: Was there a time when the visualizer was more confusing for you?
- S: Well, when we had to look back and forth between what we were doing on the keyboard ourselves and what you were showing us in the visualizer, it always took me a little bit to get reoriented. Sometimes that was frustrating, but that only happened a couple of times. Most of the time you made us stop and look at what you were doing before we played again.
- R: I see.
- S: I mean, at the times that I got confused or lost, I just felt that there was too much to look at at one time in different places.
- R: So, it works better for you when the visualizer is used to stop and look and then practice?
- S: Yeah. Seeing things and how they go before I play them helps me know what to do. If I understand what I need to do, I can do it, or

play things better.

R: I know that you have a final to go to in a little while, but are there any other things that we didn't talk about today that you would like to mention before we have to stop.

S: No, except to say that I think I have learned a lot this semester. I don't think I'm ever going to be a great piano player, but I have learned a lot of good ways to practice and look at music differently that make it easier to learn. If nothing else, the class has been good for that. I like the things that you gave us to help us understand the music better, and the lists of things to do outside of class. In my last class, we never had much of that, so I kind of felt lost most of the time. This semester, I felt like that I was accomplishing specific goals all the time.

R: I'm glad that you found things that we did helpful to you. I hope that you continue to use the things that work for you. I appreciate your willingness to tell me about your learning experiences in the class this semester. Thanks again for coming in today.

Field-Dependent Learner #3 (FD-3)
Interview I
February 1998

- Researcher (R): The first few questions that I have for you today are rather general. How has the class going for you so far?
- Student (S): It's going pretty well.
- R: Has there been anything that we have done so far that you have found to be more of a challenge than other things?
- S: Well, in comparison to my last semesters class, we're going a little bit faster, but I think that I am learning more,
- R: How is that?
- S: My last teacher wasn't very demanding, and you could get through the semester without practicing as much as you as you should maybe. We'd do a few things in class and . . . well, she kind of took it a slower pace, I think.
- R: Does that work better for you?
- S: No, I think that this is better. I'm learning more in here.
- R: Of the the things that we have done so far, have there been certain thing that you find more challenging?
- S: Right now the hardest thing for me is the pieces that we have to learn.
- R: The repertoire?
- S: Yeah, the repertoire pieces, because it's more involved with the left hand.
- R: So, that's an issue with you at the moment?
- S: Yeah, that's pretty much the biggest thing for me right now.
- R: Has coordinating the hand always been a difficult thing for you in your piano playing?
- S: Yeah.
- R: Has there been anything that we have done so far that has helped you to improve your coordination of the hands?
- S: Not yet, I don't think. I know I just need to practice more.
- R: When we are practicing a repertoire piece in class, does it help you if

I talk you through the piece?

S: Yeah, that really helps, because I take that with me and practice that way on my own.

R: Would it help you as much if I just mentioned or pointed out the trouble spots and gave you suggestions for your practice?

S: No, I think it would help me more if you showed me what I need to do and what I'm doing wrong.

R: Kind of a talk-through of the piece?

S: Yeah.

R: Does that help you in other things that we do, like scales and chord progressions, to walk you through note by note or finger by finger?

S: Yeah, definitely.

R: When we were learning the chord progression you just played on the test last week, I gave you a number of different ways to look at and study the progression. One was a written out list of the things you needed to do step-by-step to perform the progression. Another one was a little diagram of the notes and how they moved from one chord to the next. And the third was a talk-through of the progression, where I guided you through the steps. Did any of those seem to make more sense to you as you were learning the progression?

S: I think the talk-through over the headset helped the most.

R: So hearing the steps you needed to do helped you learn the progression better?

S: Yeah. It helps a lot to hear some one tell me about what I need to do, and then I can get it. The way I learned the progression was to know which finger moved where.

R: After you had the pattern of finger movement down, was it important that I talked you through other keys that had more accidentals, or did knowing the pattern work for you right away in other keys?

S: Well, once I knew the pattern, I didn't need to have you talk me through it as much. I just did it.

R: How about repertoire pieces? What seems to work best for you when learning a new piece?

S: Step-by-step with you talking on the microphone and telling me about things to watch for and maybe which finger moves where.

Things like that.

- R: If you had a choice between doing a series of exercises that lead up to a piece, or starting right with the piece and finding things in the music to work on, which would you choose?
- S: Oh, doing things that lead up to the piece, because that gets all the things into your head that you need.
- R: When I give you those ten minutes at the end of the class to practice on your own, is it important that I give you feed back on what you are doing, or is it better that I just let you practice and ask questions that you need to ask?
- S: Well, I don't think that I need a whole lot of feedback, but I would like you to tell me what I'm doing wrong and what I need to work on before I go.
- R: So, getting some feed back is important?
- S: Yeah.
- R: What about the pace of the class so far? Some days I have covered a small number of topics more in depth, and other days I have had you move fairly quickly from one thing to another.
- S: It works better when there aren't so many things jammed into one class time. I think if you spend a little more time on each thing, you retain more and know what to practice.
- R: So you would prefer fewer things and more in depth work or practice in class.
- S: Yeah.
- R: How about the ensemble things that we've done so far.
- S: Oh, I think it adds a lot to the class. It make me want to play more right notes, and maybe want to practice more so I don't stand out.
- R: Does ensemble playing help you in your playing or learning some how?
- S: Yeah, it helps with my rhythm.
- R: What sort of assignments that you have had have been the most challenging?
- S: The repertoire pieces . . . the coordination.
- R: What sorts of things could I do to help you feel better about learning repertoire pieces?

- S: Um, maybe standing over my shoulder every once in a while to see what I'm doing, and then maybe give me suggestions of things, too, that I could do that would make my playing better.
- R: Is it important in your learning process that you have that kind of feedback often?
- S: Yeah. It keeps me on track with a repertoire piece when I'm learning it. If you give me specific things to work on it helps me know what to practice. The other things, like chord progressions and scales, it's okay when you talk us through them and give suggestions over the headphones.
- R: So, it's important to you in your learning process that you get some personal feedback about your own playing, rather than general comments or suggestions that I might give to the whole class?
- S: Yeah. Like in the last ten minutes of class when you give us time to practice on our own, it helps me know what I need to do outside of class if you listen to what I'm doing and give me some suggestions of things to do.
- R: Is it important that I, or another teacher, do that sometime in each class period?
- S: No, not every class period maybe. But, say we've just started a piece and it is still new, it helps when I have some kind of suggestions of how to practice the piece until I have learned a little better.
- R: How about when we work on scales and arpeggios in class, is there anything that has helped you in your learning so far this semester?
- S: Yeah. The scales sheets that you gave us with just the names of the notes in the scale . . . the ones where the sharp or flat notes are above the white note names. Those and when you use the visualizer help a lot. When you use the visualizer and call out the finger numbers as we play, I can see the notes I need to play and know what fingers I should be using.
- R: How does that help you in learning to play scales or arpeggios?
- S: When you show me the keys I need to play on the visualizer, I can see groups of notes and that helps me know what fingers to use.
- R: How do the scale sheets help you?
- S: Once I know the pattern of notes and fingerings, I can block them out when I look at the sheet when I practice.
- R: When we work on scales and arpeggios in class, is it better for you if I explain and demonstrate a scale or arpeggio using the visualizer

and have you watch, or is it better if I talk you through the scales or arpeggios as you play it?

S: At first, if it's a new scale or arpeggio, it helps to watch you do it and tell me about the things I need to do.

R: If I did that and then let you practice it on your own, would that be okay?

S: Well, I still think once I understand it that it helps if you talk me through it a couple of times just to be sure that I'm doing it right.

R: Is it important to your learning that we talk through scales and arpeggios every class period?

S: Once I understand the shape of the scale and the fingerings and you have talked us through it a few times, I can pretty much do it on my own.

R: Has piano helped you in your other studies in music?

S: Yeah, it has helped in my theory assignments.

R: How has piano helped you?

S: I think I can visualize the things we talk about in theory better, especially chords. When we talk about chords in theory, I'm starting to think about how I would play it on the piano now.

R: Is that something new to you . . . that way of thinking about theory?

S: Yeah. Before I tried to relate it to my instrument, but that didn't work too well, because I can't play chords on my horn.

R: Has theory helped you in your piano studies in this class in some way?

S: Yeah, somewhat. When we talk about chord progressions in theory class and then talk about them and play them in here, it helps me understand them better. Playing progressions in here helps me understand how harmonies work, because I can see it happen on the keyboard and hear how they sound.

R: How about sight reading activities that we have done so far in the class? Has there been a way that we have practiced sight reading that has helped you?

S: Yeah, I liked the days we worked on a bunch of different examples all in the same key better than the days where we jumped around to different keys.

R: Why was that do you think?

- S: I got a better feel for the key when we did a number of examples in the same key. When you told us the kinds of things to look for in a particular key. . . the patterns and chords and stuff . . . I could see them in the music easier if I had more than one chance at it. When we played in different keys one right after the other I really didn't have enough time to learn to think in that key very well.
- R: Did it help to talk about the kinds of patterns that you might find in a particular key?
- S: Yeah, it helped a lot. When we were practicing sight reading last semester, we didn't talk about looking for patterns very much, so I pretty much had to read each note as fast as I could and then try to play the right finger. I really didn't do very well at sight reading then, I don't think.
- R: Is it better now for you?
- S: Yeah, it's getting a lot better. I'm starting to see things more in the music now that I know what to look for. I'm not great at sight reading yet, but at least I kind of know what I need to look for now.
- R: When I talk to you in class about looking for patterns of notes in the music, either groups of notes in the melody or chord patterns in the harmony, are the patterns relatively easy for you to see in the music?
- S: Well, once you point them out a couple of times I know what to look for, and I can recognize them.
- R: If I didn't point out the specific patterns to you in class, do you think that you would find them as you were practicing the piece on your own?
- S: Yeah, eventually probably. I'd just have to study the music harder maybe to find them.
- R: When you are working on your own, do you usually look for patterns or ways of grouping notes that might make the music easier to play?
- S: Before this class, I really didn't look for things like that much. Before, I usually just more or less went note by note, and tried to practice the things that I needed to fix.
- R: Did that way of practicing work for you?
- S: Yeah. I mean, I always got the job done, but sometimes it took me a while to get an exercise or a repertoire piece down so that I could play it smoothly.
- R: Has your way of practicing changed any now that we have talked about the kinds of things to look for in a repertoire piece or

exercise?

- S: Yeah. I have a better idea of how to go about practicing now. When you explain the kinds of patterns to look for and practice with us in class it has helped me to know what to practice better.
- R: After we have talked about the kinds of patterns to look for in a particular exercise or piece of music, does it help to do a talk-through kind of practice, or would it be better to give you some time to practice on your own?
- S: I think going through the exercise or piece a couple of times over the headphones as I'm playing helps to make the patterns clearer. When you talk about the patterns and the fingerings as I'm playing it all sort of comes together better, I think.
- R: Better than if I just let you work on your own?
- S: At first, yeah. After you have walked me through a couple of times, I pretty much know what I need to do on my own.
- R: Speaking more in general now, is there anything that you would change about the class or want to do differently as we go into the next section of the course?
- S: No, I like the way things are going so far. I like the way we have worked on things together in class and how you have explained the different things we have done. You give us two or three different ways of working at things and ideas of how to practice and that helps me.
- R: Are there any specific kinds of presentations or activities that have been more helpful than others?
- S: The handouts, definitely, and the demonstrations when you used the visualizer have helped the most, I think. They have helped me to see things in the music better.
- R: Anything else that you would do differently, or add to the class?
- S: No. I think I have already learned a lot.
- R: Is there anything that we haven't talked about today that you would like to mention concerning your experiences in the class?
- S: No, I don't think so.
- R: Thanks for coming in today. We'll meet again in about five weeks to talk about how things have gone for you in the class at that time. I appreciate your telling me about your learning experiences in the class so far.

Field-Dependent Learner #3 (FD-3)**Interview II****March 1998**

- Researcher (R): Thanks for meeting with me again today. I wanted to talk with you about some of the things that we discussed in our last interview. How is the class going for you now?
- Student (S): Better.
- R: Better? How so?
- S: I'm finding more practice time, I guess. I didn't get in much everyday at the beginning of the semester.
- R: Is the class generally getting a little easier for you?
- S: I guess it is.
- R: Now that you practice a little more, what kinds of things do you do when you practice?
- S: The first thing I do is scales. Then after that I do the arpeggios . . . then progressions and then I work on repertoire . . . then I end with scales.
- R: When you are working on scales, what sort of things do you do?
- S: I like to change the rhythms and play like sixteenth notes, then real slow in quarter notes.
- R: When you play scales, what do you think about? Fingering?...note groups? . . . key groups? How does that work for you?
- S: I think of the note groups like 3 - 4 - 3 . . .
- R: Do you attach fingerings to the note groups in your thinking?
- S: Yeah.
- R: Does it work the same way for arpeggios?
- S: No. The arpeggios I just play. I do the same things with the rhythms and everything, but I can't seem to put them in groups. I play like the first three notes and then I put the thumb under and then I do the same thing as I go up higher.
- R: When you were working on the scales that start on the black keys, like the ones we had on the last exam, what sorts of things helped you to group those notes into patterns that you use?
- S: I use little boxes.

- R: Boxes?
- S: Yeah, I use boxes to group the notes . . . and, oh, I also highlighted my thumb. I highlight my thumb . . . that way, if I get lost, I know where my thumb goes next.
- R: Do you do that in the music notation itself, or on the sheets that I gave you?
- S: Yeah, on the sheets.
- R: The sheets that have the letter names and the numbers?
- S: Yeah, the sheet with the letter names and the numbers of the fingers on top.
- R: Does it work the same for you in arpeggios, knowing where your thumb goes?
- S: Yeah. In the arpeggios I'll mark the thumb, too, in case I get lost. If I know where the thumb is I can figure the rest out.
- R: When we practiced scales and arpeggios in class, sometimes we practiced playing one note at a time noticing the fingering and hand position, and other times we blocked all the note in a group. Did either of those ways of practicing help you to learn scales and arpeggios?
- S: Yeah. Both ways. One way was, when we played one note at a time, it helped to get my fingers to move through the arpeggio. The blocking helped me to be able to set my fingers up on my hand for a certain spacing on the right keys.
- R: When we first started working on scales that begin in black keys, did it help you when I blocked off groups of notes and pointed the note groups out to you either on the visualizer or on a piece of paper?
- S: Uh huh.
- R: How about the progression? How did that go for you? Of the things we did in class, what made best sense to you?
- S: Oh, the little diagram. The diagram the showed the spacing. That was the best help. That was the sheet, I guess, that you had [written] instructions at the top. I tried to follow those, but it didn't work out very well. I got frustrated with that.
- R: So, the diagram that used off-the-staff notation that showed the half-steps and whole-steps, that helped you?
- S: Yeah, I mean, once I figured out that, I went through it like three

times. Once I figured out which finger moves a half-step and which finger moves a whole [step], I could do it in any key.

R: After that you didn't need the diagram?

S: Yeah. I didn't need the diagram after that.

R: When you practiced with that diagram, did you practice hands alone, or did you practice hands together right away?

S: At the beginning, I practiced with the right hand. Then I practiced with the left. I think I did that for a week . . . just right hand and left hand. Then I put them both together.

R: Did that diagram help you with memory any way at all? Memorizing the patterns?

S: Oh, yeah! It helped a lot. I think it helped me play more steady.

R: What about the repertoire pieces? What sort of things do you do, or what sorts of things help you to learn a piece?

S: Usually, I go through and try to find patterns that I can use.

R: Yesterday we started the new repertoire piece, "The Harpist," the other day. We went through blocking the notes in each measure and marking chord symbols. Does that help you at all?

S: Yeah, because it tells me where my hands need to be. You know, when I see the chord symbol there, like F major, I know where this hand needs to be. Yeah, that helps a lot when we mark them like that.

R: Yesterday we used the score of the music in your book. Tomorrow you will be getting a reduction of the piece with the notes in each measure written as chords. Do you think that that kind of thing will be helpful to you to use in practice?

S: Yeah, I guess it would at the beginning, at the very start . . . before I even looked at the music. That way I would know where the chords were at. When I have the music in front of me . . . when I look at the music, I'm too worried about my fingers . . . getting my fingers moving at the right time, instead of the chord.

R: Does that kind of thing happen to you a lot in your piano studies?

S: Yeah.

R: What sort of things could I do in class that would help you to feel more comfortable with looking at music?

S: I think that you're doing everything you can. I just need to sit

down and practice the chords.

- R: How about that exercise that we did at the start of class yesterday when we blocked those seventh chords up and down the keyboard and then we broke them up. Did feeling the blocked seventh chords and then breaking them up help you get a feeling for those chords?
- S: Yeah. Yeah. It helped with getting my hands in place for those chords.
- R: When you look at a piece of music like "The Harpist," that has a series of seventh-chords that are strung out, it is getting easier for you to see those relationships . . . those seventh-chords in the music, or is it more helpful if someone points them out to you first and then you see them?
- S: I can see them in a piece of music, but I might write them down so that I can remember them.
- R: In our next class meeting we're going to start a piece that I handed out to you called "Prelude No. 1" by Catherine Rollin. I don't know if you have looked at it yet.
- S: Yeah, I looked at it last night a little bit.
- R: What sort of things have you discovered about that piece already?
- S: Let's see. I marked off the first couple of chords. I mean I blocked them out and that was about it. I didn't go too far.
- R: In music like that where you are blocking out chords, do you make a box around the notes, or what do you do?
- S: Yeah, I make a box around the notes that make up the chord. And I highlight the "one chord" [I - tonic] when it goes by even if it is like 16/4...I highlight it.
- R: Are those like landmarks for you in your music?
- S: Yeah.
- R: Do you remember yesterday when we worked on the harmonization exercise in the book, and I had you write in the notes represented by the chord symbol?
- S: Yeah.
- R: We talked about that being an important skill for everyone who studies and uses the piano to have. As we talked about it in class, I showed you in the visualizer what the chords look like on the piano keyboard, and then I turned on the notation side of the visualizer to

show you what the chords look like on paper. Did either of those things help you at all?

S: (Pause)

R: Or, did it help you to actually play the chords at the piano?

S: Yeah. I think it helped me more when I was playing the chords on the piano myself, because I had to figure it out.

R: Once I asked you to play a chord on the piano and then write down the names of the key that you were holding down. Did that help you in any way?

S: Yeah. I figured it out better that way than looking up here [points to visualizer]. Even though this [visualizer] did help when I got stuck somewhere.

R: Do you use the visualizer in any particular way when I do use it in class?

S: When we're doing any type of chord progression . . . any type of chords, I'll look at it because it tells me where I should have my fingers.

R: When you see a chord lit up on the visualizer, is it easier to see that chord on your own piano, or does it seem like it takes a while to look back and forth?

S: No, I recognize where it is real fast.

R: So, it's not like looking back and forth creates any sort of time lag or anything.

S: No. But, you might be telling me what fingers to use or something, and that's going in one ear and out the other.

R: That brings up something that I'm curious about. Sometimes when I use the visualizer, I'm talking to you over the headsets at the same time. Does it help you to hear me give you directions as we are playing, or would you rather just see it happen and then be able to practice?

S: Yeah . . . see it happen and then be able to practice. I just can't listen to you and look up here [points to visualizer] at the same time, because I'm thinking about the lights that are on on the visualizer.

R: So, sometimes the words get in the way of what you're trying to do?

S: Yeah.

R: Would it help you if I said something and then showed it to you?

S: Yeah . . . and then showed me

R: So, if you heard it verbally first and then watched the visualizer?

S: Yeah.

R: So, it's better if I don't talk at the same time I'm using the visualizer?

S: Yeah.

R: That's interesting.

We had some sight reading on the exam this time, too. We did some sight reading in class out of a number of different books. Some days we worked on a number of exercise all in one key, and then on other days we worked on exercises all in different keys. Were either of those ways of going about sight reading more helpful to you?

S: I guess I liked the one-key-a-day thing instead of throwing them all together in one session.

R: It helped to stay in one key for a number of exercises?

S: Yeah.

R: How does that help you?

S: It gives me more time to think. Usually, when I do too many different things [keys] in one session, I think, "We studied a whole bunch of keys, but what did I get from it?" Sometimes I lose a lot from studying a lot of stuff at one time.

R: Would you say that it is true that if you studied five exercises in the key of F that you have a better feel or understanding of that key?

S: Yeah, a better feel for the key.

R: On that sight reading example that you had to prepare in 10 minutes for the exam, do you remember what you did to prepare that?

S: Well, the first thing I did was to play the right hand and try to find patterns. I found the patterns real fast. And then I did the same with the left hand. After I found the patterns, it was a matter of just putting them together.

R: Did you feel that the 10 minutes you had was enough time to put it all together?

- S: Yeah. There was one spot, though, that I had to practice, but the last couple of times before the end of the ten minutes, I had it down pretty good.
- R: Do you feel more confident about you sight reading?
- S: Yeah.
- R: In connection with your sight reading, you mentioned a kind of routine that you used, as well as your general practice routine that you mentioned earlier. Do you usually use that routine?
- S: Yeah.
- R: Do you like that kind of organized practice session?
- S: Yeah, I don't like it sort of haphazard. I don't get anything out of it. Even on my major instrument, I begin with scales, then go to technical things, then to my repertoire pieces, and then finish with scales.
- R: Does that work the same way for you in classroom situations, too? Like, we usually start with scales and warm-up exercises, then go to technique studies, then to repertoire and then a review and short individual practice session before leaving. Does it make you feel more comfortable know that when you come to class there is going to be that sort of routine most of the time?
- S: Uh huh.
- R: Would it bother you very much if we didn't have that kind of routine?
- S: No. No. It's just the way I like my personal practice sessions to go.
- R: Something that's related to the idea of routine. The way the text is put together we often work on a number of exercises that contain some of the concepts that we will find in the repertoire piece later on in the hour. Generally, does it help you more to work on the exercises that are related to the repertoire piece first and then find them in the music, or is it better to start with the music and find the concepts as we go along then go back to the exercises?
- S: It helps to start out with the skill or exercise and then just work our way to the piece.
- R: Okay.
- S: But, once I get into a piece, I don't like going back and forth. I rather just stay on the piece.

- R: So it helps you when we begin with the exercises that relate to the repertoire piece and then concentrate on the piece when we get there.
- S: Yeah.
- R: What have you found in your playing that has improved for you since the beginning of the semester?
- S: I guess working on a repertoire piece. I mean they are coming much faster.
- R: How do you mean faster?
- S: It doesn't take me as long to learn a piece as it did. I mean, my sight reading is getting pretty good. I guess, I mean that once I get a piece down at a certain tempo, I have to learn another one.
- R: When you say that you are able to learn a piece faster, what sort of things do you use to help you learn a piece faster?
- S: Just what I've been using . . . finding patterns. Sometimes, though, it depends on the key it is in how fast I'll learn it.
- R: Each key has a set of unique patterns, as you know. Does it make a difference to you in your learning whether a piece has shorter patterns that change quickly, or if there are patterns that last a long time?
- S: If the patterns change a lot, yeah; I'm more nervous about playing. But if it's the same pattern for a bunch of measures, no.
- R: I'm just curious about how you will feel after we study the next two repertoire pieces. "The Harpist" has long patterns that last a full measure or more, and the "Prelude" by Catherine Rollin has a number of shorter patterns. I'll ask you about those two pieces in our next interview after we have had a chance to study them.
- S: Okay.
- R: What are some things that you would like to do more of in the class?
- S: I think it's going fine the way it is. I like the way you mix up the teaching style. Sometimes, though, you won't use this [points to visualizer] and you'll do some things verbally and I get mad at you.
- R: The reason I do that is sometimes I feel like there are a number of different information sources happening all at the same time in different parts of the room. I guess I'm curious about how you feel about that. Does it bother you if there are too many places to get information during instruction?
- S: Yeah, it bothers me.

- R: It is difficult to pick out what you need then?
- S: Yeah.
- R: In the next few weeks we are going to be talking about things related to jazz and blues styles and learning how to read music written in a lead sheet format. When you see a chord symbol on top of a melody, like Em7, how do you see or how do you understand that chord symbol? Do you see the symbols as one thing or a combination of things?
- S: What do you mean by a combination?
- R: For example a chords symbol like Cmaj7. One way we have looked at that kind of chord symbol is to think of it as a two part symbol, the harmony part, the C triad, and the added major 7th. Do you see the chords symbol that way or does it seem like one thing to you?
- S: I see one thing. I don't split the chord up into parts. It's just a 7th chord.
- R: When I take a 7th chord apart and talk about the triad and the 7th, is that more confusing to you than just leaving it as a whole chord.
- S: No, it's not confusing. I know what's in it. I know what's there. When someone says like Em7, I just think of it as a seventh chord instead of splitting it apart. If you split it apart, it doesn't bother me. I just like to think of it as one thing.
- R: What sort of things would help you to learn to use the things about blues and jazz chords? There are many kinds of activities that can be used. Would you prefer to learn jazz pieces through chord symbols and creating and adding your own accompaniments to melodies, or would you like to have a piece that is pretty much notated in those styles and work on finding patterns?
- S: I would probably like to create. I'd like just a melody and be able to make up my own accompaniment part to it.
- R: How about if I gave you a melody in a lead sheet format, and then a copy of the piece that has been notated using the same chords with a suggested accompaniment pattern? If you have the choice of learning the piece either of those ways, which would you choose first?
- S: If it is the first time I learned the piece?
- R: Yeah.
- S: Probably the one that already been done.
- R: The one that's notated?

- S: Yeah, the one that's been notated, I think, instead of just the lead sheet. It just depends. If you gave it [lead sheet] to me, I would do it.
- R: I'll probably ask you this same kind of question in the next interview after we have done more work on those kinds of things. I'd be interested in knowing when you have two models like that, one with an example of what could be done with the chord symbols to create an accompaniment, and one that just gives you the chords on the lead sheet. I'd be curious whether you would find something in the notated one that you might want to use on your own accompaniment.
- S: No. I'd rather have the one already done. That way I get ideas. It helps me get ideas.
- R: Is there anything about the course or the activities in class that are sometimes frustrating to you?
- S: No, it all seems important. I mean, whatever we talk about in here they also talk about in theory.
- Oh, Okay. So does that help you in theory?
- S: Uh huh.
- R: So does it work the other way that what you talk about in theory has helped your piano playing?
- S: Yeah. Sometimes, like the seventh chords . . . we had already talked about that and now I get to apply it to the keyboard.
- R: How about the pacing of the class? Like yesterday, we did quite a few things in fifty minutes time. Was that okay for you, or how would you pace the class that would be best for you.
- S: Probably a little slower than yesterday. I wouldn't put so much stuff in one class. I just don't absorb as much. I like to know what was done in the class when I walk out the door.
- R: Yesterday we worked on understanding and playing the Dorian mode. On something like that, does it help you more to play examples in a two or three keys to understand the concept and then move on, or is it more helpful to play examples in a lot of different keys so you get used to using that pattern?
- S: I'd rather play the mode in a bunch of keys.
- R: Does it help you to talk about things like the concept and procedures for playing before we practice them in class?
- S: Yeah, it helps to go through the steps that we would be using to play

[the mode] in different keys before playing.

R: Okay.

S: Yeah, if we just start playing and talk about them at the same time, I'm, like, lost.

R: Has there been anything or a kinds of presentation that I have done in class that has been really confusing to you?

S: No. At first I might not get something you say, but as we go on I usually get it.

R: Do the last ten minutes of the class that we use for individual practice give you enough time to ask questions, or get feedback from me about what you are working on?

S: Yeah.

R: Would it work as well for you if we had two or three short individual practice times throughout the class time instead of just one ten minute session at the end?

S: No. I don't think it would be helpful to take practice time in the middle of the class. I think I get enough practice in class when you are going through things and explaining them. Then the ten minutes at the end . . . well, if I didn't understand something, I could ask a question about it. If I had little breaks between things, I might forget something.

R: A couple of times in the last couple of weeks when we were finished with the presentation of new information, I have given you and the other students in the class longer individual practice times so that I can come around and give everyone some individual help, or just monitor their practice. How would you feel about having more time to practice in your own in some class periods, but having me available to answer questions you might have?

S: It probably wouldn't work as well, because I'd probably, like, go off track and not get much done.

R: Some students have told me that they like to have me explain things and go through a few examples with everyone together and then give them time to work on their own a little bit. Others have said that they like talk-throughs and directed practice sessions for most of the class time with some suggestions about what to do in practice outside the class. How do you feel about either one of those situations.

S: I like the direct instruction more instead of just telling me how to do it and then letting me practice.

- R: How does that direct instruction help you?
- S: Well, if you just told me how to do it, I might not get it the first time, or I might lose something. I need to you to just like pound it into me for two or three minutes. I might pick up on something that I missed when you explained it the first time.
- R: So it does help you more to do repetitions of things, or practice, together during most of the class period and then giving a little time at the end of the hour.
- S: Yeah.
- R: What about when you have to work on a creative activity, like developing an accompaniment from the chords on a lead sheet? How would you work best?
- S: If it was something that I had to create on my own, I'd like you to leave me alone during the practice time, but stop by my piano a couple of times to critique my work.
- R: How would you feel about working with another person to develop that kind of creative accompaniment?
- S: I'd think that would be great!
- R: How would that help you?
- S: They might have an idea and I might have an idea, and we could sort of like combine them. Or I might do something dumb, I guess, and, or they might make a mistake and I might make a mistake and they could correct me and I could correct them. Or they could give me advice on how they think my ideas is.
- R: So, you like to collaborate or work in partnership with someone at times.
- S: Yeah.
- R: What a situation where you could come in the classroom between class sessions and work with someone on a project to develop a duet or work with other electronic instruments to create a performance of a lead sheet?
- S: Yeah, I'd like that.
- R: Are there any changes in the way that we do things in the class that you would make that would help you?
- S: No. The class is going better than it was at the first of the semester.

R: Thank you for coming in today. I appreciate your comments and willingness to share your thoughts. We'll meet again at the end of the semester talk more about your experiences in the class.

S: Okay.

Field-Dependent Learner #3 (FD-3)
Interview III
May 1998

- Researcher (R): I want to thank you for coming in today. You are just about through with finals and finished the piano class final the other day. The main thing that I would like to discuss with you today is your overview of the course and how it went for you, what things worked and what things didn't work in your studies. Can you give me an idea about how you feel about the course as you look back on it?
- Student (S): I feel like I learned a lot more in this course than I did last semester. Maybe because you gave us handouts and the teaching was a little more intense and you were more excited about teaching us than it was last semester. It was just a lot of fun this semester.
- R: Was there steady progress for you or were there spurts of progress?
- S: There was steady progress and then there were spurts when there was like not so much.
- R: What things changed for you in your piano playing over the course of the semester?
- S: My coordination.
- R: Your coordination? Was there anything that brought that about for you that you can think of, or was it a matter of just playing more?
- S: Playing more.
- R: You mentioned the handouts earlier. Can you tell me a little about how they helped you, or which ones seemed to make a big difference in your learning?
- S: Oh, like the scales . . . I liked when you gave us the scales on different levels and we could put the (finger) numbers underneath . . . highlight where the thumb went and . . . oh, when you gave us the breakdown of the chords on the pieces of music. That really helped a lot to get the fingers into place, and that way I would know where the fingers would go. I work out the rhythms.
- R: Are you talking about the reductions?
- S: Yeah, the reductions.
- R: Did you use the reductions that I did handed out to you quite a bit in your practice?

- S: Yeah. In the beginning of my practices and then when I got better in playing the piece, I'd go ahead and just use the music.
- R: I handed out reductions to some of the pieces we studied and others I did not. I am curious to know whether or not you used that kind of practice technique in the pieces I didn't give you a reduction.
- S: Yeah, in the prelude piece, I got on my computer and did the chord reductions.
- R: And that helped you?
- S: Uh-huh.
- R: Going back to the scale handouts. I gave you two different handouts. One was a list of the note names in the scale with the black key notes on a level above the white keys, and the other one was a keyboard diagram that had little circles on the keys of the notes of the scale where you could place finger numbers. Did either one of those help you?
- S: I like the one with the letters better.
- R: Why did that help?
- S: I don't know, maybe the keyboard one seemed a little more confusing.
- R: How was it confusing?
- S: Because there was just a lot to look at on a piece of paper.
- R: Okay.
- S: I know where the notes are on the piano...just tell me the notes and I'll write in the 1-2-3-4 [fingerings] and where my thumb goes.
- R: So that little keyboard with the picture of the keyboard and the circles on the notes of the scale was more information than you really needed?
- S: Yeah.
- R: It was more confusing?
- S: Yeah, it was a little bit too much information to take in and look at and try to figure out.
- R: Okay. Does that work for you the same way when I use the visualizer to demonstrate scales or progression?
- S: When you use it. When you talk about chords and you show

me up here [points to visualizer], I like to see what you are talking about instead of me trying to figure it out with my hand. Whenever I look at my own hand I can't really see the shape of it [the chord]. But when I look at the visualizer I look at the lights and stuff. It really helped a lot.

R: The lights showed you a pattern then?

S: Yeah.

R: Was the visualizer ever confusing to you at all?

S: No, huh-uh.

R: When you looked at the visualizer and saw those lights, like the white lights on the white keys and the red lights on the black keys, did that ever get in the way of seeing the pattern?

S: No. The only time it ever got in the way was when you didn't use it.

R: So, I should use it more often?

S: Yeah.

R: When I did use it, was it more helpful to when I talked about things and demonstrated as you watched and then have you play, or was it more helpful to you as we were doing things and you could use the visualizer as a reference when you needed it?

S: I liked it when you were talking about things and I could use it as a reference.

R: When we were talking about patterns in scales and progression, does it help you for me to demonstrate for you on the keyboard as you are playing, to talk you through it as you are playing, or would you rather have me demonstrate first and then have you do it?

S: I'd rather have you do it first. That way I can hear it and I would know what it sounds like, and that way, if I made a mistake, my ear could tell me I was wrong.

R: So, you rather me talk about it first and have you do it, as opposed to talking and doing at the same time?

S: Yeah.

R: Does talking and doing at the same time get in the way of each other?

S: No, I think it's okay, but I think I would learn faster if you talked first and then I practiced.

- R: I remember the last time we talked you mentioned that sometimes as I was talking and asking you to do things you were hearing information and trying to play at the same time that it was a little confusing. Do you still feel that way?
- S: Yeah.
- R: Was there any kind of exercise or activity that we did where that seemed to happen more often?
- S: Yeah. When we were learning new chord progressions. I'd think that that was enough, and then look at the music and try to figure it out. But when you started using this, [points to visualizer] then I'd look up here and think., "Oh, all right!"
- R: It helped you more to see it happen?
- S: Yeah.
- R: Talking about it as we were doing it was more confusing?
- S: Um-huh.
- R: Is that true also of the repertoire studies when I talked you through the reductions? It was more confusing to talk about it as you were playing?
- S: Yeah. When you started naming chords off, I just kind of got lost, because my fingers couldn't move fast enough to the chords, and I thought, "Yeah, I'm lost."
- R: You said earlier that you used the visualizer often when I used in class. Was it easy to see the visualizer from where you were sitting, or is there a better arrangement of the classroom that would have been better for you?
- S: No, from where I was sitting it was easy to see.
- R: In your overall learning, you mentioned that the handouts worked for you. Would that work the same way for practicing also?
- S: What do you mean?
- R: After we finish practicing something in class, I often gave you a verbal list of things that you might want to do in your own practice outside of class. Would it help if I gave you a handout of general things, or little assignments, to try in your practicing?
- S: Yeah, I'd like little assignments.
- R: This next question is a little larger in scope. If you could design a piano class session to fit your needs as a learner, what kinds of

things would you include and what would you like to have happen?

- S: Well, I would definitely have this [points to visualizer] and those handouts. I mean, they just really helped a lot, instead of just giving us the music and going through it a measure at a time. Um, well, maybe I wouldn't have, well this class is a pretty decent size. My last piano class had all the pianos full and there was a lot of people in there. I don't think it was a good thing to have a lot of people.
- R: Why was that not a good situation for you?
- S: Well, I guess I felt like I wasn't getting the attention that I needed as a student to learn what I needed to learn.
- R: Has it helped you to have more individual practice time during class to ask questions and get help on specific things?
- S: Uh-huh.
- R: It's important, then, that you have a certain degree of feedback during your learning?
- S: Uh-hum.
- R: Do you like feedback throughout the class as you are working on things, or at the end during those ten minutes of individual practice time?
- S: I like the feedback at the end of the class, instead of stopping. I like the class to just flow through what we are going to do for the day, and then, I'll like go through it all to figure out what I had problems in and any questions.
- R: You mentioned something about like the class to flow. Do you like a lot of things in that flow, or do you like to have a few things and work on more details?
- S: I'd probably like just a few things and work maybe in more detail, because then I'll get more practice in. If you pack a whole bunch of things in a class, then I'll forget.
- R: Do you like directed practice where I talk you through an exercise, or do you like to have me discuss or tell you the things you need to do and then give you time to practice it?
- S: Yeah, I like you to tell me what I need to do as I'm doing it, and then give me time to do it. Then I can come back and say, "Oh, I have a problem with this." I can like ask questions about it and then take it to the practice room.
- R: Was there ever a time in the class this semester when you felt that

you were not getting enough feedback about what you were doing?

S: No, I felt that the feedback was very good. The class this semester was small enough that I could get what I needed.

R: Did you ever use the tutor that was available to you outside of class?

S: Yeah, once.

R: Did it help you out?

S: Yeah.

R: In your design of the “perfect class” would it help you if the piano labs were open in the evening with a tutor available more often.

S: Well, maybe not every night, but maybe twice a week or so when the instructor would be here to answer questions. That way, I could do my practice, and if I had a questions, I could get an answer right away.

R: When you were practicing outside of class during this semester, was there ever a time when you thought that you would like to have that kind of access to the room or the teacher?

S: Yeah, because like the pianos over there [practice building] are real different from these pianos, and that’s what messed me up the most. It just felt so different over there when I was practicing.

R: What other things would you put into you ideal class? You’ve mentioned maybe doing a little more in-depth practicing on a few things than doing a lot of things in one class, and getting different types of feedback. Is there anything else that you would do to change the class that would make it better for you?

S: Um, no, it went pretty good. I was really pretty pleased with this semester in the way that the class was set up.

R: How about the balance between the skills kinds of studies we do and the learning of actual repertoire?

S: Well, um . . . maybe the repertoire. Maybe learning things with repertoire may be a more exciting way than just doing a bunch of exercises, even though the exercises are good.

R: When we worked on repertoire pieces, we did it in a couple of different ways. One way was to start with exercises and reductions that related to the piece and go to the piece itself with that information. The other way was to start with the piece itself and pull the same information out of the the piece itself. Which way seemed to work better for you?

- S: I like to break it down first. I don't like just going through the music first, because I pick up bad habits, and I'll have that habit the rest of the time.
- R: I see. For example, if we opened up the book to a repertoire piece for the first time and we haven't really talked about it yet, is it more confusing to talk about the piece from the score than if we had already practiced some exercises related to the piece?
- S: Yeah, it's a little more confusing to look at a piece as a whole.
- R: I think that piece, "The Harpist," was one one that we looked at the music first and tried to find those broken seventh chords, and then I gave you the reduction. Did that work well for you?
- S: I'd rather have had the reduction first. When we looked at the music first, it took me longer to learn that piece than what I thought it would because I didn't have a reduction.
- R: I know when we talked about that piece, we looked for the spacing of the notes and the patterns of seventh chords in the music. That was more difficult for you to see the patterns in the music, as opposed to seeing the patterns of seventh chords stacked up in a reduction first?
- S: Yeah.
- R: How about the activities of the class. We have done a variety of things like scales, chord progressions, arpeggios, sight reading, two-hand accompaniment. Did they all seem relevant to you in your studies?
- S: I think that they were all relevant to the class.
- R: In an earlier interview you mentioned you theory studies. Did your piano studies help your theory, or did you theory help your piano, or did they help each other about the same?
- S: My piano probably helped my theory.
- R: Why do you think that happened for you?
- S: Well, whenever we'd analyze a melody or a piece and put Roman numerals on it, I didn't understand it when he'd explain it. And then, maybe a week or two later, we'd do something in here and I'd say, "Oh, man. I know how to do that now!" Because my hands were on it and I was actually doing it. I could see the chord . . . what it was in my hands.
- R: So, the piano was a good reference for you?
- S: Yeah.

- R: Did it ever work the other way, where the things you discussed in theory made it easier to play the piano?
- S: No, not really.
- R: So, your keyboard studies helped you understand some of the things you talked about in theory?
- S: Uh-hum.
- R: Does it work better for you as a learner to coordinate your learning in piano and theory?
- S: Yeah. It would work a lot better for me.
- R: What are some things that didn't work well for you in the class?
- S: At the beginning of the semester chord progression were really hard to grasp. Last semester, I didn't grasp them at all. I mean, even though there was a pattern there I was like still kind of lost. My last class they didn't use the visualizer. She would explain it, but I couldn't see the pattern for some strange reason when I was looking at the piece of music. And this semester I'll look up here [points to visualizer] and say "Hey, there's a pattern!"
- R: The handout I gave you for this last progression had two different ways of learning the progression. One was a step-by-step list, written out sentences describing each move that you would make. Then at the bottom of the page there was a diagram of notes off-the-staff with arrows showing you which direction notes go. Did either of those work for you?
- S: Yeah! Where you had the little oval things and they were like filled in and you had the little arrows showing the whole-steps and half-steps, that worked a lot better!
- R: After you looked at that diagram, was it easier to go back to the actual notation and see those patterns?
- S: Uh-huh.
- R: Does that work for you in learning progression to take it off the page and just give you the bare necessities and then work toward the notation?
- S: Yeah.
- R: After you have worked with chord progression in that way, is it easier to see patterns in the notated version of the progression?
- S: Yeah!

- R: Did that change for you this semester?
- S: Yeah.
- R: Do you remember when or how that happened?
- S: It was probably, like in the beginning of March?
- R: How did you notice that?
- S: Probably it was because we had been working with that so much that I could recognize things like that.
- R: When you look at music now compared to the way you did at the beginning of the semester, what looks different to you?
- S: Well, I guess, I really didn't look at music as a logical thing . . . of why it was written that way. Now I can see more patterns, and sometimes when there is something that doesn't fit a pattern, I can see that it doesn't fit. I guess I can see a lot more things.
- R: From what you have said, it seems to help you if we break things down into the basic components to illustrate the patterns that are there and then work towards playing the piece. Would that be fair to say?
- S: Yeah.
- R: Has there been any other time when you have had an "Ahah experience"?
- S: What to you mean?
- R: For instance, once you begin to look for and see patterns, has that changed the way you sight read?
- S: Yeah! Uh-huh. If I recognize a pattern then I'll know how to play it.
- R: Once you find a pattern in the music, how does that change the way you practice?
- S: I won't have to break it down as much, because then I'll see it and then I can put my hands there.
- R: So, learning to look for patterns has helped improve your playing skills then?
- S: Uh-huh.
- R: Does knowing about how to look for and find pattern make you feel more comfortable about playing the piano now?

- S: Yeah, a lot more comfortable than I did at the beginning of this semester. I was real lost last semester. Knowing about patterns now has helped me with my coordination.
- R: Does it help you to do general technique exercises or to work on the technique of each specific piece?
- S: Probably the technique of each piece. When I do things like exercises, they seem a little but more boring, but I'll still get it.
- R: When we work on exercises, does it help you to know that it is something that you will find in a repertoire piece, as opposed to doing it for general development?
- S: Yeah, it helps me to know that it's going to be in there somewhere. If it is something that I need know or I'm going to need real soon, then I'm more motivated to learn the exercise. I mean, I really want to learn to play the piano, especially the stuff that I'll need to help me accompany my students when I become a band director.
- R: In your ideal class, what sort of things would you do to help you towards that goal?
- S: I think that the technical things are okay, but at this stage, I think the repertoire kinds of things are good. But, I would like to get into playing the some of the kinds of accompaniment things for band instruments that I would use.
- R: So maybe expand the repertoire activities to include things that a band director might be expected to do to accompany an elementary or intermediate student?
- S: Yeah! Those repertoire pieces are good for me, but they sometimes take me too long to learn.
- R: Would you be more motivated to learn something that you know that you are going to use in you career than something that will expand you ability in a general sense?
- S: Yeah.
- R: Is there anything else that you would add to your ideal class that would help you?
- S: No, I like this class semester. The size of the class was better. I mean, last semester there was so many in the class that I really didn't have the chance to ask many questions. I mean, we came to class and went through all the stuff and then it was "good-bye."
- R: How about the way we use the headphones to teach to the group? How do you feel about that?

- S: Sometimes I feel a little isolated from everybody, and maybe sometimes I get a little lost by having them on. I guess, even though it would be a little noisy, I would like not having the headphones on and going over the things with my peers and listening to them and them listening to me. That would also motivate me to learn things a little better, because I know that *they're listening to me all the time.*
- R: Would it help you to have a study partner in class that you could get together with sometimes in class to go over things together?
- S: Yeah. Maybe once a week to work together?
- R: How would that sort of collaboration, or working with your peers, help you with what you need to learn?
- S: Well, like if I don't understand something, my peers could, well, usually, my peers explain some things better than my professors do. Well, maybe my professors have explained it very well, but I just didn't get it, but the way my peers say it sheds some light on it and I'll get it.
- R: Would you say that you would like to work in a peer group more or less often than work on your own?
- S: Probably more often. I don't work very well on my own. It's hard for me to sit at the piano on my own.
- R: Do you like ensemble things?
- S: Yeah!
- R: What is good about ensemble things for you?
- S: We are all trying to sound good together, so maybe I'd practice to play better. I'd probably practice the ensemble things more, because I wouldn't like my peers to think I'm an idiot.
- R: The fear factor, huh?
- S: Yeah!
- R: In general, do you like working in groups more than by yourself?
- S: Yeah, I like working more on projects together. It's just more fun for me to learn that way. It keeps me on track with my learning.
- R: I see. I know you have to go soon, but before we stop, is there anything else that you'd like to add or say about your experiences in the class that I haven't asked you about?
- S: No. I think that's it.

Field-Dependent Learner #4 (FD-4)
Interview I
February 1998

- Researcher (R): Thank you for coming in today to talk with me about your experiences in the class since the beginning of the semester. The first question that I would like to ask you is a general one. Can you tell me a little about how the class has been going for you so far?
- Student (S): Better than last semester.
- R: How so?
- S: I'm playing a little better and I'm learning things a lot faster, I think.
- R: What kinds of things were hard for you last semester?
- S: Just getting used to all the things about piano playing, because it was all new to me.
- R: What kinds of things do you find challenging in the class this semester?
- S: The repertoire things because of the coordination kinds of things..
- R: What kinds of things have we done in class that have helped you with coordinating your hands in repertoire pieces?
- S: The break-down of the pieces that you gave us.
- R: Do you mean the reductions?
- S: Yeah.
- R: Did you use the reductions in your practice outside of class?
- S: Yeah, quite a bit.
- R: Can you tell me how the reductions helped you in your learning?
- S: They helped me in my coordination because they showed me where my hands were supposed to be on the keyboard. Knowing that some notes were part of a chord helped because it was easier to play the individual notes after that.
- R: Did the reductions help you with looking at the notation in the score differently?
- S: Yeah. They helped me with finding hand positions instead of just playing one note at a time.
- R: How do you look at music differently after having a reduction?

- S: I usually just look one note at a time. I do that on my instrument, too. Seeing how things are grouped helps me understand the music a little better, I think.
- R: Thinking of the repertoire piece, “The Chase”, that we worked on in this first section of the semester, how do you look at that piece differently?
- S: The reductions helped me see the inversions of the triads at the beginning. I know what inversions are and how to play them, but sometimes I don’t see them when they are written in the music. It takes me a while to see them.
- R: Did you use the reduction of “The Chase” a lot in your practice outside of class?
- S: Yeah, kind of. For certain parts of the piece, but I used the music as much as I did the reduction I think.
- R: How would you describe the overall difficulty level of the course?
- S: It’s about right, I think.
- R: Of all the kinds of activities that we do in the class, what have you found to be the most challenging for you?
- S: The repertoire things still. The progressions and scales and stuff aren’t hard for me so far.
- R: When we were working on the progressions in this first sections of the course, were there any types of presentations or ways that we practiced them in class that helped you?
- S: Yeah. Figuring out how the notes moved from one chord to the next . . . the whole-steps and half-steps.
- R: Do you usually think of the pattern of whole- and half-steps when you are working on a progression?
- S: Yeah, that and maybe the notes of the chords that I’m supposed to be playing sometimes.
- R: Of the ways that we studied the progressions in class as there a particular way that helped you learn the pattern of whole- and half-steps in the various progressions?
- S: The talking through the progression that we did in class every day helped me with learning the patterns.
- R: Once you learned the pattern of a progressions, did that help you play it in other keys more easily, or was it important that we talked through the progression in each new key?

- S: Once I learned the pattern in one or two keys, I could pretty much do it in the other keys that we had to play it in.
- R: We just started a new progression in our last class meeting. What kinds of things would you want me to do in class that would help you in your learning of that new progression?
- S: Going through the pattern of whole- and half-steps with us over the headphones like you did for the last ones we did more than anything, I think.
- R: Would there be any kinds of handout or kind of presentation that would help you?
- S: No not really, Just talking through it helps the most. Handouts are okay, but usually I look at it once or twice and then put it away.
- R: After we have talked about the pattern of the note motion in progressions, would it be helpful to continue talking through different keys in class, or would you like some short periods of practice time to work on a couple of keys on your own?
- S: It would probably be easier if you talked up through them, but I could probably get them on my own, too. It probably be good to talk us through a new key one or two times together, then after that I could get it.
- R: Tell me a little about your practicing outside of class.
- S: I usually just start with the things that I know I have trouble with and go from there.
- R: Do you have a particular routine that you use?
- S: No. I just work in the things you assign us for the next class, but I probably do more work on repertoire than the other things.
- R: Of the ways that we have worked on repertoire pieces in class, is there a way that seems to be more helpful to you than another?
- S: Yeah. I like when you have us practice like few little exercises of things that we are going to find in the piece and then go to the music.
- R: How does that help you, do you think?
- S: After we work on those kinds of exercises related to the piece, I kind of know better what to expect when I look at the music. The exercises help me with knowing hand positions better, at least they have so far.
- R: How about the pace of the class so far? Some days we have worked on a three or four things in detail, and other days we have worked

on a larger number of things to review what we have talked about in a previous class, and I have given you a couple of minutes to work on your own. Does either of those ways work better for you?

S: I like it when we move a little quicker through things. If I have too many little practice times in the class period, I don't get much done. It's better if you keep working with us on things together.

R: How about when we work on scales in class? Is there a way that we have worked on the in class that has been helpful?

S: Talking through them helps.

R: Is it helpful to talk through them often, or is that something that you prefer to work out on your own once you know the patterns of notes and fingerings?

S: Once I know the patterns, I don't mind working on them on my own.

R: Has there been anything that has helped you learn the pattern of notes or fingerings in the scales that we have studied so far?

S: The scale sheets that you handed out have helped a lot.

R: How have they helped you?

S: Seeing where the black notes are in the scale on those sheets has helped me with my fingerings when I play. After looking at the way the scales are written out on the sheets that you gave us, I can see how the keys on the piano are grouped better.

R: When you worked on the scales outside of class, was there a way that you worked on them that seemed to work for you?

S: Yeah. I used the scale sheets and wrote in fingering, especially where my thumb was supposed to go. That helped me know the patterns better.

R: Did it help you when I had you mark off the patterns or box the finger groups in the different scales in class?

S: Sometimes, but boxing things off the fingering in all the scales was a little confusing at times. There was too much on the page to look at sometimes.

R: After we have worked on playing scales in class together and reviewed the finger groups, is it helpful to you when I gave you a couple of minutes to work on the scale on your own a little?

S: No, not really. The ten minutes at the end of the class is okay. I can ask a question then or get help if I need it.

- R: Thinking again about the class in general, would there be anything that you would like to do differently, or things that you would change that would help you in your learning.
- S: No, probably not.
- R: Would there be any kinds of presentation or ways of working at things that you would like to do more of that would help you in learning the kinds of things we do in class?
- S: Going through things, like scales and progressions, together and talking about the patterns to think about or use when you practice outside of class.
- R: Is it more helpful to you when I point out patterns in the scales or progressions or repertoire pieces, and maybe show you the patterns on, say, the visualizer, and then talk you through the exercise, or is it more helpful if we talk about those things as we play through the music together?
- S: Well, if it's something that's new, it's better to hear you explain things first and show me what to look for. If it's something that we have talked about before, then it's helpful to talk about them as we play. I get a better idea of what I should be watching for or thinking about when I play.
- R: Have your piano studies helped you on other areas of your music studies?
- S: Yeah. It's helped in my theory.
- R: How has it helped you in theory work?
- S: The things we've done to see inversions and chords and how they move, like in progressions, when we talk about that in theory, I think about how I would play them on the piano. I used to try to relate theory things to my instrument, but it's hard that way. Learning to play the piano has helped me visualize things like chords better, I think.
- R: Has it worked the other way for you, too? Has theory helped you in piano?
- S: Yeah. They work together, I think. When we talk about chords and inversions in theory, it helps when we play them in this class. It is easier to get the whole concept if I have a way of playing the things we talk about in theory.
- R: How about sight reading activities that we do in this class? What kinds of things have we done that have helped you improve that skill?

- S: I like going through short examples like we did the other day when you showed or talked about the kinds of things to look for when we sight read.
- R: Does it help you to sight read a few examples in one key more than jumping from key to key?
- S: Yeah, but I know that I have to learn to read in a more keys than just one or two.
- R: How does sight reading a number of examples in one key help you?
- S: I get to know what to look for or expect in that key when I come across it again. I think I get a better feel for how that key feels on the piano, too. I learn the patterns better.
- R: Are there other things that you would change about the class?
- S: No, I can't think of anything right now.
- R: Has there been at time in the class when we have been discussing something or practicing on something when you have had one of those kinds of experiences when something suddenly makes sense?
- S: Yeah, actually. The day you talked to us about how to recognize the different inversions of a chord from the way the notes were patterned on the staff. I remember thinking, "Oh, that makes sense now!"
- R: On that day I used an overhead of the pattern and then used the visualizer to demonstrated for you how the different inversions look on the keyboard. Did either of those ways bring about the change in the way you saw inversion?
- S: The overhead diagram helped the most. The visualizer is confusing to me most of the time . . . at least the staff lines side of it. The keyboard side of it is helpful sometimes, though. Like when we're working on a progression and I absolutely can't find the place my fingers are supposed to go, I'll look at it if it's on.
- R: Are there ways that I have used the visualizer that have helped you in your learning in class?
- S: Yeah. When you demonstrate things on it for us in class, it helps me see kinds of patterns on the keyboard a little better. I don't look at it too much when were playing together, though.
- R: Why is that?
- S: By the time I look up and then look at my keyboard, I'm already behind. It just takes me a little time to look back and forth. I'd rather just try and concentrate on what you are telling us over the

headphones.

- R: Our time is about up for today, but is there anything that we haven't talked about today that you would like to mention about your experiences in the class so far?
- S: No, I can't think of anything right now.
- R: Okay. I'd like to thank you again for coming in today to talk with me. We'll set up another time to meet in about five weeks to talk about the things that have happened in the class at that time. Thanks again.
- S: Sure.

Field-Dependent #4 (FD-4)
Interview II
March 1998

- Researcher (R): Thanks for coming in today. I wanted to meet with you again to talk with you about how the class is going for you since the last time we met. I'd like to ask you some of the same kinds of questions that I asked during our first interview. Is everything going okay for you?
- Student (S): Yeah, okay, except for my hand. [reference to an injury to her right hand that has prevented her from playing her major instrument and the piano hands together]
- R: Despite your injury, do you feel like you are making progress in the class?
- S: Yeah.
- R: In preparing some of the things you had to do for the test we had the other day, was there anything that you had more trouble with than another?
- S: The arpeggios.
- R: What made them more difficult?
- S: They were just awkward.
- R: What made them awkward for you?
- S: I think because, at first, I kept trying to use my thumb the way I use it on arpeggios that begin on white keys.
- R: Was there anything that we could have done in class that would have made that easier for you to learn?
- S: No, I can't think of anything?
- R: Do you remember those two sheets that I handed out to you? One was a horizontal list of the note names in the arpeggios with the black keys on a different level than the white keys, and the other was similar except that it had a colored box below the note names with the fingerings that you should use. Did either of them help you at all?
- S: I didn't use the colored one, but I used the other one. If I was looking at the sheet I could find the notes just fine, but if I wasn't looking at the sheet, I couldn't find the right keys very well.
- R: When you were practicing the arpeggios, what sort of things did you do?

- S: I used the sheet when I practiced. When I used the sheet, I could see patterns of notes that I could relate to on the keyboard, and that helped with the fingerings.
- R: That seemed to help you?
- S: Uh-huh.
- R: How about the scales? Did you have any problems at all?
- S: I thought the black key scales were easier actually.
- R: Why was that do you think?
- S: Well, as long as you had the thumb on the right key, the rest of the notes just seemed to follow easier if you know the rest of the notes in the scale.
- R: When you think of the scales that begin on black keys like the ones that you played for me in the test, do you think in terms of finger patterns, note groups, key groups, or how does that work for you?
- S: I think about the notes of the scale mostly, because, if I lose the finger pattern, I think of the note that has to come next.
- R: When you were learning the fingerings for the scales, how did you practice them?
- S: I found where I needed to put my thumb first and then where the other notes were and the number of fingers that I needed to finish that pattern.
- R: How about the progression?
- S: I thought the progression was pretty easy once you learned the basic pattern
- R: Did you have any problem transposing it to other keys at all?
- S: No.
- R: When we practiced that progression in class we worked on it in a number of different ways. Was there one way that seemed to help the most?
- S: The diagram helped the most. The list of things was just a little too much information for me to follow.
- R: Are you talking about the diagram that had the arrows showing you which notes moved and how far?
- S: Uh-huh.

- R: Did that diagram help when you were playing the progression in a key that was not very familiar?
- S: Uh-huh. When I used the diagram, I could just look at the diagram and see the pattern of how the notes moved and know which key to play next.
- R: When you are first learning a progression, do talk-throughs help at all?
- S: Uh-huh.
- R: Does it help to talk through the progression in just one key at a time until you are comfortable with it and then move on to another key, or is it better to try it in a number of different keys?
- S: Talking through it in one key is better. Then after that I can figure it out for myself on other keys. As long as I know the basic pattern, I can get it from there.
- R: Does it help to talk through the progression every day we meet a few times, or would it be better if I just gave you some time on your own to work on it?
- S: A talk through every day for a few times helps more.
- R: When we work on the new progression for the next section of the course, is there a way of working on it that you would like to use more than any other?
- S: Yeah, if you handed out a sheet with the diagram of it at first, then I'd have something to look at to help me learn the basic pattern.
- R: In addition to the diagram, does it help if I talk you through the progression using the visualizer?
- S: No, I don't like using the visualizer. It confuses me.
- R: What confuses you when I use it?
- S: It's hard to see. I don't know how to explain it.
- R: Do you mean that it is hard to see it from where you are sitting?
- S: No, I can see it from where I am sitting. I think it's the orange background. It's hard to see the what key to play sometimes. I think the combination of things to look at confuses my eye a little.
- R: So the color combination confuses your eye a little?
- S: Yeah.

- R: In practicing for the sight reading part of the exam, what things helped you develop the skills you needed?
- S: I just look for things that stand out.
- R: Do you remember the kinds of things that you did in the ten minutes that you had to prepare that sight reading example for the test?
- S: I looked at what key it was in and then I looked for patterns, like left hand patterns and the chords that they were.
- R: How did you go about practicing that example during those ten minutes?
- S: I did the left hand first, then the right hand, then just tried putting it together?
- R: Was there anything in that example that you thought was more challenging or harder than another?
- S: No, not really. As I remember, it wasn't too hard.
- R: Did those books that we used to practice sight reading in class help you?
- S: Yeah, it help to do some sight reading every day. It helped me to learn how to, or what to look at when I am sight reading.
- R: On some days we did a number of sight reading examples in just one key. On other days we did a number of examples in a lot of different keys. Did either of those was of practicing sight reading help you?
- S: Playing a lot of different keys is better, because you don't always know what key you are going to have.
- R: When you are sight reading a piece and you know the key, do you see the pattern of keys that apply to that key fairly easily?
- S: I'm not sure what you mean.
- R: For example, if you are playing a D major scale, do you see the pattern of keys on the keyboard that belong to the scale?
- S: Yeah.
- R: How about when you are sight reading a piece in the key of D?
- S: That's different.
- R: How is it different?

- S: I just see the individual notes in the music, and then find the key I need to play.
- R: How about the relationship between your theory studies and your piano studies?
- S: I think that my piano has helped my theory.
- R: How does that happen for you?
- S: Like when we talk about intervals in theory, I draw out a little piano on my paper. I used to try to think of how I would use my cello, but it's easier if I use the piano.
- R: You mentioned drawing out little piano diagrams. How do you use those in your theory studies?
- S: Like when we have to spell chords, I use them as a visual aid, I guess. They help me understand the whole concept of chords better.
- R: It helped you then to use the keyboard as visual aid?
- S: Yeah.
- R: Do you use the piano in any other ways in theory?
- S: Sometimes when we do part-writing, it helps to go play it to be sure that it sounds right.
- R: How about the pace of class periods? Do you like to cover a number of topics in a class period, or do you like fewer topics, but more in-depth work?
- S: I think I like a number of topics. It make the class go by a little faster.
- R: We started working on a new repertoire piece in class the other day, "The Harpist," that uses a lot of broken seventh-chords. When we looked at it in class together, was it fairly easy to see the seventh-chords that I drew your attention to in the piece?
- S: Well, I think it will get easier, because I'm not used to looking at seventh-chords right now.
- R: When we worked on it together in class for a few minutes, did it help you more when I talked you through the first few measures as you were playing, or was it more helpful when I gave you some practice suggestions and then gave you a few minutes to practice it on your own?

- S: It helped more to talk through it as we played, but . . . well, sometimes it is confusing to talk through it right at first. Sometimes it's a little confusing to hear you talk about it while I'm playing until I've had a chance to look at it on my own a little bit.
- R: Tomorrow you will be getting a reduction of that piece that is similar to the one I handed out to you when we were working on "Etude." Do they help you in some way at all?
- S: Yeah, they help a lot to know where to put my hands on the keyboard.
- R: Do you use them often when you practice on your own?
- S: Yeah, a lot, especially when I'm first learning the piece.
- R: Do you use the reductions mostly at the first stages of your learning, or do you use them throughout your learning?
- S: Mostly at first, but I use them at other times, too.
- R: Do they help with memory for you?
- S: I think so.
- R: When I talk to you in class about looking for patterns in music, like the chord patterns in "Etude," do you mark them to remember them or are the patterns pretty easy to see right off?
- S: I usually mark them to remember them.
- R: In this last section of the course when we were working on repertoire, I had you draw boxes or arrows in your music to help you remember the patterns that we were discussing. Did that help you?
- S: Well, sometimes that was too much stuff in the music to look at.
- R: Too much to see on the score?
- S: Yeah. Sometimes it was hard to look at the marks you had us make and then at the music, too. That was kind of confusing.
- R: Sometimes the marks got in the way?
- S: Yeah. I don't like to write too many things in the music.
- R: When we work on repertoire pieces in class, do you like working on exercises that relate to the piece and then go to the music, or do you like starting with the music and finding things to work on that will help you play the piece better?

- S: I like working on exercises first. Working on exercises first helps me to see things in the piece better, and know how to practice it. I think it helps me see some of the patterns better I need to know to play the piece, too.
- R: How about the difficulty of the repertoire pieces? Would you prefer to work on, say, two or three easier pieces that illustrate a particular playing problem, or would you like to work on a exercises that apply to a more challenging piece?
- S: I'd like to work on two to three easier pieces that help me to learn what I need to.
- R: Why does that work better for you?
- S: Sometimes the harder pieces take so long to learn and I get frustrated sooner, and then I don't feel like I'm getting anywhere.
- R: Is there one thing in particular that is hardest for you in learning to play the piano?
- S: Coordination mostly, I guess.
- R: Is there anything that has seemed to help you in learning to improve your coordination?
- S: Yeah, I think the sight reading exercises have helped.
- R: How has that helped?
- S: I don't know. It seems like I can play both hands on some of the sight reading things better than on some of the things that I have practiced.
- R: Why is that do you think?
- S: Well, maybe I have gotten in the habit of practicing hands separately too much. In sight reading you just have to play without worrying about it so much.
- R: Has there been anything that we have done in class that you would like to do more of that would help you learn to play better?
- S: I think the two-hand accompaniment things. They help me use the things I learn about using chords, and gets me to use both hands.
- R: Do you like for me to give you models of the kinds of accompaniments that you might use, or do you like to work on creating your own?
- S: I like models of what I can use.

- R: When I play the MIDI disks as models for what you might use, are they helpful?
- S: Yeah, a little. Sometimes they sound a little complicated until after I have worked on it a while?
- R: Do you like playing along with the disk after you have worked out your accompaniment?
- S: Yeah, kind of. Sometimes what i play is not exactly the same as the accompaniment on the disk, so it is confusing at times to hear other things going on.
- R: Does it help if I turn the accompaniment track off then?
- S: Yeah. Then I can just hear myself better when I play along with the melody.
- R: Is there any special way that I could use the disks that would help you?
- S: No, not really. I guess after I have learned to play the accompaniment pattern then it's okay to play along with it.
- R: Are there any things that you would add to the class that would help you in your learning?
- S: No, nothing that I can think of right now.
- R: Are there things that we do that you would eliminate from the class, or not do so much of?
- S: No, it all seems helpful.
- R: Is there anything about the class that you'd like to mention, or talk about, that we haven't discussed today?
- S: No. It's going pretty well, I think.
- R: Thank you, again for coming in today. We'll meet again probably during the last week of class to talk about your experiences in the class again. Thanks for your help in giving me information about how the class is working for you.
- S: Okay.

Field-Dependent Learner #4 (FD-4)
Interview III
April 1998

- Researcher (R): In this last interview I'd like to start with some general questions. As you look back over the semester, have there been things that we have done in class that have been particularly helpful to you in your learning to play the piano?
- Student (S): I think that I have improved over the semester in the technique kinds of things. Playing is more comfortable now, and things like playing scales and arpeggios have gotten easier, I think.
- R: Where there things that we did in class that helped you become more comfortable with playing scales and arpeggios?
- S: I think the handouts helped a lot. It helped me visualize the things I needed to do to play the different scales and arpeggios.
- R: Can you remember any particular kind of handout that was more helpful than others?
- S: The handouts you gave us for the scales that begin on black keys really helped. All I had to do was look at that and I knew where my fingers needed to be when I played the scales.
- R: How about the handout that had a picture of a keyboard with the little circles on the notes of the scales? Did that handout help as much, more, less?
- S: I think that that one made playing the scales even easier, but I didn't like to rely on that one too much, because it tells you exactly what to play and I don't know if I'd really learn, or memorize, the scale patterns as well then. I think the one with just the note names with the black keys on a higher level helps to learn the scale better.
- R: Which of the two handouts was clearer to you as far as telling you what you do when playing the scale?
- S: The keyboard one was clearer, but I rather use the other one, because I wouldn't want to rely on just the keyboard.
- R: So, even though the keyboard one was clearer to you, you felt that your learning of the scale was better with the other one?
- S: Yes. I understood the concept of the scale better with the one with just the note names on it.
- R: How about learning progressions? Of the number of ways that we studied and practiced progressions was there anything that helped, or was not helpful to you?

- S: The step-by-step, written out instructions of what to do in the progressions was confusing to me. That whole big long “spiel” was a mess to me.
- R: How about the sheet with the diagram of notes off the staff with the arrows showing how the notes moved?
- S: That was better, but what I liked was looking at the progression written out in the book and having you tell me over the head phones what to look at and what to do.
- R: So, it was better if I talked you through the progression in class as a way of practicing and learning the progression?
- S: Yes. When you talked us through them in class, I learned how, what to think about, and what to watch for when I played. I think it helped me to know how to practice them on my own better.
- R: When we worked through the progression together in class, how did you think about the progression as you were playing? Did you think of finger patterns or patterns of how the notes moved or the harmonies?
- S: I thought about the patterns of how my fingers moved, but I keep in mind what key I was playing in. Sometimes I think of the harmony I’m playing or the Roman numeral of the chord I’m playing, too.
- R: So you have a number of ways of thinking when you play a progression?
- S: Yes.
- R: Is there one way of thinking about playing a chord progression that seems to work best for you?
- S: Well, probably thinking of the patterns of how the notes move by step and the fingers that move especially in hard keys . . . ones that I don’t use very often.
- R: After we worked on understanding the progressions that we learned and maybe practiced them a few times together, was it important to you that we talked through the progressions each time we met and worked on them in some detail?
- S: At the beginning of learning a new progression it helped to work on it more in detail in class, but once I understood the progression, it helped to play through it in each class period just to review it.
- R: Did that work the same way for you in learning the scales and arpeggios, too?
- S: Yes.

- R: When we worked on the scales in the class, was it helpful for me to talk you through them and tell you about the note and finger groupings or patterns.
- S: Yes, at first. When we worked on a scale that we hadn't done before, it was really helpful, That helped me to find the patterns in the scale and know what fingers to use.
- R: As you look back on the class, what have been some of the more challenging things to do?
- S: Repertoire, I think.
- R: When we worked on repertoire pieces in class, what things helped you get started on learning the pieces we played this semester?
- S: I think the reductions you gave us helped me analyze the piece better.
- R: Can you pin point what the reductions helped you with?
- S: They helped me see the things the piece was based on, like chords or scales. It was easier to see how the notes could be grouped into patterns that I could practice on my own. They helped me see what my hands needed to do.
- R: Sometimes I talked with you about the things in the pieces and pointed out specific patterns in the music, and then I gave you a reduction. At other times, I gave you a reduction first, talked about the patterns and practiced that with you a couple of times before actually looking at the score. Were either of those ways of using the reduction helpful to you?
- S: I liked getting the reductions first, because you go into the piece knowing what to look for, or the things you are going to find.
- R: Did that work the same way for you when we practiced exercises that were related to the piece before actually looking at the music and practicing it?
- S: It kind of depended on the piece. If the piece is not too complicated, I liked starting with the music and practicing the things in the music. But, if it had a lot of different things to do in it, or a specific kind of technical problem, it helped to practice little exercises before trying to play the piece with the music.
- R: During the semester has there been any kinds of things we've done in class that suddenly seemed to make something make sense or make a difference in the way you thought about piano playing or practiced?

- S: Well, a lot of the theory things we've done in class have helped me understand the things we talk about in my regular theory class.
- R: Has it worked the other way, where something that you discussed in your theory class have helped in your piano studies?
- S: Sometimes, but it usually has been the other way. Most of the time when we discuss theory things in here, it is just before we talk about the same kinds of things in theory class.
- R: Changing the subject a little bit, of all the things that you had to do for the final, what did you find to be the most challenging?
- S: I think the improvisation part was the hardest for me.
- R: What kinds of things did we do in class that seemed to help you develop your improvisation for the final?
- S: When you gave us examples of what we could do helped. Also the time we went through the steps of making up an improvisation. It helped to watch you show us the way to choose notes that make a good phrase shape and then fill them out to make a melody. No one did that in my last semester class. They just showed us the chords we had to use and told us to make something up. I never really understood how to do it.
- R: How about the list of rules that are listed on the top of the page that the final improvisation was on? Did they help you?
- S: Not really, they were pretty vague.
- R: Vague?
- S: Yes. They just told me to use chord tones on the important beats of the measure or at chord changes, but they didn't say anything about how to make a phrase, or how to do it.
- R: What did we do in class that helped you?
- S: When you took us through the process step-by-step. After that I understood better what I needed to do. I'm still not good at it, but at least I have a way of experimenting with improvising on my own.
- R: Although I didn't give you a written procedure of the things we did in class that day, but would it have helped you to have had one?
- S: Yes. That way I could have looked at it in the practice room when I was working on it, but I learned what I needed to know in class so that I could work on the improvisation myself.
- R: After I demonstrated for you how you might go about making up an improvisation, I remember I gave you a little time to work on a short

example on your own for a few minutes. Did that help you?

S: Yes, a little. I gave me a chance to try a few things out before going to the practice room on my own.

R: During the semester, sometimes I discussed or demonstrated concepts that we were about to encounter in a progression, or repertoire piece, or some other exercise. Then I went through it with you as you played...sort of a talk-through way of practicing together in class. Does that kind of procedure, or teaching method, work well for you?

S: It depended on what we were doing, I think. Most of the concepts were not too hard to understand, but I liked when you talked us through things. It just seemed to make better sense to me when I heard you explain things as I was doing them, than to talk about them first and then try to do it on my own.

R: Is talking you through exercises, or progressions, or scales an important thing for you at all stages of your learning?

S: Well, after I talked through those things, I can remember what you said to think about, or be sure to do, and then practicing on my own was easier, I think.

R: How does talking through things help you in you practice?

S: It gives me a way, or a procedure, to follow in my own practice. After we talk through things, I kind of know better what I need to do on my own.

R: Have there been any other kinds of things that we have done in class that have helped you to practice better?

S: Like I mentioned earlier, the scale handouts and the reductions for repertoire pieces helped me be more efficient in my practicing, and also it helped me to know what ways to practice. Once you showed us how we could use the handouts, when I went to the practice room, I had kind of an idea of what I was going to do.

R: How was that different from your practice techniques before?

S: Well, I didn't have any practice techniques before, I don't think. I just opened the book and worked on the things I needed to work on. I just sort of played through things a lot.

R: Did that work for you?

S: Eventually, I got the assignments done, but sometimes it took a while and was pretty frustrating at times.

R: Would it have helped you if I had given you a list of things to

remember to do in your practice outside of class?

S: Do mean written out?

R: Either that or a verbal list before you left the classroom?

S: Oh, I don't know. I think on some things, like new things maybe. After we worked on things in the class together, I pretty much knew what I needed to work on. Maybe just a reminder of things to think about would be enough.

R: Speaking in general terms again, how about the way a class period is structured? Do you usually like to cover a number of different things, or is it better to work on few activities, but more in depth?

S: Usually, I like working on fewer things and doing more playing together, or working on things together in class.

R: When we work on things in class together, sometimes I have talked you through an exercise, or a repertoire piece, a few times directing you practice, and then moved on to another topic. Other times, I have practiced with you, but then gave you a few minutes to work on it on your own. Did either of those ways make a difference to you in your work in the class?

S: Most of the time I think it was better for me when you kept talking us through things together.

R: Why was that, do you think?

S: I think I felt like the class was more smooth. I mean we spent the period working on things and it wasn't chopped up by little practice times. I made it easier to concentrate, I think.

R: Most class periods I gave you a few minutes to work on your own at the end of the period. Did those few minutes help you to apply some of the things we talked about earlier in the period?

S: Yes. I guess saving the practice time until the end worked better. I could ask a question then if I needed to.

R: As a way of winding up our discussion today, is there anything that you would change about how the class went this semester?

S: No, I don't think so. I think I learned a lot and my playing definitely got better.

R: In general, what things do you think helped you during the semester?

S: I think talking about different ways of looking for things in the music and finding out different ways to practice. The handouts and

things like that helped me a lot, as I mentioned before. I think it was more organized this semester than my first semester. Last semester we just went through different exercises and repertoire pieces and then had a test. Sometimes I didn't feel like I was making any progress. I did okay on tests, I think, but I didn't really know if I was learning to play the piano any better.

R: You mentioned that you liked the organization of the class. Is it usually important that lessons or class presentations are well-structured?

S: Yes. I like to know what I'm doing and why. If the class seems too loose, I don't feel like I know where I'm going with it. I like to know what I need to do and I like to feel that if I do these steps in my practice that I'm going to get better.

R: Is that true, do you think, of the way you like to learn in general?

S: Yes. Most of the time I like to know what I'm supposed to learn and the things I need to do to.

R: Is there anything that we haven't talked about today that you would like to mention or go over?

S: No, I can't think of anything.

R: Thank you for talking with me again today. I appreciate your comments and willingness to share with me the things that helped you in the class this semester.

Field-Independent Learner #1 (FI-1)
Interview I
February 1998

- Researcher (R): Thanks for coming in for the first interview. I appreciate your participation in my study. The first thing I would like to ask you today is to tell me how the course is going for you in general.
- Student (S): Fine, I think.
- R: Have you encountered any kinds of problems?
- S: No, nothing except maybe coordination-type things,
- R: Of the different kinds of activities that we have done in the class so far, have any of them been more of a problem than others?
- S: No, not really.
- R: How would you describe the level of difficulty of the class so far?
- S: It's moderate, I think.
- R: How about the pace of the class?
- S: It varies, I think. Some things, like scale, I can pick up on pretty fast, like in a couple of minutes. Other things like sight reading . . . working out hand positions, takes me a little bit longer.
- R: You mentioned that scales are pretty easy for you to learn. Can you tell me what makes scales easier for you?
- S: In high school I took a jazz class, and the teacher taught us scale patterns as part of learning improvisation.
- R: So scale activities that we do in class are familiar to you?
- S: Yeah.
- R: Has there been any kinds of things that we have done in class that have expanded your knowledge or abilities to play scales?
- S: Just talking about finger patterns, I guess, and how they differ in certain scales.
- R: Of the different things that we have done in class related to learning to play scales, has there been anything that has helped you particularly?
- S: Those sheets that you just gave us on scales that begin on black keys, they showed me where to put my fingers for each pattern in the scale. I can see where the notes are and where I need to start a

new pattern with my thumb and where to cross.

R: When you look at the scales in notation, do you see those kinds of patterns in the music that help with fingering?

S: Yeah. I'd have to look at it for a second or so to figure out which finger to start with, but after that I it would be okay, I think.

R: Tell me a little about your practicing outside of class . . . the kinds of things you do.

S: Well, every morning I warm-up on the piano and my horn at the same time. I play scales on the piano while I warm up my mouth piece. That gets my fingers going for piano. I use my keyboard in my room to do little things off and on during the day.

R: Do you have a routine that you like to use when you practice the piano outside of class?

S: Yeah. I pretty much always begin with scales and do them hands alone first. Then I go one to progressions and any other kinds of exercises and then start on the repertoire pieces.

R: What sort of assignments do you find the most challenging in your piano studies so far this semester?

S: I think it would be the repertoire kinds of things that I find the most challenging.

R: What do you find challenging in the repertoire pieces so far?

S: When I have two different things to do in either hand, it gets tricky for me. I can do chords in the left hand and a melody in the right pretty easy, but having different rhythms in both hands I have to work on a little more.

R: What has been the easiest repertoire piece for you this semester?

S: "Etude" was pretty easy for me.

R: What made that one easiest for you?

S: The patterns. The chords are the same in both hands and all you got to do is play one note at a time.

R: When you practiced that piece outside of class, so you remember the kinds of things that you did?

S: I played really slow and made sure that there were no mistakes, and then I took it a little faster until I had it down.

- R: When we worked on that piece in class, was there any way that we went about it that helped you to learn that piece better or faster?
- S: When we went through and blocked out the chords in each measure, and the handout that you gave us helped me visualize how to play the chord a little better on the piano.
- R: Did you use that reduction quite a bit during your practice of that piece?
- S: I used it a couple times when we first started it, but after that I pretty much had it memorized. I just used the music after that.
- R: Did the handout of the reduction help with memorizing the piece?
- S: Yeah. I learned what each of the chords felt like on the piano in about the second or third time I used it and after that I could just look at the music and know what each measure was going to feel like on the piano.
- R: What have you found to be the easiest kind of things to do in the class so far?
- S: I think the chord progressions. It takes me a couple of times through a progression to get the pattern of notes and how they move, but after that it's pretty easy. That and scales are pretty easy.
- R: When we transpose a progression into another key, what kinds of things do you think about as you are playing?
- S: I usually think of the actual chord in the key that I playing. If it's a difficult key, or one that I have played very much in, I'll go by how each note moves . . . the pattern of steps.
- R: When you think in the key when you are playing chord progressions, what has helped you to think in terms of the harmony?
- S: My theory studies have helped. When we talk about chord progressions in theory, I try to visualize how I'd play them on the piano. Doing that helps me to look to connect what I see on the page with what it would be like to play it on the piano.
- R: When you say visualize on the keyboard, what to you mean?
- S: Well, when I look at a chord progression, or a piece of music really, I try to visualize how my hands would play it and see it in my mind . . . the fingers that I would use and how it would feel.
- R: When we worked on that first chord progression this semester, was there anything that helped you learn that easily?

- S: No, not really. We did the same progression in major last semester in major, so it was easy just to think about lowering the third of the tonic and subdominant chords to make them minor chords.
- R: Does finding similarities or difference like that between things that you have done and new progression always come easy to you most of the time.
- S: I'd say so. Once I understand what the differences or similarities are, I can see them in the music pretty easily.
- R: Of the many things that we do in the class, which one or ones would you like to do more of?
- S: I think working on more technique kinds of things since that is my weak spot. Working on coordination-type things and getting more finger dexterity. I think that would benefit me more than, say, working on a lot of repertoire pieces.
- R: You mentioned repertoire. When we work on repertoire pieces in class sometimes we have worked on playing a few preparatory exercise before going to the music, and other times we've started with the music and found the things that are challenging in the piece itself. Does it make a difference to you which way we work on pieces?
- S: It kind of depends on the piece, but most of the time I think starting with the piece is better. Some of the exercises we've done like that are not very interesting by themselves. Finding things in the piece to work on and working on them in relation to the piece makes it more interesting. Some exercises we've done though are okay, especially the one that deal with some technical problem that I might find in the piece.
- R: If you could change anything about the class, what kinds of things would you add or subtract from the class that would fit you as a learner?
- S: I guess one thing might to have more challenging things to do rhythmically. I mean, most of the exercises and things are really basic. We're music majors and we can read music and rhythms pretty well, otherwise we wouldn't be music majors. I think it would be good to have to do things that would be at the next level past quarter notes and half notes and eighth notes.
- R: Do you feel the same about repertoire pieces?
- S: Well, they're okay. They have some good challenges sometimes, but I think that I would progress faster if I had to really work at something like working out an unusual rhythm or difficult coordination kind of thing.

- R: If you could design a class period, what things would you focus on?
- S: Technique kinds of things, because I think that's really important to learning to play the piano. If you know the basics about playing or technique, you can concentrate on the music a lot easier and sooner.
- R: Do you find the technical things that we have done so far in the class too easy?
- S: Yeah, generally. I think that if I had more technical kinds of things to work on I'd progress faster in becoming a better player.
- R: Have there been any times in the class so far when a certain kind of presentation or activity has opened a door or helped you think or look at music differently?
- S: No. I get things we talk about pretty easy. Usually if it is something that I haven't heard about before, it's usually a matter of me just thinking it out for myself and deciding what I need to do in my own practice.
- R: Sometimes in the class so far we have spent a few minutes talking about and discussing a concept that we are about to encounter in an exercise and then I talk you through the exercise as you are playing. Has that helped your learning in the class?
- S: Sometimes maybe.
- R: Has that kind of way of working at things ever not been helpful?
- S: No. It's never not been helpful, but after we talk about things like a chord progression pattern or a scale, I think that I's like to have a little time to try it on my own before we practice it together.
- R: How would that help you, do you think?
- S: If I had a chance to try it out on my own first, I might run across something that I had a question about, or most times, I think that I already know what I need to practice and just would like a few minutes to do it.
- R: Does practicing together slow you down in your learning?
- S: No. It doesn't slow me down. I just like working on things on my own especially if I already understand what I need to do.
- R: If you had a chance to work in a group setting to learn a piece of music or an exercise or work on your own, which would you choose to do do you think?
- S: I prefer to work on my own, I think. I'd get it done faster, I think. I have my own way of working on things that I like to do that I

know will get the job done. I can stay more focused on the things that I need to work on if I work by myself.

- R: Is that ten minutes at the end of the class that I give to work on your own helpful to you?
- S: Yeah. If I'm having hang-ups on something that I need to ask about, I can do that then. Most of the time I use that ten minutes to work on the things I know I need to fix.
- R: We talked about learning to play chord progressions earlier. Is there any way of learning a new progression that seems to work for you the best?
- S: I think talking us through the process as we're doing it a couple of times works the best. I like when we play one chord and then play the next chord and then try to visualize what we did to get there. That teaches me more than any other way how to think my way through a progression. After we've done that a couple times, I pretty much can visualize how to do it in other keys.
- R: Does talking about patterns of notes that move help?
- S: Yeah. Talking about it helps, but I think that best for me is to play from one chord to the next and see the relationships between chords as I play.
- R: Which would be of interest to you . . . if I gave you a short progression and asked you to look at it for a few minutes to find relationships and then tell me about what you found, or if I walked you through the progression talking about the relationships that are there?
- S: The first way. I'd like that better. I think that I'd learn the patterns better if I found them myself. I might have to look it for a couple of minutes though, but I could find the patterns that I would need to know to play the progression.
- R: When you look at music do you see patterns of notes that form chords or hand position fairly easily?
- S: Yeah, most of the time. If we're sight reading something for the first time though up to tempo, I might miss some of them the first time, but I see them the next time we played it.
- R: On the repertoire piece, "The Chase," I gave you a blocked version of the opening measure of those broken inverted chords. Did that help you with learning that part of the piece.
- S: I think that helped more with telling me the hand patterns to use. I mean, I already saw the inversion, but the reduction made it easier to find the hand patterns on the keyboard. After I knew the hand

patterns, I didn't need the reduction. I just knew where my hands were supposed to go.

R: Do you remember that third line in the piece the one with the G dominant-seventh chord?

S: Yeah.

R: When you first looked at or played that line so you remember what you saw first?

S: When I first played it, I wasn't looking for things in particular, but after I played it a couple of time, I remember that I heard the dominant-seventh sound and then I knew what fingering to use.

R: Is there anything else that you would change about the way things are presented in class, or things that you would do differently?

S: I think that like the walk-through of progressions and scales, I'd like to work in things like that more on my own, even if it's for only a minute or two. I think that I could learn it faster than going through things step-by-step. Maybe if you gave the people who wanted individual time a chance to work on their own, you could do a walk-through with just the ones who wanted it or needed it.

R: If you could change things about the kinds of pieces or exercises we do in the class, what would you change?

S: I think I'd work on harder things that would raise my level of playing because they would make me think more and work harder. I like working on harder things, because I know when I get them done, I'll probably have improved my technique because I had to struggle a bit more.

R: So it wouldn't bother you to have a more difficult set of things to do as opposed to a number of less complicated things that might build you confidence about your playing?

S: No. I think I'd feel more motivated to work on things that were more challenging. It helps build my confidence to know that I have conquered a hard piece. I like figuring things out things about the music I'm learning and working to accomplish them.

R: When you are looking music to figure things out, what kinds of things to you do?

S: I look for patterns and things that help me understand the music better, because that gives me ways to practice. Once I know what's there, I can usually apply different kinds of practice techniques to learn the music.

R: Are you speaking now of learning music on your major instrument or is that the way you like working on music in general?

S: That's the way I like working on music in general. My learning goes faster when I'm playing my own instrument, but I use the same kinds of things when I practice things on the piano.

R: I know you have a class in a few minutes, but is there anything that we didn't talk about today about your experience in the class so far that you would like to mention?

S: No, I don't think so.

R: Thank you again for coming in today. I appreciate your willingness to share your ideas and thoughts about the class. We'll meet again in a few weeks to talk about the class again.

S: Okay.

Field-Independent Learner #1 (FI-1)
Interview II
March 1998

- Researcher (R): Thanks for coming in again today to talk with me about the class and how things have been going for you since we last met. In general, how has the class been for you now that we are about two-thirds through the semester?
- Student (S): My hands are working better, I think. Those finger exercises that we have done in class have helped.
- R: Which exercises are you referring to?
- S: The scales and the different way we practiced them, and the other exercises that you had us warm-up on.
- R: Do you mean the Hanon kind of exercises?
- S: Yeah.
- R: When we have worked on scales and those technique exercises in class, was there any particular way that we did them that worked better for you than another?
- S: I think just going through them together for a couple of times, and then giving me a chance to work on them.
- R: Is it important to you that I go through the scales or technique exercises each time we meet too, say, guide you through them?
- S: If they're new ones, it helps to go through them a couple of times in class, but once we have done them, I like working on them on my own.
- R: Earlier you mentioned that your hands are getting better. What do you mean by that?
- S: Like on the solo part to "Hardly Raining," at first it was hard for me to get the hands together, but after a while it just sort of happened.
- R: Was there anything that we did in class that helped you to get your hands coordinated in the piece?
- S: No, I can't think of anything. Well, maybe just practicing it in class together a few times.
- R: In that case, was it important to talk through the piece number of times together, then?
- S: Well, when we did it class, it just gave me more practice on it.

- R: If we hadn't talked through the piece in class a number of times, to you think that you would have learned to play it as well as you did by practicing on your own?
- S: Oh, yeah.
- R: In preparing for the second examination that we just had, was there anything that gave you more problems than another?
- S: I don't think so. It all came together for me about a week before we had to take the test.
- R: How did learning the progression that we had on the test go for you?
- S: It went pretty well, I think.
- R: Was there any way that we practiced it in class that helped you learn it easier, or better?
- S: I pretty much got it on my own.
- R: How did you work on it when you practiced?
- S: I sat down and thought about what chord it was in the key, like a one chord going to a six and how the notes moved.
- R: So you thought about the harmonies, then, and how they related to the key you were playing in?
- S: Yeah.
- R: In the process of talking about and studying the chord progression in class, I handed out a couple of different sheets that summarized the progression in different ways. Did any of those play a part in your learning to play the progression?
- S: Um?
- R: Do you remember the ones that I'm referring to?
- S: Yeah, the one with the step-by-step thing and the diagram one.
- R: Did either of them help you?
- S: No, I didn't really look at them much.
- R: Was there something about those handouts that made you decided not to use them?

- S: Well, the diagram had a ton of stuff on it. There were no staff lines and a lot of arrows that didn't mean much to me.
- R: Was it hard to figure out, then, or too confusing?
- S: No. It wasn't hard to figure out or understand what was there, but I just liked to use the music. On the first couple of chords in the progression where only a couple of notes moved, it showed me things I needed to do, but when a bunch of notes moved at one time, it was just easier just to use the music.
- R: So, the diagrams were clear to you, but not especially helpful or important to you?
- S: Yeah. They were okay, but I didn't use them much. I really didn't need them.
- R: You mentioned that you preferred to use the music the way it was notated in the textbook. Is it generally true that you like to work from the notation itself?
- S: Yeah, because I can see in the notes what need to happen on the keys.
- R: How about learning the scales that you had to play in the exam?
- S: They just sort of fell into place as I practiced them. I mean, I didn't even look at the sheets that you gave us with the fingerings on them except when we used them in class. I just played the scale and the fingerings just fell into place as I played them.
- R: Do you remember what kinds of things did you do in your practicing that helped you get comfortable with playing the scales?
- S: Well, I just figured out where the thumb went and the other fingers just fell into place.
- R: Did you use the thumb as a guide, then, and figure out the fingering from that?
- S: Yeah.
- R: Did the same thing work with learning the arpeggios?
- S: Well, kind of. I more or less went by the sheet that you gave us, because it showed me the exact fingerings to use.
- R: I gave you two sheets with information about the arpeggios. One with the note name with the black key notes on a higher level, and one the same format but with boxes that had the fingerings listed? Did either one of those sheets help you at all?

- S: I used the one with the fingerings a little, because I could already spell the chord.
- R: When we worked on the arpeggios in class, I had you block the notes of the fingering groups. Did that help at all?
- S: Well, I usually just practiced them one note at a time like we had to play them.
- R: Going back to the repertoire piece that you mentioned that you played for your exam, "Hardly Raining." Was there anything about learning that piece that was more challenging than you thought it would be?
- S: Um, just the seventh-chords in the left hand moving in opposite direction to the right hand and sometimes matching the notes with the syncopation in the right hand.
- R: When you were working on the left hand seventh-chords in that piece, was it a problem of moving from one seventh-chord to another?
- S: No, not really. When the left hand skipped around more like to another hand position, I had to look at the music more. And that was basically it.
- R: Was there any particular practice technique that you used to become more accurate at moving from one hand position to another?
- S: No, just played it over and over.
- R: Did you block out the chords in your practice?
- S: No not too much. I played the left hand over and over until I got it and then I added the right hand to it.
- R: When you were working on the left hand seventh-chords, did you use one note as a guide and move your hand to the position you needed, or did you think of the whole chord?
- S: Basically, I looked at the whole chord, and once I got the feel of it, I just memorized what it looked like on the keyboard. Then I could transfer that to the other chords that were the same shape.
- R: In the repertoire piece, "The Harpist," there are broken seventh-chords throughout the piece. When we first talked about that piece in class, were the seventh-chords easy for you to see even though they were broken up?
- S: Yeah, pretty easy. If I don't see things like that right off, I can usually hear it, though.

- R: When you think about seventh-chords in general, how do you understand them best?
- S: I'm not sure what you mean.
- R: Do you think, or see, a triad with an added note, or do you think of them as a single unit?
- S: I think of them as one thing. I can pick out the seventh, but I've learned to see them as a single chord.
- R: Do that work the same way for you when you see a chord symbol for a seventh chord?
- S: Yeah. If I have seen or played the chord before, I can remember it. If it's one that I haven't, I can figure it out.
- R: How about sight reading? When you were given those ten minutes to work on the sight reading example before you had to play it for test, do you remember what kinds of things you did to learn it?
- S: I started out with the left hand, because that is my less dominant hand, and try to get that going. Then I'll add the right hand to it. I'll learn the right hand pattern real quick. Then add it together really slow and then speed it up.
- R: Do you look for patterns in the music from the beginning when you are working on sight reading?
- S: Yeah, the different finger patterns . . . when to move . . . where.
- R: Was there anything in the example that you found to be a particular problem?
- S: On the second line there was a pattern change where the hand moves up a step. I need to make sure that I got to the right notes.
- R: What did you do to solve that problem?
- S: I practiced moving my hand back and forth a couple of times between the patterns. That seemed to take care of it.
- R: How about the progression kinds of things we do in the course? How have they been going for you?
- S: Pretty good.
- R: Has there been anything we have done in class that has helped you learn progression more easily?
- S: Well, in getting ready for the progression for this test, we didn't do as much work on them every day in class that we did earlier in the

semester, I don't think.

R: How did that affect your learning to play the progression for this test?

S: It helped when we did the progression for the first test every day a little bit in class. I know that the the progression we just had is real close to the one we did earlier, and it wasn't all that difficult to learn, but it helps if we go through it together for, say, five minutes right after we warm up each day. That's better than, say, than working on it for fifteen minutes every other day, I think.

R: How about your practice outside the class? What sort of things do you do?

S: I have a regular routine that I do on my major instrument that I do every time I practice.

R: Do you have similar routine when you practice the piano outside of class?

S: Yeah. Well, I use the piano in my warm-up routine for my instrument. I'll play a scale on the piano and then on my instrument, and then maybe an arpeggio in the piano and then I'll play it on my horn.

R: How does that help you?

S: Well, most of the things that I learn and have to practice in piano are also the kinds of things, like scales and arpeggios, that I have to learn on my horn. So, they kind of compliment each other. When I work on a scale in piano, say, I play in on my horn, and the same thing for arpeggios and broken chord patterns.

R: We've talked about some specific things related to the class so far today. How do you feel the class as a whole is going for you this semester.

S: Pretty good, I think. I've had some breakthroughs here and there, but I could do better.

R: Better how?

S: Probably practicing more.

R: The other day in class I mentioned some of the things that we will be doing in the next section of the course. Would there be anything that you would like to change or add to the class that would help you meet you personal goals in learning to play the piano.

S: I liked the idea about doing more technique exercises you mentioned. They might be boring at time, but I think they are

necessary to become a better player.

R: How do those kinds of exercises help you.

S: They help my dexterity. I think it would be good to do some of those every day at least a little.

R: Is there anything else that you would add or change?

S: No, not really.

R: In the next few weeks as we start some new things, if you could design a class session that would fit you as a learner, what kinds of things would you include or do?

S: Um. I don't like to move too fast through things especially if they are new to me, so I think that I would spend some time working through things together to be sure I understand them. Then maybe give me a few minutes to try it out or practice it on my own.

R: Is that kind of structure good for you in all the different activities we do in the class?

S: Well, maybe I'd spend a little more time working on repertoire things in class than other things. The repertoire pieces usually have more challenging things to do in them, so they take a little more time to learn, I think.

R: When we work on repertoire pieces in class, is it more helpful to go through the whole piece a few times to get a picture of the piece in general and then work on specific parts, or is it better for you to start breaking the piece down into smaller sections and working on specific problems right away?

S: I think separating things out from the beginning and working on them right away. Then when we've worked on all the parts then maybe start putting it together.

R: So, it works better for you if we work on smaller sections over, say three or four class periods, and then start putting it all together?

S: Yeah.

R: When we worked on repertoire pieces in the past, I have tried to vary the ways in which we practiced them in class as well as handing out a number of different kinds of things to help with understanding a particular piece. Has anything in particular been of help to you?

S: Do you mean like the chord reductions?

- R: Yes, that kind of thing, or the way in which we studied a piece in class.
- S: I really didn't use the reductions very much. I mean, like in the piece "Etude" that we did at the beginning of the semester, it really didn't matter very much if used the music in the book or the sheet of blocked chords.
- R: One of the purposes of those reductions was to illustrate hand and fingering patterns in the music, and how the note might be grouped to make the piece easier to learn. Did you need the reductions, or did the reductions help you in finding patterns in the music?
- S: Well, when I practice I look for a fingering patterns and memorize the feel of the notes in the pattern.
- R: When you find a pattern in the music, do you do something, like mark it in the music to remind you that it is there?
- S: No, not usually, I just remember it.
- R: Do you find it relatively easy to find patterns of notes or fingering in piano that we have done so far in the semester.
- S: Yeah. They're pretty easy to see.
- R: Does it help you in your learning of repertoire pieces like the ones we have been talking about if I show you the patterns on the overhead or visualizer and talk you through it a couple of times before you begin practicing it?
- S: Well, not particularly. I mean, it's a good thing to do maybe, but I can usually see the patterns that I need to practice, so I like to practice it on my own first and then, if I have a problem, I can ask about it. I'm pretty independent when it come to learning. I like figuring things out on my own.
- R: You mentioned earlier today that you used some of the things that you are studying in piano when you practice your major instrument. Has studying piano helped in any of the other music classes that you are taking now?
- S: Um. Maybe in theory a little bit.
- R: Has class piano helped you in your theory work, then?
- S: Well, I think theory has helped me in piano more. So far, I haven't learned much new in theory except for counterpoint. Most of the things we have talked about it there I already knew about. I think knowing about basic things about chords, scales, arpeggios and things has helped in piano.

- R: So you apply some of the things that you know about theory to your piano study?
- S: Yeah. Like the chord progressions . . . knowing the notes of the chords and how sevenths work . . . things like that.
- R: Has there been anything that we have done in class that you would like to do more of, or anything that we haven't done that you think we should?
- S: I think working more on reading chord symbols and how to do that kind of thing better. I think I will be using that kind of thing more in what I'm planning to do after I graduate.
- R: How would you like to work on that kind of skill?
- S: Learning the kinds of patterns that can be used for different kinds of chord progressions that you might find in a piece with just a melody and chord symbols.
- R: Does working on playing chord progressions like we have done help you with that?
- S: Um. Not really. I mean, the progressions are sort of practice exercises and don't really apply to a piece of music. I think chord progressions teach you about harmony and chords, but aren't too useful after that.
- R: Why is that, do you think?
- S: Well, the chord progressions are all patterned and we practice them until we have the pattern memorized and we can do it in a group of different keys. I don't know if I'd ever use a specific pattern for any particular piece.
- R: So, it is more helpful to you in your learning to do things that are closely related to the kinds of things you might do in your career as a teacher?
- S: Yeah, I think so. At least I'd know that I would be using whatever I learned later on. Don't get me wrong, I think the things I'm learning are important to learn how to do and I like learning repertoire pieces. It's just that I don't think, though, I'll be doing as many repertoire pieces as a teacher as playing accompaniments for my students.
- R: Is there anything else that you would like to add or change about the class that would help you more in the next few weeks as we finish the course?

- S: Um, no, but like I mentioned earlier, more general technique kinds of things to help build a basic ability to play different things in the piano.
- R: Would it be important in learning repertoire pieces, for example, to start with technical exercises that are related to piece itself and start in the piece?
- S: Yeah, that, too, but I'm talking about technique things that get me to move around the piano easier. Things like learning different accompaniment patterns and making up accompaniments from chords symbols, and then just general dexterity kinds of things.
- R: I see. So, learning technique kinds of things would help you in your general development in piano.
- S: Yeah, because everything is basically some kind of pattern, and the more patterns I know and can play will help me with pieces or things that I might have to do later on.
- R: Does it matter to you if you learn those kinds of patterns in repertoire pieces or in more structured exercises.
- S: No, not really.
- R: Is there anything that we haven't talked about today that you would like to bring up?
- S: No, I can't think of anything.
- R: Thank you again for coming in today. I appreciate you taking the time to come in and tell me about your thoughts concerning the class and your learning. I think you have helped me understand you as a learner a little better.

Field-Independent Learner #1 (FI-1)
Interview III
April 1998

- Researcher (R): Thank you for coming in a for the third interview today. I appreciate you taking the time in talk with me about your experiences in the class this semester. Since we last talked, how has the class been for you?
- Student (S): Good. I think the technical exercises that we have been doing in this last part of the course have helped me a lot. They have helped me to get my fingers better organized, I think.
- R: How have they helped?
- S: I think that they have helped me become a better player.
- R: Of the other kinds of activities that we have done in the class, has anything been more challenging than others?
- S: The only thing maybe is some of the repertoire pieces that have a lot of different things to do in both hands. Sometimes they are hard to get together.
- R: Has there been anything that we have done in class that have helped you learn those kinds of pieces better?
- S: It kind of depends on the piece, but basically practicing hands alone slowly at first to make sure that I don't have any mistakes in either hand, and then putting it all together.
- R: When you are working on those things in a repertoire piece, what kinds of things do you do in your practice?
- S: I usually look for patterns, like scales, chords, things like that, and try to make sense of what's in the music as I practice it.
- R: As you look over the semester and all the things we have done, are there any changes that you would have made in the class in the way things were presented or the things we did?
- S: I think one thing would be when we go through something in class, like a progression, so that we all understand it and then give us a minute or two to practice it on our own. Then if I have questions I could ask when its fresh in my mind.
- R: So, it is helpful to have a number of short practice periods in throughout the class period, rather than on 10 minute one at the end like we had most days?
- S: Yeah.

- R: Do you feel that we could have taken more time with things like progression and maybe go through them a little slower to help you learn them?
- S: Well, not slower, maybe, but just take a little more time to remind me of the things I need to set up before I play it.
- R: What kinds of thing do mean?
- S: I mean, like reviewing a little about the hand positions before we start playing. Things like that.
- R: Does it help to go through the way the notes move and how far, before we play it together?
- S: No, because I'm not thinking about those things when I play a progression. Sometimes when you talked to us over the headphones, telling us which finger to move and how far, it kind of bothered me, because I was thinking about it in a different way.
- R: What sorts of thing do you think about?
- S: I'm thinking in the key we are playing in. Um, I know that there are a patterns to the progressions, but to me they're a pattern within the key signature.
- R: So you think about the harmonies themselves?
- S: Well, yeah. I mean, I don't memorize progressions by half-steps or whole-steps, I think about the chord I'm on and what notes I need for the next one coming up.
- R: So when we have worked on the progression in class, it has helped to stop and identify the harmony in the key as we play it, rather than focus on the pattern of note movement?
- S: Yeah, because in the progressions we have done, some of them are in minor and others are in major, and you have to know when to use the raised-sixth, say, in minor, or the raised-seventh. It works better for me when I know the harmony, or chord that I'm trying to play.
- R: So, your studies, or knowledge of theory have helped you in playing things like progressions?
- S: Yeah, just the way I think of them mostly.
- R: Has it worked the other way for you that piano has helped in theory?
- S: Yeah, a little bit, but maybe not as much that way.

- R: Earlier you mentioned that some of the repertoire pieces have been kind of challenging at times. Was there a way that we worked on them in class, or a way that they were presented that seemed to make better sense to you?
- S: I'm not sure what you mean.
- R: Sometimes we worked on short exercises that were related to the piece and then took that knowledge and skill to the piece. Other times we started right with the score and found things to work on as we explored the piece, and may developed exercises to practice form the music itself.
- S: Probably the second way worked best. I mean, like when we did the seventh-chord exercises before we started "The Harpist," they were good to do maybe, but not all of the seventh-chords that we played were in that piece and they weren't written the same way in the music.
- R: Did that happen in other pieces that we did when we started with preparatory exercises first?
- S: Well, like in the "Chromatic Rag," I can sit and play a chromatic scale, but I can't play the "Chromatic Rag" even though there are chromatic scale parts in it.
- R: It is that it is a different kind of pattern than the exercise version?
- S: Yeah, I think so.
- R: When you look at the music of the "Chromatic Rag," do you see the chromatic scale patterns?
- S: Yeah, they're easy to see, but it comes down to the fingering pattern that you have to know to play that particular pattern in the music.
- R: When we have worked on ways of looking for or identifying patterns in the music, either finger patterns or note groups, has there been anything that we have done in class that have helped you recognize patterns more easily?
- S: No, not really. I can usually find patterns of notes pretty easily.
- R: When I gave you handouts for some of the repertoire pieces, like the reduction kind of thing, have they been helpful in a particular way?
- S: No. I mean . . . they . . . I understand what the reductions were for and what they were supposed to show me, but I didn't need them to find those chords in the music.

- R: Did you use the reductions in any particular way when you practiced outside of class?
- S: No, I didn't use them very much at all.
- R: So, you really didn't need them to be successful in practicing a particular repertoire piece?
- S: No, I basically just used them as a reference sometimes. I could see the chords in the piece itself, and if I needed to work on a finger pattern or hand position, I'd just block them from the music.
- R: When we worked on learning scales during the semester, was there a way that I presented them in class, or things I did, that helped you to learn to play them?
- S: All the things you did helped a little, but I learned them mostly by finding the pattern of notes and fingerings from playing the scale.
- R: Did any of the handouts that I gave you help in a particular way?
- S: No, I mean they all were about the same. For me, it's a matter of knowing which finger starts a pattern of notes, or a group, in the scale and the rest just happens. I mean, I can already name the notes, so I just need to know how to group my fingers.
- R: Was there anything that helped you to do that better?
- S: Just playing the scale, I think. Sometimes when I try to think of every finger, it messes me up. Usually I just need to know the start of the pattern.
- R: We've discussed a few specific things so far about your learning in the class. In a more general sense as you look back, are there things that you would have added, or subtracted, from the class that would have helped you in your work in the class this semester?
- S: I think just the technique kinds of things, because that's my worst area. And working on more coordination kinds of things, and maybe more repertoire.
- R: Have there been specific learning or practice techniques that we have talked about in class that have made your practicing more efficient?
- S: No, my practicing goes pretty good. Basically, I concentrate on the things that I'm going to have to do on the next test. I just focus on those things more than anything, I guess.
- R: Have you found that the things you have to do in the class are relevant to the kind of things you might use the piano for in your career after you graduate?

- S: Yeah, pretty much. I think the two-handed accompaniment kinds of things and being able to read chord symbols will probably most useful to me.
- R: As you look back again, have there been certain types of presentations, or ways of doing things, that have been helpful to you in your learning in general?
- S: When you told me, or talked to us about the exercise or piece we were working on, and then gave me a little time to practice it before moving on to a different topic. That was helpful.
- R: Did talking through things as a class a few times each period seem helpful to you?
- S: Um. Sometimes. Mostly, I'd rather practice on my own, the I could focus on the things I needed to work on myself.
- R: Did it bother you when we did a number of talk-throughs in a class?
- S: It didn't bother me, but I really didn't need it. I suppose sometimes. Maybe shouldn't say this, but sometimes I really didn't listen to what you were telling us over the headphones. I just went ahead and practiced what I needed to do in the exercise or piece. Am I in trouble now?
- R: At this stage of the game, no!
- R: Are talk-through presentations more confusing to you in any way?
- S: No, not at all. Sometimes the step-by-step thing was not the way I was thinking about doing the scale, or progression, or a part of a repertoire piece.
- R: Can you give me an example of that?
- S: Like when we were talking earlier about chord progressions. I really don't think about the step-by-step things I need to do, or the half- or whole-steps. I think about the chord I need.
- R: Was it confusing to you in your learning when I talked through the progression telling you about the notes that move and the distance?
- S: No, it wasn't confusing. I just don't think of the patterns that might be in a progression that way.
- R: How about working on repertoire pieces in class? What ways of working work best for you?
- S: I like breaking them down into sections and working on the parts, or sections first. That's part of practicing, I think. I don't like looking

at things as a whole at first. I like analyzing different sections of the music to find the things to work on, and then put it all together after they are in pretty good shape.

R: Does talking through different sections of the piece as you play in class help you?

S: At first, maybe just to get familiar with what's there. After that it's really up to the individual to practice the things they have trouble with, like coordination and notes and rhythms.

R: So, it isn't too important to you that we talk through things a lot as a way of practicing in class?

S: No, not really. Once I've gone through it in class, I pretty much know what I need to work on on my own. Maybe it would be good to focus on the hard transitions between, say different hand positions, but going through the whole piece isn't necessary all the time for me.

R: Is it important to you in your learning that we discuss things a lot, say identifying patterns and problem in the piece, before attempting to play it?

S: No. You're going to find those things in the piece as you go along anyway, so, I think it's better for me to just start working on the piece. Knowing things about theory takes care of the discussion part of things for me.

R: Can you give me an example of a time when the things you knew about theory helped that way?

S: Like in the "Harpist," I could see that the first measure was a broken up seventh-chord, but knowing that wasn't necessarily going to make it play easy.

R: So, practicing things as you come across them helps you?

S: Yeah, because then when I see something in the music I can practice it the way it's written there, instead of working on a exercise type of thing that I might never find in a piece.

R: So, it helps when the things you practice are directly related to the piece you are learning?

S: Yeah. I mean, it just makes practicing more efficient and saves time. Eventually, everything has to be a reaction on the keyboard. Just knowing things isn't enough, it's can you play it in a piece that counts.

R: Sometimes in class I have used the MIDI disks to provide an aural model for you before working on a repertoire piece, and other times,

I have had you play along with the disk as you learn the piece. Have those kinds of things helped you at all?

- S: Well, if the repertoire pieces is not something I know or have heard before, it helps to hear it first so I know what the final version should sound like. As far as practicing with the disks, I don't know if that has helped much. I mean, if I don't know the notes or the fingerings I'm going to use, then it's kind of pointless to try and play along.
- R: How about after you have learned to play a piece?
- S: Oh, I suppose that is okay. After I feel comfortable with playing a piece it's kind of a challenge to play along sometimes.
- R: If you could use the disks in your own practice outside of class, how do you think you might use them?
- S: If I was working on hands alone, I might use them to play along with it. But after I have learned to play the piece hands together, I probably wouldn't use them.
- R: Why is that, do you think?
- S: Some of the musical things that I might do would probably be different than what's on the disk.
- R: Would being able to slow the tempo down if you had access to the sequencer be important to you in slow practice?
- S: Oh, I don't know. Maybe. I can pretty much keep a steady tempo on my own. If I can't, it's usually that I'm having a problem with notes or fingerings that I need to work on myself.
- R: Do you find the accompaniments on the disk interesting to play along with.
- S: Sometimes. The arrangements are interesting to listen to. After we've played along a couple times with the disk and I have the piece in pretty good shape, I'm ready to move on.
- R: Is there a way that you would use the sequencer to help you learn the things we have worked on in class this semester?
- S: I think that I would probably use it to record myself to see if the piece I'm working on sounded okay after I finished learning it. Or, I think it would be great to be able to use it to make my own arrangement of things or in improvisation type things.
- R: Do you think you might use the sequencer often in your practice if it was available to you?

- S: Well, maybe not all the time. Playing along with accompaniments isn't all that important to me when I practice on my own.
- R: Well, we're just about out of time for today. Is there anything else that we haven't talked about that you would like to mention?
- S: No, not really. I think we covered the important things.
- R: Thanks again for coming in today. You have been very helpful in my research project. Good luck on your finals.
- S: Thanks.

Field-Independent Learner #2 (FI-2)
Interview I
February 1998

- Researcher (R): Thank you for coming in today to talk with me about your experiences during the first few weeks of the class this semester. The first question that I have for you today is a general question. In general, how is the class going for you?
- Student (S): I think it is going pretty well. This semester is going better than last semester.
- R: How so?
- S: When we were working on things last semester, my instructor was sort of, well he used to run through things and say 'Well you didn't get it, so work on it by yourself' and then we'd move on to something else. In here we go over things more often and maybe a little slower.
- R: What sort of things have we done in class that have helped you in general?
- S: I think more than anything is just the repetition . . . going back over things.
- R: Have there been any kinds of presentations or activities that we have done in class that have helped you?
- S: I think going over the scales as much as we do really helps, and working on the repertoire stuff. Last semester, we work a lot on the scales and stuff in class and hardly ever did the repertoire.
- R: When you are learning scales what kinds of things have helped you so far?
- S: Those hand outs are nice . . . the ones with the notes of the scale written out . . . and going through them in class and figuring out the fingerings for each one. It's a lot easier to use that sheet than to find the scale in the book.
- R: When you use that sheet and we work on finding finger patterns to play the scale, is it easier to then to use that understanding when you find a scale in a repertoire piece or look at the way that the scale is written in the book?
- S: Yes, I think so. Once you've gone over them a few time and you know how your fingers cross over, or what that scale feels like, you can, even if you don't think of it consciously, you can remember, "Oh yeah, that feels familiar."

- R: When we work on scales in class, does it help you to talk through the scales often going note-by-note and talk about the fingering patterns as you play?
- S: Depends on the day. I mean sometimes once is enough and other times I can just do it. Other days I feel a little slower, so going over them a couple of times is okay, too.
- R: In the past few weeks we have worked on scales that begin on black keys. In general, each scale has a somewhat unique fingering pattern. Did it help you to go over them in class together with me talking you through them a number of times, or would you have been able to do that kind of practice on your own better?
- S: Talking through the scale, at least the first couple of times helped, but after that I pretty much had the patterns down, so I guess I didn't need the talk throughs all the time.
- R: Did it bother you that we did talk through the scales a few times each class period.
- S: No, not at all. It was just extra practice for me.
- R: So you didn't feel like you were sort of "spinning your wheels"?
- S: No.
- R: Did it work the same way for you when we worked on arpeggios?
- S: Yes. The arpeggios to me are a little harder, but I really don't know why . . . they just are, I guess.
- R: Was it the fingering or something?
- S: Yeah. It seems weird to stretch your hand out that far and then reach under with your thumb.
- R: How about repertoire pieces? During the semester so far, I've tried a couple of different approaches. One way was to start with few exercises to prepare you for the piece, and the other way was to start with the score and find things that we may have talked about in the music to work on. Did either of those ways work for you?
- S: Usually, I just start with the music and if I run across something that messes me up, I stop and work on it. But I guess it's okay to work on little exercises before starting the piece.
- R: If you could choose the best way for you, you probably just start with the music though?
- S: Yes. If you find something that gives you trouble, you can maybe work on an exercise to help you with the technique. You really

don't need an exercise for every little thing. Some things you just get by doing them.

R: When we worked on the repertoire piece "Etude," we worked on it a couple of different ways. I think the first thing we did was to look at the score and block out the chords and then practice breaking them up the way they are written out. The I gave you a reduction of the blocked chords in a handout. Did either of those way help you?

S: I like blocking out the chords. That's pretty much the way I learned the piece. After I had the hand positions it was a lot easier to think of the chords and then I just ran the chords down the way they were written.

R: Did you use the reduction often or just as a reference as you were learning the piece?

S: I use the reduction instead of the score most of the time. The rhythms in each measure were all the same, so it was easier to just look at the chords on the sheet.

R: In your learning would it be important to have the reduction before you looked at a score or does it matter to you when you get a reduction?

S: I think it's nice to have a reduction, especially at the beginning of learning a repertoire piece. Like with "Etude," that's all I ever used. I don't know if it would be important to every learning every piece.

R: Did the reduction help you with memory?

S: Yeah, I almost had it memorized the second or third time I played it from the reduction. I just thought I have this chord, then this chord, then this chord. I think that if I was using just the score, I'd be thinking of each individual note. With the reduction, I just think "I have this chord and I'm just going to play the notes."

R: After you have used a reduction like the one for "Etude," do you look at the score differently?

S: Yeah, I think it's easier to recognize triads easier.

R: If I hadn't given you the reduction, would you have seen or found the chords in the score as you practiced the piece?

S: Yeah, I think so. The reduction just made it easier. It saved me some time in my practicing. Usually I just jump in and find patterns as I'm practicing the music.

R: In general, when you look at a piece of music, do you begin to see patterns of notes, chords or other things before you start practicing?

- S: Well, yeah, but I usually just jump in and find the patterns as I'm practicing the music.
- R: When we start a repertoire piece, is it important in your learning that we find and discuss the things that are in the music and talk about ways to practice together in class, or is would you prefer to just start on your own and work on things as you come to them?
- S: Most of the time I like to start on my own and then if I have questions about how to work on something, I can just ask. But if the piece has a lot of things in it that I haven't seen before, it helps to talk about them a little before, just to be sure I know what I'm supposed to look out for.
- R: How about the pace of the class so far?
- S: I think it's fine.
- R: Some days we've worked on a few number of things but more in depth, and other days we have gone through a number of things just to remind everyone what they should be doing in their practicing outside the class. Does either of those ways of pacing a class period make a difference to you?
- S: No, not really. Either way is fine. Sometimes, though, I think it would be okay if we just touched upon the skills type things and worked more on the repertoire pieces. I mean the skills kinds of things I can pretty much do on my own. I know what I need to work on on my own.
- R: When we worked on the progression that you had to learn for the test that you just had, was there anything that helped you more than any other?
- S: Um. The little diagram helped me. It showed me how the notes moved from one chord to the other. Looking at the music . . . the way it is written out in the book . . . it was a little intimidating at first. It was easier to learn it seeing how the notes moved, and also being talked through it a couple of times helped out.
- R: Is talking through something like the progression important at all stages of your learning process, or is there a time when you don't need that as much?
- S: I think talking through it is helpful at the beginning of learning a new progression, but after that maybe not so much. Once I have the pattern in my head, I can do it on my own.
- R: How about when we work on sight reading? Is there anything that helps you in that kind of activity?

- S: It's starting to get to the point where I can see patterns pretty easy. The chord kind of things are starting to jump out at me when I look at the music. I can see inversion now pretty fast and even seeing the range of the notes, like in the melody, are getting easy to see.
- R: Has there been anything that we have done in class that has helped you see those kinds of things easier or faster?
- S: I think just practicing looking for things is the most help. Once I know what to look for it is pretty easy to see things like chord patterns, or note patterns in the music. Like when we practiced that one day on recognizing the shape of different inversions of triads, it was easier to just look at the shape of the notes and know that that was "x" inversion.
- R: Of all the different kinds of activities that we do in class, which have been the most challenging for you?
- S: I think the repertoire pieces. Well, the repertoire pieces aren't impossibly hard, but I spend the most time working on them when I practice.
- R: What has been the hardest thing for you when you work on repertoire pieces?
- R: Coordinating each hand is tough sometimes.
- S: What kinds of things could we do in class that would help you with your hand coordination?
- S: Maybe using a metronome. Maybe if I heard the beat outside of me, even if I'm tapping or counting out loud, it's pretty easy for me to get off, especially, if I'm trying to do two other things with my hands.
- R: Sometimes when we had a complicated, or syncopated, rhythm, like in "Hardly Raining," we tapped the rhythms of the two hand on the piano off the keyboard. Did that help with those parts of the piece?
- S: Yeah, especially when we tapped it out and then went right to that spot and play the notes right away.
- R: When you think back to the different kinds of presentations that you have had in class using things like the visualizer, have they been of particular help in parts of your learning?
- S: Yeah. The visualizer helped me see how things like in chord progressions should go.
- R: Was it helpful to you see a demonstration of, a chord progression and then practice it on your own, or was it more helpful to see the demonstration and then talk you through it?

- S: I think seeing you do it and then letting me practice it on my own work best for me. That was I can think through what I need to do myself.
- R: Does that work the say way for you when I use the visualizer for scales?
- S: Yeah, seeing the note groups in scale when you do it on the visualizer helps me see the patterns better when I practice the scales. It still helps at the beginning to have you talk through it a couple of time, though.
- R: When you work on scales do you think more of note groups or finger patterns or key patterns on the keyboard usually?
- S: Usually, I don't have much trouble knowing how the notes in a particular scale fall into finger patterns. I mostly think about how my fingers have to move to play the notes. I think I spend more time on working on playing the finger patterns.
- R: So, when you play scales you think about how your fingers match the key patterns on the keyboard.
- S: Yeah, mostly.
- R: When you look at piece of music, do you see scale patterns easier because you have played them in this kind of class?
- S: Yeah. I mean it's not too hard to see scale patterns or other things like intervals. Theory has helped me with that a little.
- R: So your theory studies has help you in your piano studies in this class?
- S: Yeah.
- R: Has it worked in the reverse, too? Have piano studies helped in your theory?
- S: Yeah, especially when talk about four-part harmony kinds of things in theory. I can visualize the keyboard now and kind of know what that harmony would feel like on the piano, or what it might sound like if I played it. It even has helped with knowing the quality of triads, like major and minor, augmented and diminished. When I see them written, I can think of how it would feel to play them and know what my finger would feel like.
- R: Can you tell me a little bit about the kinds of things that you do in your practice outside of class?
- S: Well, I usually have a little routine of starting with the scales that I know and then moving on to the scales and to some of the other

things that I need to know next. Then go into the repertoire after that.

R: If you could design a class period, what kinds of things would you include?

S: I think that in I would start with scales to warm up for maybe ten minutes or so, and then I would work on repertoire and theory things as they relate to the pieces that we are doing. I think that one you have the basics down about scales and arpeggios, it's okay to just practice them on your own. You aren't going to have many questions about scales as you are about a song, so I think it would be good to spend more time on the repertoire kinds of things, because that's where you have to use the things you know about the skills kinds of things. There is so much more in a song, so it is better to spend more time on that.

R: If we worked on repertoire more in the class period what kinds of things would you work on?

S: I think that I would work on the technical kinds of things and how to play the piece.

R: Would you spend time on talking about the note or chord patterns that were in the music and identifying them?

S: Yeah, at first but I can usually see things like chords and scales, but I don't know sometimes how to go about playing them with the right or the best fingering.

R: So, you would like to focus on the physical kinds of things about playing rather than analyzing a piece?

S: I think so. Once you know what to look for, analyzing is pretty easy. It's the learning how to play a piece that takes time, I think.

R: Would you want to talk through the repertoire piece often?

S: I think maybe talking through the more technical sections a few times would be good, especially for fingerings and hand patterns. But, the easier parts of the piece maybe not.

R: Would you want to have the teacher pretty much direct your practice all of the twenty minutes or would it be helpful to have short intervals of individual practice time?

S: I think having a little time off and on to practice the things we just talked about or worked on together would be good. It would give me a chance try things out a little and ask a question about something if I needed.

- R: Is there anything else that you would want to have include in your ideal class?
- S: No, I can't think of anything else right now.
- R: Is there anything that we haven't talked about today that you would like to mention about the class or your experiences in the class so far?
- S: No. I don't think so.
- R: Thank you again for coming in today to talk with me. We'll meet again in about five weeks to talk about the class and how things are going for you at that time. Thanks again for you comments.
- S: Okay.

Field-Independent Learner #2 (FI-2)
Interview II
March 1998

- Researcher (R): In this second interview I'd like to chat with you again about some of the same things we talked about in the last interview and how the class is going for you since we last talked. In general, how are things going for you in the class?
- Student (S): Pretty well.
- R: Have has any problems with anything since we last spoke?
- S: Not really. But I'm probably not practicing as much as I should be.
- R: Why is that do you think?
- S: Oh, I've had a lot of papers and other kinds of assignments sue in the past couple of weeks that has kept me busy?
- R: How was getting ready for this last test?
- S: It was pretty easy, but the chord progression was the toughest part to get ready?
- R: Why was that?
- S: I really don't know, because when I stop and think about it, it is pretty easy. I know what I'm supposed to do, but when I was playing it I kept messing it up.
- R: When you are learning a progression like the one we just had on the test, what sort of things seem to help you the most?
- S: I think knowing what my fingers are going to do, like when my middle finger is going to move and where my thumb is going to go and how far . . . things like that.
- R: So, you like the idea of knowing which finger is going to move and in which direction?
- S: Yeah.
- R: When we were working in class on learning those kinds of things about the progression, which kinds of things helped you?
- S: Actually, I think the diagrams helped more than the other things we did, because then I see it and it is easier for me to remember it when I see it.
- R: Did that page of written out step-by-step things to do help at all?

- S: Yeah. That helped quite a bit, too.
- R: Of the two, could you say one of them is more important?
- S: I think the diagram is better, either on staff or off staff. I don't think it makes much of a difference.
- R: How about the scales and arpeggios? Were they pretty easy to get ready?
- S: In the scales it was just a matter of remembering the thumb thing about putting the thumb on the first white note after a black note. After that everything else just sort of happens.
- R: So, finding out where your thumb goes was the most important thing?
- S: Right.
- R: When we are playing scales like the ones you played the other day, do you think in terms of note names, finger patterns, note groups, key groups? How does that work for you?
- S: I think finger patterns mostly. When I think of playing a scale I think of the notes that belong in a finger pattern.
- R: Does that work in arpeggios, too?
- S: Yeah, pretty much, but I don't always use the right fingering.
- R: On learning arpeggios using the traditional fingering, was there anything that helped?
- S: Like what?
- R: One thing I gave you was a sheet with the notes in the arpeggio written out with the black notes on a different level, and the other thing was a similar sheet with fingering in little boxes below ?
- S: I don't know whether any of those helped. It just seemed logical to find the first white note in the arpeggio and put your thumb on it and then go from there.
- R: When you practice on your own, do you have particular routine that you use?
- S: Usually, I play one of the old repertoire pieces just to warm-up, and then I'll play two or three scales in keys that we're going to need to know, and I'll work on the new repertoire piece.
- R: When you work on repertoire, what sort of things do you usually do?

- S: When I'm first starting out, usually I'll just play one hand at a time and go through until I have each hand pretty much correct. If I run into a problem, I go back and work on that measure a few times more. Then I try to put it together.
- R: What kinds of things could we do in class that would get some of that done for you?
- S: I think going through the piece in class and finding where your hand position needs to move. I think that helps out, and if there are a lot of chords in the bass, going through and talking about what chord it is.
- R: Do you look for patterns of any sort when you look at the music?
- S: Yeah, sort of, but mostly I just look at where my hands are going to have to move.
- R: To you do any sort of marking to help you remember the patterns or changes that you find?
- S: Usually, I'll just write in a finger number to remind me.
- R: Would it help if we took time in class to find those patterns in the music where your hand position needed to change?
- S: Yeah, that might help, but I can already pretty much see the patterns.
- R: How about using the reduction kind of handout? Does that help?
- S: Yeah, that helped. It makes it easier to see it and think of it as a chord than to see it and think of it as four notes, or however many there are. And it helps to make it easier to memorize. It helps to think of a group of notes as a chord. For me it's easier to play something when I have it memorized.
- R: When you look at the score of a piece like "The Harpist," do you see triads or seventh-chords there even though they are broken up?
- S: I haven't gotten to where I can see the seventh-chords real easy, but I'm usually pretty good about being able to pick out the triads.
- R: After you have seen a blocked version of a piece, does it help you to see things when you look at the score again?
- S: Yeah, it makes it a lot easier, especially if there are a lot of extra things thrown in.
- R: Extra things?
- S: Well, like you have a triad with an extra note, I think "get rid of that note for a second and you have this chord," and things like that.

- R: When we work on a piece like "The Harpist" in class, does it help to talk about the things you will be finding in the piece and then give you a chance to practice it for a few minutes, or would it be better to go through the piece with you as you play?
- S: Well, for me, probably just telling me first and then giving me a chance to practice would be good, but I can see that going through it as a class would help to give everyone a chance to ask questions if they had a problem.
- R: When you think about practicing in class, or outside of class even, is it important to you if some one walks you through a piece telling you what to do, or would you like to be given general things to do and then a chance to do them?
- S: For me, just the general things are good. Then I can work on it on my own.
- R: When you are using blocked versions of a piece, do you use it throughout your learning, or does there come a time when you don't need that anymore?
- S: Well, with things like "Etude," I pretty much used that instead of the score, because the rhythms in each measure were the same. I made sure I could play it in blocked chords before I started playing it the way it is written.
- R: How about sight reading? How has that going for you?
- S: Pretty good, but I don't think I did so hot on the sight reading for the exam.
- R: When you had those ten minutes to work on the sight reading before you had to play it on the test, do you remember what sort of things you did?
- S: First, I went through the melody and looked for places where the hand position was going to change, looked for triads, stuff like that . . . anything weird. And then I did the same with the left hand, and looked for places where I was going to have to move the hand, or where the chord changed, what it did, what happened, what move up, what moved down. Then I played each hand separately two or three times, and then tried to put them together.
- R: When you put the hands together, what sort of techniques did you use?
- S: I started from the beginning and went real slow. I made a mental note of what I messed up on and went back to work on that part. Then I started from the beginning again.

- R: Even though both hands went well alone maybe, did you find that putting hands together was a different kind of challenge?
- S: Oh, Yeah.
- R: Is there anything that we could do in class that you think might help you improve your skill in putting hands together?
- S: Hum. I don't know besides just doing it.
- R: Does playing progression help you with learning to put hands together better?
- S: Yeah, I think that they do when you have to move different things at different times. That's the hardest part. Things like contrary motion are tough. The biggest thing for me, though, is when the rhythms are different in both hands.
- R: When you look at chord progressions like the one we just had on the test, do you see right hand and left hand notes separately, or do you see one unit?
- S: I see right and left hand separately.
- R: Does that work the same way when you think about how the notes move in each hand from one chord to the next?
- S: Usually, I still think of what the left hand does, and then what the right hand does next, but it's starting to get to the point where I can think of just one motion.
- R: Has it ever happened to you in your playing or practice that your hands move together as one thing as opposed to two things that are happening simultaneously?
- S: Yeah! Once when I was playing "Fandango," I was struggling with playing the melody with the Alberti bass. It was sort of start-and-stop. But then all of a sudden it just happened, both hands just came together.
- R: Was it a feeling like that it just sort of happens?
- S: For me it was. I just relaxed and it all just sort of fell into place, and that's kind of what happened to me on "Hardly Raining," too. There was one part in the second half when the left hand goes down to the "D" and when I was trying to think about where everything was to come in, it was really messing me up. But then if I relaxed and played it like I knew it was supposed to sound, it worked.
- R: Can you explain maybe why that might have happened to you?

- S: I think that I knew the patterns in each hand so well. I mean they were kind of automatic, that eventually it just all came together.
- R: Do you think that it would help you in class if we worked as a group on playing the patterns that might be in a piece to make them automatic, or is that something that you would prefer to do on your own?
- S: I think it would help if we did that in class at least a little bit. That way I would get the feeling of how it should go before I practiced on my own. It's also kind of boring to do it on your own. I mean that way you'd now that I am doing it ok.
- R: There are many types of skills that we make a part of class piano studies that may be useful in learning a piece of music, like scales, arpeggios, chord studies, etc. In your learning, do you prefer to learn the specific skills that relate to a particular repertoire piece first in the form of exercises, maybe, and then take that to the piece, or would you like to start with the piece itself and find the things in the piece and work on them?
- S: I like the second way best. I'd like to do more repertoire, because even though you might work on scales and other things by themselves and you know that it might help you in a piece, you really don't see exactly what it relates to. I think it is much more meaningful, and it sticks with you more if you have context from the beginning.
- R: So it helps to practice the skills you need right out of the piece?
- S: Yeah, because of you had a scale to learn in a song, it would be a lot more fun to practice it for the piece than if you were just practicing the scale by itself. You have some sort of goal. I mean if it is part of the song, you think that if I'm going to learn this song, I need to learn it like it is.
- R: Would it work better for you, then, if when we started a repertoire piece, that I gave you a list of the skills or other things that you would need to learn or practice to play the piece?
- S: Right. I think that would be better.
- R: So, putting things in a context is important to you when you learn?
- S: Uh-huh.
- R: What sort of pieces motivate you to want to practice?
- S: Um. "Fandango" has and "Hardly Raining" so far.
- R: Why did they motivate you more do you think?

- S: I'm not exactly sure. Maybe it's the rhythm, even though they were harder pieces. Most pieces we have done are okay, I guess, though. I don't really have an opinion one way or the other. They're just things to do.
- R: In looking back over the semester so far, what sort of things have helped you in your piano playing?
- S: I think a lot of the handouts, especially like the ones with the blocked chords and the ones about the chord progressions.
- R: How have they helped you?
- S: The blocked chord handouts just make it easier to think of a group of notes as one thing, like a chord.
- R: It is important to you to have the actual handout with the blocked chords in front of you, as opposed to going through the piece and playing the blocked chords from the score?
- S: Um. It helps with memorization to see the blocked chords on paper. I think I'm more of a visual person when it comes to memory, but if it is just learning where the chords are, I don't think it makes much difference to me. I mean I can see them in the music.
- R: In the repertoire piece that we just started, "The Harpist," for example, you have a blocked version of that already. When we practice in class is it more helpful to you use the blocked version first and then go to the score?
- S: I think it is better to use the score first and find the chords using the music and then use the blocked version. That way you learn to see the chords in the music itself. Then the blocked version just reminds me of what I already know is in the music.
- R: When you use the blocked version of a piece for memorization, do you think about chords themselves, or do you think more of key groups, or finger groups?
- S: I think more fingering and key groups . . . the shape of the notes on the keyboard.
- R: So, you think about the hand shapes and finger patterns first and then the name of the harmony?
- S: Yeah.
- R: When we were practicing sight reading in class, was there anything we did that seemed to help you more than another?

- S: I think going through and talking about hand patterns before we played . . . figuring out what the chords were in the left hand . . . that was important for me.
- R: Does it help you in learning to sight read to do a number of examples in one key and then move on to another key, or does it work better to do examples in a number of different keys in one session?
- S: I think it's better to do examples in a lot of different keys to get practice in seeing things once and just doing it. For me, if I do a lot of pieces in one key, I get lazy and don't think as much. I like the challenge of having to play in a different key each time. That way I have to think about and look for different things each time.
- R: Is there anything that you would add to the class that you think would help you in learning to play better, or improve your skills?
- S: Um. I think doing more sight reading is good, because I'm going to end up doing quite a bit of that later on when I have a job. The harmonizations are really good. I'll probably be doing a lot of that, too.
- R: When we're working on things in class concerning repertoire pieces or exercises that you need to do, do you like to have me talk you through things as you play, or do you like to discuss the project and the things that you need to watch for and then give you time to practice on your own for a few minutes?
- S: I think that if you discussed something with us first and gave us, or told us things to do then give me time to practice by myself a little bit it works better for me.
- R: Has your studies in theory helped you in your work in this class?
- S: Yeah, especially the oral skills. When we're in there, we listen to melodies to hear chords and find patterns. That helps out. We're doing basically the same things in both classes and the aural skills helps me to hear and see patterns.
- R: Do your studies in piano help you in theory in some way?
- S: Yeah. It does some, but not quite as much as the other way, because I think that I'm a little farther ahead in my theory than I am in my piano. I think that piano and theory could compliment each other if we studied the same kinds of things at the same time.
- R: Can you give me an example of that?
- S: Well, like last semester we studied modes and counterpoint in theory and learn about how they worked. I think we're going to be getting to the modes in the next section of this class, right?

- R: Yes.
- S: I think it would have been helpful to me if we studied the modes in this kind of class at the same time we were learning about them in theory. That way I could learn how to play them and hear how they work in piano as well as how to use them in counterpoint. I think that would help me get a whole, or better, picture of the kind of *thing*.
- R: If you could change other things about the class, what kinds of things would you add or subtract?
- S: I think a little less time on the straight technique stuff . . . the scales, arpeggios, stuff like that, and more time on improvisation, reading chord symbols, especially the letter chord symbols.
- R: The letter symbols?
- S: Yeah, like the C7. For some reason that is harder for me than reading the Roman numeral ones, like V7. I guess that might be because of my theory. We always talk in Roman numeral in there. I am faster in recognizing that kind of symbol.
- R: Anything else you would change?
- S: I guess, maybe like we were talking before, more repertoire with the technique and other studies built into learning the piece.
- R: So, you would like to practice exercises related to the piece as you learn the piece, rather than before you start the piece?
- S: Yeah, I just like to have the context there. I like to know why I'm doing something. I guess I'm goals oriented.
- R: When you look at a piece of music, what sorts of things do you see, or what grabs your attention first?
- S: I look for the range of the notes, maybe weird rhythms, things like that.
- R: When you look at a piece of piano music, do you sometimes see patterns of notes?
- S: Yeah, I see things that make chords or scales. Those are pretty easy for me to see most of the time. I usually don't have trouble finding those kinds of things.
- R: When I present a new repertoire piece to you in class, is it important that I point out all the patterns that might be there and practice them with you before you practice the piece on your own?

- S: Yeah, it's helpful, but I can pretty much find them myself usually if I look for them. It helps to be reminded though that they are in there. Once I know they are there, I can pretty much practice them on my own. I know what I need to do basically
- R: Has seeing patterns in music always been relatively easy for you?
- S: Well, when some one points out a pattern, like a scale or a kind of chord for the first time and tells me what it is, I can usually see them in the music again when they come up.
- R: Does seeing, or recognizing, patterns like that help you in some way in learning to play the piano?
- S: Yeah, it cuts down on practice time a lot. If I know that a certain thing is a chord or a type of scale, I know what I need to do when I practice it.
- R: Do you think that being able to find those kinds of things in your music has made your piano playing better?
- S: I don't know if it has made it better. I still make a lot of mistakes; but I know what to practice and it makes practicing more a little easier, I think.
- R: Is there anything else that you would like to talk about concerning the class and your learning that we haven't talked about today?
- S: No, I don't think so.
- R: Thanks for coming in today. I appreciate your willingness to discuss things about the class and your learning. We'll meet one more time at the end of the semester to talk about how the semester went as a whole and any other things you want to go over.
- S: Okay.

Field-Independent Learner #2 (FI-2)
Interview III
May 1998

- Researcher (R): Thank you for coming in today to talk with me one last time about your experiences in the class this semester. As you look back over the semester, can you tell me how your piano playing has changed?
- Student (S): I think I'm better, because it doesn't take me as long to learn songs, scales . . . and things like that.
- R: Why do you think that is?
- S: I think probably just having more experience. The more I do it, the better I think I do.
- R: You mentioned scales and repertoire. Had there been anything that we have done in class that has helped you with learning those kinds of things?
- S: On the scales, the sheets you gave use helped with that.
- R: Which sheets were those?
- S: The ones with the keyboards and the circles on the notes of the scales.
- R: What made those handouts more useful to you?
- S: Usually, when I play scales I don't think about the notes so much as I do the pattern on the keys and the fingerings.
- R: The scale sheets with the keyboard diagrams are similar to what you might see on the visualizer. Does the visualizer help you in the same way as the handouts, or does it work differently in your learning?
- S: I think it's about the same.
- R: Does it help you to see the keys used to play the scale in real time when I use the visualizer, or is it more helpful to see the pattern of as a whole of keys like that on the handouts that you mentioned?
- S: I don't know that it really matters to me. Both was I can see the patterns that I need to know to play the scale.
- R: Was there anything else that helped with learning scales?
- S: Um. I can't think of anything else for scales. But, I think on the repertoire pieces, the things that you gave us that broke the music down into the blocked chords, that kind of got me to where I think more about it even if I don't have it right in front of me. It's gotten me to where I can look at a measure and see the notes that for

patterns that help me to practice it.

- R: When I gave you a reduction of a repertoire piece, did it make a difference to you to talk about the piece using the reduction first and then go to the piece, or was it more useful to talk about the music as you see it in the score, and then get the reduction?
- S: I think having the reduction as early as possible is good.
- R: After we used a reduction to prepare for learning a repertoire piece, how did that, or did that, change the way you looked at the score?
- S: The patterns of chords, or note groups . . . thing like that, were easier to see.
- R: Are there certain kinds of patterns that have become easier to see from using reductions?
- S: Chords and their inversions. Before I used to have more trouble that I do now.
- R: After you find, or understand, those kinds of patterns, how do you practice differently?
- S: Well, for one thing, once I understand the patterns, I pretty much get to the point where I don't need to look at the music much. I just remember the patterns.
- R: So, finding patterns to practice helps you to get to playing the piece sooner?
- S: I think so.
- R: Has being more aware of looking for patterns helped with sight reading?
- S: Yeah. It helped in the sight reading that we had to do for the test we had yesterday. I didn't have to struggle as much to get it so I could play it. I saw the chord patterns in the left hand and the hand patterns, or how the melody notes were grouped, in the right hand pretty fast.
- R: Does it make much difference to you when you are looking for patterns in either bass or treble clef?
- S: Bass clef is a little slower, but not much.
- R: When you find patterns in the notes of the music that you recognize, do you also see patterns on the keys of the piano, too?
- S: Yeah.

- R: Does that also work that way for you in learning chord progressions?
- S: Yeah. On chord progressions I just remember the pattern of how the notes move.
- R: When we worked on the chord progressions in class, I tried a number of different ways of explaining them. Thinking back, was there a particular thing we did that you found to be most helpful to you?
- S: Um. The diagram, the one that showed how the the notes of the progression moved and how far. That helped a lot.
- R: How did that help you?
- S: Well, once I knew how the notes moved I figured out that almost all the time when the the right hand moved to a note the left hand would move to the same note. And so that really helped me out a lot.
- R: Did that help with coordination in any way?
- S: I think so. I really didn't have to worry about the left hand, because, when the right hand moved, I knew the left hand went to the same note. I didn't have to worry about what the left hand was going to do.
- R: I'd like to ask you a more general kind of question. If you could design a group piano class around the way that you learn best, what kinds of things would you include?
- S: I think I would concentrate more on repertoire, like, you know, learning a song. But then you sit down look at a song, analyze it and say "Oh, here we've got a scale. Let's play the scale. And then here we've got this arpeggio in this key, so let's play some arpeggios." I think I learn a lot better when I can see how its related to what I'm going to be doing, as opposed to learning some abstract concept that I'll use later.
- R: So, you like to start with the musical score right a way and maybe draw exercises out of the piece that are related directly to playing the piece?
- S: Yeah. Even if you don't play the piece right off, just to look at it and say, "this is where this is," or, "this is where this comes from."
- R: Dose working on a repertoire piece that way help directly with your learning, or is it more a matter of, say, motivation to learn the piece?
- S: I think it is maybe more a motivational thing. I mean, if I have a reason to learn something, I'm going to learn it quicker, than if it is something that I'm going to need for a test sometime.

- R: In designing the class around learning more repertoire as you mentioned, would you say that you would place less emphasis on learning scales, or arpeggios, or progressions or other types of playing skills then?
- S: No. I think that I would include all those things, but do it, or study those things, in the repertoire pieces. I mean, I don't know how it work for other people, but, I may be able to play all the scales or arpeggios in the world, but I if I can't do them in the context of a piece, those things are not as relevant to me.
- R: When you think about how to working on repertoire pieces, say in a group piano class, what kinds of things would be important for you to do in your learning?
- S: Um . . . can you give me some examples of what you mean?
- R: Would it be beneficial for you if the instructor talked you through the playing of the piece and maybe work on things in depth during the class most of the time? Or, say, talk about the things that are in the piece, analyze it, and practice a little on various sections together, and then give you time to work on it on your own?
- S: Both, I think.
- R: Would either of those ways be important at particular times in your study of a repertoire piece?
- S: I think maybe talking about it and going through the piece in class together at the beginning of learning a piece, say for about ten minutes, and then giving me five minutes to work on it class. That way I could ask any questions about it before I go out and practice it on my own. After that, it would be okay to just to maybe go through it once or twice in class each time.
- R: In talking about a repertoire piece for the first time, would it be helpful to you if I gave you a list of things that you will be finding in the piece?
- S: Oh, yeah, but I'd probably discover those things as we went through it, or when I practiced on my own.
- R: Would it help if I gave you a specific assignment, like a list of maybe four things for you to do in your practice outside the class?
- S: Well, it would be okay, I guess, but I usually can find the things that I need to work on when I practice?
- R: Back to your ideal class design. Are there any other things that you would do, or include, that would be important to you?

- S: Um, I think what we are doing is fine. I like doing things that I might have to do as a teacher sometime, like reading chord symbols and making up accompaniments. I have a couple of friends who are piano majors, and they can't do that kind of thing. I was showing one of them what I doing in reading chord symbols to accompany a melody, and he was so slow at doing it. It took him a long time to think about every chord and play it. He said he was so used to having everything written out, and not doing anything other than what was written. I really think that the way it is set up now, we get a pretty good mix of things.
- R: In the design of your ideal class, what kinds of feed back do you think is helpful?
- S: Having time to ask questions is important.
- R: Do you think it is important that you get regular feed back throughout the class period?
- S: Yeah, but I don't need it all the time, though. If I need help or have a question, I think I could come talk to you on my own. Having the last five or ten minutes of class to work on things on my own with you around if I need help or to ask a question is good.
- R: In connection with feedback, when we work together in class on things, like scales or progressions, does it help to talk through the examples to discuss notes patterns or fingerings regularly in each class period?
- S: At the beginning of some things, yeah, just to get the concepts down, but after that I like working on it more on my own. I really don't need a talk-through kind of thing all the time, or every time we have class. If I have a problem with something, I can just ask about it.
- R: Besides talking through a scale, or arpeggio, or progression at the beginning of a study, does anything else help you in your learning process?
- S: Yeah, using the visualizer, or even the handouts that you gave us, helps me to see things better. Sometimes just hearing about something, like finger patterns, doesn't translate to the keyboard easily, especially if you haven't had a lot of piano studies. It's kind of nice to see it and hear it at the same time.
- R: When I used the visualizer in class, say for learning to play chord progressions, was there a way that was most helpful to you?
- S: When you demonstrated the progression on the visualizer and I just watched, it helped me see relationships better. I kind of knew better how the notes should move when I played then.

- R: How about learning scales?
- S: The handouts you gave us helped.
- R: Which ones helped more?
- S: The ones with the keyboard diagram and the circles on the notes notes of the scale helped more.
- R: Why was that, do you think?
- S: Because they were more concrete, I guess, . . . more like the real thing.
- R: Would you have learned the scales as well without using the handouts?
- S: Yeah. It just made it a little easier.
- R: Continuing with the design of your ideal class, is there anything else that you would add or do differently?
- S: Um, not really. Just what I mentioned before about doing more repertoire and digging in on them.
- R: How about learning technique or the more physical kinds of issues in learning to play the piano?
- S: I think it is important, but I like focusing on the knowledge kinds of things and things that will help with practicing outside of class. I mean, with only a hour class three times a week, learning most of the physical kinds of things we're going to have to do on our own in practice. The knowledge, or understanding, and musicality things I think are important to talk about in class, because it would be harder for me to tell if I'm understanding things right without some help from the teacher on that.
- R: Has talking about the knowledge things in this class helped you in any of you other music studies?
- S: I think it has helped in my theory a lot. It has given me a more concrete way of understanding things in theory than just looking at the music on the staff. I can kind of picture thing that we talk about in theory on the piano and that helps out.
- R: Does it work the other way where theory studies have helped in class piano?
- S: Yeah, but more the other way . . . piano has helped more in theory.

- R: I know that you have to go to a final in a little while, but is there anything else that you would like to mention about your learning experience in the class that we haven't talked about today?
- S: No. I think we covered it all.
- R: Thanks again for coming today. I appreciate your help in answering questions and giving me information about you and your learning.
- S: Okay.

Field-Independent Learner #3 (FI-3)
Interview I
February 1998

- Researcher (R): Thank you for coming in to talk with me about your experiences in the class since the beginning of the semester. To begin, I'd like to ask you to tell me how the class has been for you so far.
- Student (S): It's been going very well, I think. I've been a little surprised actually.
- R: How so?
- S: The class has been more enjoyable than I thought it would be. It's been more interesting than last semester's class was, and I think I'm doing better than I did last semester.
- R: Of the different kinds of activities that we have done so far in the course, which one, or ones, have you found to be the most challenging?
- S: I do have a hard time with chord progressions, but I do think that that is kind of a common thing.
- R: What is it about chord progressions that you find challenging?
- S: I don't know. Maybe it's that I can't keep up. Sometimes the notation. I just can't process it fast enough.
- R: Has there been anything that we have done in class that has helped you to process the information in the music notation for chord progressions better?
- S: I really like the work sheets . . . the one like when you start with a minor triad and it said to move the middle finger up a whole-step and the fifth finger up a half-step. That made sense to me.
- R: Do you mean the list of step-by-step things to do to play the progression?
- S: Yeah, the list of things.
- R: How about the diagram at the bottom of that page, the one that had the circles that represented the notes of the triads with the arrows that indicated the whole and half-step motions?
- S: I didn't look at that. I used the step-by-step first and once I got the idea of the progression I was fine.
- R: When we started working on the new progression on Monday, I talked the class through the progression telling you which finger moved and how far. On Wednesday we did somewhat the same

thing, but focused more on the harmony noting that the fifth of this chord moves up a step and so on. Did either of those ways help you get a better understanding of the new progression?

S: The one where we talked about the harmony was kind of confusing because when you talked about the fifth, my first thought was the fifth finger. It made sense but it took me a while think that way through the progression.

R: It is still a little difficult to work on a progression that way?

S: Yeah, it's still a little difficult.

R: When you are learning a progression, would it be fair to say that you prefer the pattern approach, mapping out which finger moves and how far?

S: Definitely.

R: Is that true of scales, too?

S: Yeah, pretty much.

R: Has there been way that we have worked on the scales that we have been studying that has helped you to find those patterns of fingerings?

S: I do use the sheets a lot that you handed out. I don't know if I'm supposed to use them instead of the notation, but I do use them a lot.

R: After you use the sheets, is looking at the notation easier? What I mean to ask is that after working with the sheets, are you better able to see the patterns of notes and related fingerings looking at the notation?

S: Yeah, I think so, but I still use the sheets more often.

R: When you use the scales sheets do you make any sort of notations or marks to help you with the patterns in the scales?

S: I write in the fingerings and put brackets around the note groups.

R: Note name groups or finger groups?

S: Fingering groups.

R: And that helps you with the patterns of fingering?

S: Yeah, knowing when I need to move my thumb under.

R: Do you do the same things with the sheets that I gave you for the

arpeggios, too?

S: Yeah.

R: How about the repertoire pieces that we have worked on so far?

S: I can usually sight read the right hand part pretty well. The bass clef is still a little slower for me. I have to look at that part a little longer to figure out the notes.

R: When we have worked on repertoire pieces in class has there been anything that has helped you in getting started with learning the repertoire pieces?

S: The reductions have helped. They make a lot of sense to me.

R: Can you tell me how the reductions helped you?

S: Like in the song "Etude," once I played through the blocked version, I could generally remember what the chords felt like and then I just played the notes one at a time like they are written in the music.

R: Has using things like reductions helped you with other activities that we do in class, like sight reading?

S: Yeah, I think so. I'm starting to see more patterns in the music when I first look at the examples that we have done.

R: When we work on sight reading in class, some days we do a number of examples in one key to may give you a chance to get more familiar with how music looks in that key. Other days we do a number of examples in a variety of keys. Do either of those ways of sight reading help you in developing that skill?

S: No. Either way is fine, I think. The first thing I do is look at the key signature and think of the patterns in that key.

R: So you have a set of mental patterns that you associate with a particular key?

S: Yeah, at least the keys that I am most familiar with. I think if I have to sight read in a key that I haven't used or am unfamiliar with, it would help to do a bunch of examples in a row just to get familiar with what that key looks like and how it feels in the keyboard.

R: How about the pace of the class so far?

S: I like it.

R: Does it make a difference in your learning when we do a number of

activities in one class period, as opposed to doing a fewer number of things but working more in depth and practicing together?

S: No, not really. Either way is fine for me.

R: When we work on the skills kinds of things in class, has there been any kinds of presentations or ways of working together that have been helpful to you?

S: I guess the sheets. I'm not really sure.

R: I guess I'm referring to whether it is helpful to you when I explain and demonstrate a concept and then talk you through the exercise in the text, or whether it is better when I explain the concept and the things to practice and then give you a few minutes to work on it on your own.

S: The talk through kind of thing helps especially with the fingering kinds of thing like in scales and chord progressions. After we have done it a couple of time, though, I don't mind having time to go through the patterns on my own a little bit.

R: On scales does it help to go through them with you every day in class to remind you of the fingering patterns that are needed to play the scale?

S: Once we have talked about the patterns of fingerings in the scales, I pretty much have it. I just need to practice them. On chord progressions, though, I do like the step-by-step work we do in class until I have it down.

R: On progressions is talking you through the patterns an essential part of your learning to play the progression?

S: Well, after we have talked about the fingering patterns and went through the chords a time or two together, I could probably do the rest on my own, but practicing it together like we do in class is good for me, too. It helps me remember the patterns easier.

R: Going back to working on repertoire pieces, in some chapters where the skills exercises have been closely related to the repertoire piece in that chapter, I have had you practice those exercises as a kind of preparations for the repertoire piece, applying that knowledge and skills to the piece. In other chapter, I have started with the repertoire piece first, looking at the music and finding things to work on and trying to relate them to the other exercises in the chapter. Does either of those ways of working on repertoire pieces make a difference to you in your learning process?

S: Sometimes doing preliminary exercises is helpful, but I usually like to start with the music right away and find things in the music that I have to work on and making, or finding, exercises that will help me

play the piece better.

- R: When we start with the music, what kinds of things do you like to do?
- S: I like blocking things out first where you can. I also like taking short sections of the piece that might have similar things to do and working on getting that section down and then moving on to the next section.
- R: It is important in your learning that we work on practicing those short sections together, talking through the section, or it is better if we talk about the section and I give you practice suggestions and let you work for a few minutes on your own?
- S: Going through the section together is good, at least a couple of times. After that I guess practicing on my own would be okay, too. I'm okay if I'm just turned loose after I understand what I need to do.
- R: Are the ten minutes that I usually give you at the end of the class period useful for you in trying out practice techniques that we might have talked about earlier in the class period?
- S: Yeah. Things are fresh in my mind and if I have a problem with something, I can get a little help before I have to leave.
- R: On things that you have a problem with, like progressions, or scales, or repertoire pieces, would it be helpful to you if you had the chance to work with a partner to work out things together?
- S: Oh, no. I'd rather do things on my own. I think I get things accomplished faster.
- R: The reason that I asked that question is that some students I have had have liked to do things in a group to test out ideas and get suggestions from their peers about what works for them and what doesn't.
- S: I usually know what kinds of things work for me in my practicing, so that wouldn't be too important for me to do. I like figuring things out for myself and just going ahead with practicing.
- R: How about the ensemble thing that we do?
- S: I like that kind of thing a lot. It's fun to try and put a piece together and make it sound good. I like those kinds of group projects because it is a challenge to put various parts together.
- R: If you could design a class that would fit your way of learning what kinds of things would you include or do in the class?

- S: I think I'd do a lot of repertoire things, because I like learning to play new music. But, I think that the skills that we are learning, like scales, chord progressions, and sight reading are important, too. I'll probably use those sorts of things more often in my teaching after I graduate, so I think that I would work on them, too; although repertoire pieces are a lot more fun.
- R: Has working on skills kinds of things helped you in your other studies in music?
- S: Yeah, oddly enough, things like doing chord progressions has helped me with dictation in theory.
- R: How has that helped you in dictation?
- S: Playing progressions, like the cadences with both hands, has helped me hear the bass line better when we do them in dictation. I don't know why it has worked that way, but it has.
- R: Has your work n theory helped you in your piano studies?
- S: Yeah, with the basic musical concepts and terminology. Having talked about things like inversion, chord symbols . . . things like that . . . makes working on similar things in here easier.
- R: Can you tell me a little about how your studies in theory and your studies in here have worked together?
- S: I think that I recognize things in the music faster when you talk about note groups and hand positions or finger patterns. Before I pretty much looked at music one note at a time. I mean that I understood form theory that notes sometimes form chords and things, but I wasn't used to looking at music that way. I think that I am getting better about seeing things in the music and working out ways to play them on the piano, whereas before, I'd probably just try to plunk it out note by note.
- R: When you look at music like in the repertoire pieces do you see patterns fairly easily?
- S: When I know what to look for, I do.
- R: How about scales and arpeggios?
- S: Before I just saw the notes, but now I see groups of notes that fall into a finger pattern. I'm thinking more in groups of things than I did before.
- R: Is there anything that you would add to the class or change that would help you as a learner?
- S: No, not really. I like the way things have been going. I like the

pace and the variety of things that we do in class.

R: Are there things that I could do differently or things that you would like to do more of?

S: No, I kind of like the way you do things now. It is helping me to play better. The suggestions that you give us in class has helped me in my own practice outside of class.

R: Is there anything that we haven't talked about today that you would like to mention about your experiences in the class?

S: No, I can't think of anything right now. I'll probably think of something later.

R: Well, we'll meet again in about five weeks to talk about the class at that time. Thank you again for your comments and insights about your experiences in the class. I appreciate your willingness to come in and talk with me today.

S: You are welcome.

Field-Independent Learner #3 (FI-3)
Interview II
March 1998

- Researcher (R): Thanks for coming in again today. I'd like to continue talking about some of things that we discussed the last time we met, but first, how has the class been going for you since our last meeting?
- Student (S): It's been real good. I'm surprised at how far I have gotten since the course started.
- R: What sort of things have surprised you?
- S: My left hand coordination has gotten a lot better. I'm finding the keys better when I look at the bass clef part.
- R: Has anything helped you with improving your coordination?
- S: Probably just being in class every day and working on it.
- R: Has there been any kinds of pieces or exercises that have helped?
- S: The repertoire pieces and the sight reading. You have given us a lot of things to sight read and that helps, especially the things that you have handed out to us to read. Last semester we pretty much just sight read the little examples in the book.
- R: So sight reading has helped you with your coordination and note reading?
- S: Yeah. It's helped me in piano and in sight reading on my major instrument.
- R: How has that helped you on your instrument?
- S: I don't really know. I think that lessons and my work in this class, where we have to sight read almost every day, has helped me maybe by just doing it more.
- R: When you sight read, do you have a particular routine or a mental checklist of things that you look for before you play the example?
- S: Yeah. I look at the key signature and the shape of things like the range of the melody and chords that might be in the left hand.
- R: When you were preparing that sight reading example in the ten minutes that you had to play it on the last test, do you remember the things you did to get that ready to play?
- S: I played the melody first all the way through, then I went back and worked a finding where the chords in the left hand changed. Then I played just the beats where the right and left hands played together a

couple of time so that was comfortable, and then I played the whole thing putting in all the other notes.

- R: You mentioned earlier that when you sight read you look for the shape of things. What shapes did you look for as you were working through the test example?
- S: I found the shape of the chord and how they felt and how they moved from one to the other . . . the hand patterns . . . and the scales. I mean the note groups in the melody, things like that.
- R: Were those patterns fairly easy to recognize?
- S: Yeah, pretty much. I'm getting better at looking for and finding patterns in the music that I play in here.
- R: Have there been things that we have done in class that have helped you see patterns in the music?
- S: I think just reading a whole bunch of stuff more than anything. Playing the progressions in class has helped with seeing inversions. When I see a chord inversion in the music, I can get my hand set quicker than I could before.
- R: Speaking of the progressions. How was learning the progression that we had for this second test?
- S: It was pretty easy.
- R: Was there anything that we did in class that helped you with that progression?
- S: Just talking about how the notes moved . . . which fingers moved and which ones stayed the same. And looking at the chord pattern as a whole and how the it went from first inversion to a second inversion chords, then the hands moving apart and then back together again. That helped.
- R: Some days in class went talked about how the notes moved by whole and half-steps, and other days we talked about the harmonies and the note of the chord that moved and how far. Did either of those ways work, or not work, for you?
- S: Talking about the harmony and the part of the chord that moved, like the fifth of the chord moving up here and the third of the chord moving down here. That made sense. That helped me understand the harmonies a little better. But, really the things that helped me learn how play the progression was talking about how the notes moved between the chords.
- R: Was there anything that helped you remember the pattern of whole and half-steps in that progression?

- S: Do you mean the hand outs that you gave us?
- R: Those or anything else that we might have done.
- S: The sheets didn't do much for me. I found that I did better when I looked at the music and analyzed how the notes moved, and you talking us through it. I like that sort of verbal talk-through that you do often when we work on progressions in class.
- R: So it helps to talk through the steps that you need to do to play the progression as you are playing it?
- S: Yeah. That helped memorize the progression. After you know the pattern all you have to play it is remember what key you are playing in.
- R: Was it easy, then, to practice that progression in other keys that you might not be as familiar with as others?
- S: Yeah. When I think of the key I'm playing in I stop and think through how the key looks on the piano. Like in scales, I try to see the scale on the keyboard before I play it.
- R: How do you think that you developed that ability to see the pattern of notes in a scale on the keyboard before you play?
- S: I don't know really. I guess just doing it more often and looking for those kinds of patterns of white and black keys.
- R: When we were working the scales that begin on black keys for this last test, was there anything that helped you learn the patterns of those scales?
- S: Yeah. The sheets that you handed out helped especially knowing where to put my thumb to make the fingering work out. Once I knew where to put my thumb, everything else just sort of fell into place.
- R: Did that work when for the same way when we played arpeggios, too?
- S: Yeah, well, crossing the thumb under the fourth finger in the way up is hard to do sometimes, but, yeah, knowing where my thumb was supposed to go helped me group the notes better in my mind. Then it was easier to do on the piano.
- R: When you were working to prepare your repertoire piece for the test, what kinds of things helped you in your learning?
- S: That one day when you told me to block out the chords in each measure and play the blocked chords back and forth between two measures at a time, that helped with getting my hand positions.

After that, playing the notes one at a time was a lot easier.

- R: Did the reduction of that repertoire piece help you do that?
- S: Yeah, but once you showed me how to block the chords in each hand, I could see the chords in the music, so I used the music more often than the reduction.
- R: When you are practicing repertoire pieces on your own, do you have a particular routine that you use?
- S: I kind of just jump in and start working on things. I know what I need to work on and I usually start with the things that I need to improve on. I like to work in sections and get them down and then try to put the whole piece together.
- R: When you are working on sections of a repertoire piece, what do you work on or look for?
- S: I look for chords that might be broken up and the range of the melody, because those things will tell me where I need to put my hands on the keyboard. Then I work hands alone for a little while and then try to put things together slowly. Once I get a section down, I either move on to another section in the piece or go on to something else that I need to work on and then come back to it later.
- R: In the last interview I asked you what the hardest thing was for you was in the class. Now that it is about five weeks later, what do you find to be more challenging for you?
- S: The hardest thing? Well, nothing really is too hard. Maybe the repertoire pieces at first, but that's not unusual for me.
- R: I think last time you mentioned coordinating the hands.
- S: Yeah, that's always there, but that's starting to fall in place for me now. I'm getting a lot better at that. I'm getting better at doing different rhythms in each hand.
- R: What has changed in your playing that makes coordinating the hands a little easier?
- S: Um. Well, now when I look at the music, not only repertoire pieces, but other things, too, I sort of know what they are supposed to feel like on the keyboard. It makes it easier to practice because I don't have to go note by note.
- R: Has theory helped you with looking for patterns and knowing what kinds of things to practice?
- S: Yeah, theory has helped a lot . . . piano and theory kind of work together for me. Last semester it was pretty much theory was

helping with piano, but now piano helps me in theory. When talk about things in theory that we have done in here, I remember now I did that on the piano and it give me a connection to what we are discussing in theory.

- R: As we enter the last six weeks of the course, what kinds of things would you like to do more of in the class . . . the kinds of presentations, activities, things like that?
- S: Maybe more work on using chord symbols to make up accompaniments to melodies. That's something that I always have a little trouble with. That's something that I would probably use a lot in my teaching after I graduate and I need to be able to do that better.
- R: How about the pace of the class so far?
- S: It feels fine. Sometimes, though, it feels a little slow but that's okay. I like the variety of things that we do, so that keeps me going.
- R: Are there any kinds of presentations or ways that we have worked on things in class that you have found to be helpful that you would like to continue?
- S: I like going through and analyzing the music . . . like progressions and repertoire pieces . . . finding the things that make them make more sense and easier to practice on.
- R: Has there been a way that I have talked about or shown you how to look at a piece that works best for you?
- S: Just discussing things and giving us ways to work on things.
- R: Does it help you when I walk you through a piece as you play it . . . sort of a directed practice kind of approach?
- S: Yeah, at the beginning of learning something, but once we've done that a couple of times, I pretty much have it and I can work on it on my own.
- R: Have any of the ways that I have shown you things or demonstrated things in class helped you?
- S: Sometimes when you use the visualizer helps with scales and arpeggios, but I don't look at it much. I usually get what you are trying to get across just by listening to what you are saying over the headsets and looking at my piano.
- R: Is the visualizer not helpful sometimes?
- S: No, it's never that. I just don't need it, I guess. I mean, when you tell us to look at it when you demonstrate something, I look at what

you are doing, but I think I most of the time already get what you are telling us.

- R: Does it bother you to stop and look at the visualizer when you already know how to do or understand something?
- S: No, it just reinforces the way I already think about things, like finger patterns or hand positions.
- R: How about the way I have used the MIDI disks in class? Have they been helpful in any way in your learning?
- S: Yeah, I like listening to them before we start working on an exercise or a repertoire piece. It give me an idea of what it is going to sound like when I finish it.
- R: How about playing along with the disks, either hands alone or together?
- S: That's interesting sometime, but if I don't play the exercise or repertoire piece very well yet, it isn't very useful to me. When I can play through an exercise or a repertoire piece, it's a little fun to play with the accompaniments on the disks.
- R: Have the disks helped you with keeping a steady rhythm?
- S: No, I already know what playing in a steady rhythm is. If I am having problems playing through something like an exercise or something, I know what I need to do and I can do that on my own.
- R: Would there be a way that I could use the disks in class that would help you more?
- S: No, I don't think so. I mean, they are entertaining to listen to and play along with after I have learned to play through things. The accompaniments are interesting, but as far as helping with making me play better, I don't think they do much, at least for me.
- R: How about when I isolated the right hand or left hand track and slow the music down and had you play along?
- S: That was okay, I guess. Most times, though, I had already practiced hands alone slowly in my own practice, so that wasn't new to me.
- R: If you had the chance to come in the classroom and use the sequencer and the disks in your practice, would you use them in any particular way?
- S: No. I'd probably just use them more after I learned to play a piece to see if I could get all the way through with the accompaniment. As far as using them in my practice, I'd probably not use them much.

- R: Back to the question I asked you earlier...is there anything that you would add to the class or continue to do in the class?
- S: I think that I would definitely continue to do the hand outs especially with the scales, and the reductions for the repertoire pieces. They are things that I find useful in helping with my practice outside of class. Those two things have been the most helpful to me in learning things like scales and arpeggios in the class so far.
- R: What is it about the hand outs that helps you?
- S: In the scales, the way you have written them out on the sheet with the sharps and flats on a higher level, has made the patterns in the scale easy to see.
- R: If I hadn't given you a handout for the various scales, do you think that you would find the patterns from the music?
- S: Yeah. It would take me a little longer, but I think I would. The main thing, I guess, that the sheets do is help me to think about looking for patterns more and relating them to how I play things like scales on the keyboard. What I see on the paper I can relate to the way things are on the keyboard.
- R: Is there anything else that we haven't talked about today that you would like to mention about your experiences in the class?
- S: No, I don't think so. I like the way things are going, especially the way the class is organized. I think it is better than last semester. Things seemed more disorganized last semester. We just seemed to bounce from one thing to another without much organization. I think that the thing I like the most is spending the time to look for and find patterns. I like analyzing things because I know that *it will help me in my practice outside of the class*. Also having the time to practice on things at the end of the class. That gives me the chance to try things out that we have talked about and ask questions if I need to.
- R: So those are the things that help you most so far?
- S: Yeah. The class is going pretty good. Much better than I thought it would.
- R: Anything else that you would like to mention?
- S: No, I don't think so.
- R: Thank you again for coming in today. We'll meet one more time at the end of the semester to talk about the class as a whole and any other things that you feel are important concerning your experiences in the class. Thanks again.

Field-Independent Learner #3 (FI-3)
Interview III
May 1998

- Researcher (R): Thank you for coming in today for the third and last interview. Now that you have completed the course, I'd like to start by asking you to reflect on the semester as a whole and tell me a bit about your experiences in the class.
- Student (S): On the whole I think that I learned a lot in the class and I enjoyed it very much. I think that I am a better player than I was when I came into the class, so I guess that the course was successful for me.
- R: As you look back were there things that you would have liked to have done differently?
- S: No, not really. I think that it was well organized and you had a lot of helpful suggestions on how to look at piano music like a piano player would, and different ways to practice things.
- R: Of all the different kinds of activities that we did in class, was there any that gave you more problems than others?
- S: No, not really. Some things like playing scales that began on black notes were a little hard at first, but after we went over them, they were not too bad.
- R: What made those scales hard at first?
- S: It as just that I had never learned to play them before, so it was new to me. They aren't all that complicated, just different that playing the other scales that start on white notes.
- R: When we worked on those scales. was there anything that helped you learn them better?
- S: Well, I knew how to spell the scale. I mean, I already knew the notes in the scale, but I didn't know how to go about playing them on the piano until we talked about the note groups and how the fingering followed those groups.
- R: Was there anything that helped you learn those patterns of notes and fingerings?
- S: After I knew what to look. I could see the groups of notes pretty easily. It was the fingering, or knowing what fingers to use that was tricky sometimes.
- R: Was there anything that helped you with learning the fingering patterns?

- S: When you talked us through the scales a couple of times telling us what fingers to use, that was helpful. After we did that, I kind of knew what to do. After you showed us that the thumb comes right after the last black note in a group, I knew how the fingering worked for those scales.
- R: We did a number of different things to practice those patterns in the scales. Did anything help in particular?
- S: Um. Blocking out the keys on the piano that you would use with the right fingering helped more than anything.
- R: How about the scale sheets that I handed out?
- S: Yeah, they were good. I used them a couple of times in practicing to remind me of how the scale would look on the piano and the grouping of notes.
- R: Did you use the sheets in a particular way in your practice?
- S: When I used them at first, I put a box around the notes in a group and wrote in where the thumb went.
- R: That helped?
- S: Yeah. It got me started. After I used the sheets a couple of times, though, I pretty much had the scales memorized but the way they looked and felt on the piano. If I made a mistake, it was usually that I forgot a sharp or flat in the scale.
- R: Did it help you to see the scale written out on those sheets with the black note names on a higher level than the white keys?
- S: Do you mean did that help me understand the scale?
- R: Yeah.
- S: Well, I already knew the general shape of the scale and where the black keys came in the scale. I was more interested in getting the fingering down so that I could play them without running out of fingers in the middle of a group of notes.
- R: So the scale sheets were more useful to you in applying the things we talked about in working out a fingering pattern for the scale than for understanding the scale?
- S: Yeah.
- R: How about progressions? Was there anything that helped with learning those?

- S: In the first part of the semester, I was more focused on learning the pattern of whole- and half-steps between chords, but now I go for the shape of the chord more than anything.
- R: Can you explain how that works for you?
- S: Well, its kind of complicated, but I think that when I learn the shape of the chords in a progression and how it fits into the key we were playing it in, I learned the progression easier. Knowing the what moves by whole or half step helped me fix my mistakes, but I did better when I looked for the shape of the whole chord. I don't know, though, maybe it was that I finally began to be able to think in a key better and know the what the chords in a particular key look like when I have to play them on the piano.
- R: How about learning repertoire pieces? What helps you in that kind of activity?
- S: Well, I consider myself "rhythmically challenged," so it does help me to hear what it is supposed to sound like at least once before I start working on a piece.
- R: Did it help when I used the MIDI disks to give you an aural model?
- S: Yeah.
- R: Would it be important to hear that model often as you were learning a repertoire piece?
- S: No. Once or twice was usually enough. After that I had an idea of what I needed o listen for when I practiced the piece.
- R: Sometimes I had you play along with the disk at various times in class as we worked through a repertoire piece. Did that help you?
- S: Playing along with the disk?
- R: Yeah.
- S: When I was first learning a piece, no. I hadn't played the piece long enough to play it smoothly, so playing along at those times was pretty much a lost cause. After I felt like I could play the piece, though, it was kind of fun to hear the orchestra part in the background.
- R: Was there a way that I could have used the disks to help you more in your learning of a repertoire piece?
- S: Other than having us hear how it sounds, not really. They are pretty much accompaniments, so they are more useful to me after I have learned a piece.

- R: Sometimes I slowed the disk down and isolated the left hand or right hand track and had you play along to practice that part. Was that helpful?
- S: It was good practice for me. After I learned the right hand or left hand, it was okay to play along to make sure that I had the rhythm right and that I was playing it smoothly.
- R: When I used the disks and had you play hands alone along with the disk, did that help at all with keeping a steady rhythm in your playing?
- S: Yeah, after I had practiced hands alone it was okay.
- R: Did that affect the way you learned the piece?
- No, not really. The tough part for me is getting hands together once I can play each hand alone. That's something that I had to work on on my own. I mean I don't think that playing along with the disks could help me get coordinated.
- R: Was there any way that I used the disks that seemed to make you learning easier?
- S: The disks were interesting to listen to and play along with after I had the piece learned; it kept my interest, but they weren't "critical" in the way I learned the piece.
- R: If you had a sequencer and the disks in your practice room, would you use them in a any particular way in your learning process?
- S: No, not really. I'd probably play along with the accompaniment a few times after I finished the piece. Everybody dreams about playing with an orchestra but other than that, I probably wouldn't use them that much.
- R: When we were working on repertoire pieces in class, was there any ways that we practiced, or things that we did that helped you in your learning?
- S: Talking about the things in the piece and going through a few times helped.
- R: Did blocking chords out, or using the reductions help you?
- S: Blocking things out helped at times. I didn't use the reductions that you gave us other than the times we used them in class.
- R: Were the reductions confusing to use in any way?
- S: No, I knew what you were trying to do with them. I guess I just didn't need them to learn the things that you were using them for.

In the pieces that had a lot of broken chords, I could see them in the music fairly easily, so, it was a matter of blocking out the hand positions and deciding on the fingerings to use.

- R: If I hadn't used the reductions in class or handed them out, would your learning have been affected?
- S: No, I don't think so. After you showed us about blocking out chords and hand patterns at the beginning of the semester, I used that in my practicing a lot.
- R: Is it pretty easy for you to see the chord or hand patterns right in the music?
- S: Yeah. In the repertoire pieces we did this semester, they were pretty obvious most of the time. Once in a while it took me a few minutes to find a pattern that made the music easier to play, but I eventually found one.
- R: Sometimes when we worked on a repertoire piece, I had you do some basic exercises of things that you might find in the music, and other times we started right from the music and found hand positions and other types of pattern that you could use in your practice. Did either of those ways of working at repertoire help?
- S: I definitely liked starting with the piece first. It just made more sense to me to start with the music and work on things that were directly related to playing that piece. It was okay to start with exercises, but it really didn't help me all that much.
- R: Earlier you mentioned that when you worked on chord progression that you have learned to look for the shape of the chords on the piano. Was there a way that we worked on progressions that helped you to develop that way of looking at chords on the keyboard?
- S: I used the step-by-step list of things that you gave us . . . the one with the list of things to do in what order, and talking through the progressions helped.
- R: Did those things help you in all stage of your learning to play the progressions?
- S: It was probably more helpful in the beginning when we were first learning a progression. After I saw the shapes of the chords in a particular key, I didn't need those things so much.
- R: On the seventh-chord exercise that you had to learn for your final, was there a way that we practiced it that helped you most?
- S: Talking through the exercise helped when I was first learning it.

- R: Did it help when I talked about the pattern of finger changes and demonstrated it on the visualizer?
- S: Usually I'm a pretty visual person, but for some reason the visualizer doesn't help me much with things like that.
- R: Can you tell me what is it about the visualizer that doesn't work for you?
- S: I don't really know. Maybe it's that I was sitting on the other end of the classroom from the visualizer and it wasn't easy to look at. I don't really know, though.
- R: Was the difficulty maybe the way that I used it?
- S: No, I understood what you were talking about when you used it, but it just wasn't that useful. I guess, I just didn't need it to get what you were explaining.
- R: When you looked at the visualizer from where you were sitting did you see the little circles that light up more than their relationship to the keyboard and concept that I was talking about?
- S: Are you asking was it visually confusing?
- R: Yeah.
- S: No, it wasn't visually confusing. You just have to take the time to translate what you see on the visualizer to what you are doing on your own keyboard.
- R: Would you have used the visualizer more often in your learning if you were facing the visualizer instead of having it off to your side.
- S: Maybe. It would have made it easier to see. I might have used it more if I was facing it.
- R: Sometimes when I used the visualizer I talked about the concept that I was explaining while I demonstrated it on the visualizer. Other times I discussed the concept first and then demonstrated it while you watched. Did either of those ways work for you?
- S: When you were talking and using the visualizer at the same time, I just listened to what you were saying and tried to relate what you were saying to my own keyboard. I didn't look at the visualizer much.
- R: When I had you look at the visualizer after I discussed things, did that make a difference to you?
- S: Seeing things on the visualizer is different than looking at them on my own piano. I did better when you talked as I played or looked

at my keyboard.

- R: As you think back over the semester would there be anything that you would have changed about the class that would have helped you more?
- S: I don't know that I would change much, but I did like having the ten minutes at the end of the class to work on things on my own. Last semester we were busy right up to the time we had to leave. The ten minutes that you gave us most days helped me pull all the things together we talked about in the class period. It gave me a chance to try your suggestions out before we had to leave, and to ask questions if I had any.
- R: When you left the class at the end of each period, did you have a clear idea of the things that you were going to work on in your own practice?
- S: Yeah.
- R: Would it have helped if I had given you a verbal list of things to remember do in your practice outside of class, like a "recipe" of things to practice?
- S: No. You usually gave us things to work on and ways to practice when you discussed things in class. I usually made my own list of what I needed to do. I guess I'm organized that way. I don't think I could get through life without having a list of things to do. When you mentioned things to do in practice, I always wrote them down and ended up with a list of what I need to do when I practiced on my own.
- R: Another thing that I tried to vary in the class this semester was the pace of the class period. Some days we talked about a fewer topics, but spent more time working together playing through things in a talk-through kind of format. Other days we covered a number of topics, discussion how to work on them in your own practice. Did either of those ways of structuring a class make a difference in your learning in the class?
- S: I like the fast and furious kinds of periods mostly. Once we have discussed something and have worked on it a couple of times together in class, I'd rather just go through it once or twice just to review and then move on. I think I get more done in class periods like that.
- R: How about when the material new?
- S: Then it helps to spend more time on it in class, but after that I can do the work on my own.

- R: Going back to the question that I asked you earlier. Would there be anything else that you would add or subtract from the class, now that you have been through the whole course?
- S: No, I was actually pleasantly surprised as how well the class went. At first I wasn't sure how class piano could actually work, but I think it went really well.
- R: Was there anything that we did in the semester that changed the way you think about piano studies?
- S: Yeah, actually. Before this class, I usually just sat down and just played through the things that we were assigned to do. Now I can actually sit down and have a way of looking at things that helps me practice better. I look for patterns more and practice them. That has been something new to me. We never talked very much about looking for patterns and different ways of looking at the music last semester. It was pretty much "let's run through things and see where they stand," and, "you need to practice this more on your own."
- R: Has being aware of patterns more helped you in any of your other music studies?
- S: Yeah. I look for patterns in my theory work and in the things that I work on for my private lessons.
- R: Has that helped you?
- S: Yeah, it has. I think I get more done in my other classes...or at least I think about things differently, which has helped me understand things like theory better.
- R: Has there been any kinds of things that have helped you to see patterns in music better or more easily?
- S: I think it is more just having done it. I don't know that there was anything in particular that made me all of a sudden see things like that easier. The handouts and reduction of repertoire pieces, though, gave me a new technique to use when I need to figure things out in music that I'm learning or studying.
- R: Was there a time in the semester when a door suddenly opened and something made more sense than before?
- S: There was one time that the reduction that you gave us made seventh chords make sense finally. I think it was on the "Harpist." I knew about seventh-chords before, but for some reason seeing that piece in a reduction before looking at the music made that piece make sense.

- R: When you looked at the score of the “Harpist” after seeing the reduction, what kinds of things did you see differently?
- S: I saw hand positions that I needed to use to play the piece. That was a magic moment for me, because I actually knew from looking at the music what I needed to do to learn it. I was actually able to play the right hand almost immediately and that never happened to me before.
- R: Did you use the reduction in your practice outside of class?
- S: Yeah, once or twice, but after I knew what I was looking at I used the music after that.
- R: So that changed the way you look at music a little?
- S: Yeah, quite a bit actually. And it changed the way I practice things.
- R: How did it change your practice?
- S: I just saw more in the music that made sense and that gave me ideas about how to practice.
- R: If you could design a class period around the way you like to learn or the kinds of activities that mean the most to you, what would you include in that session?
- S: I think I would do more with repertoire. Now that I have a better way of looking at and understanding what’s in the music, I think that I would like to work more on analyzing different kinds of pieces and learning to play them.
- R: Is there anything that we haven’t talked about today that you would like to mention about your experiences in the class?
- S: No, I think we’ve covered it all.
- R: Thank you again for your willingness to be interviewed about some of the things that you experienced in the class this semester. You have helped me understand you as a learner. I appreciate your help in my study.
- S: You’re welcome.

Field-Independent Learner #4 (FI-4)
Interview I
February 1998

- Researcher(R): Thank you for coming in today. As you know, this is the first of three interviews, or conversations, that I plan to have with you to talk about your experiences in class piano this semester. To begin, I'd like to ask you how the class has been going for you so far?
- Student (S): Pretty well, I think.
- R: Have there been things that we have done in class that have been more challenging than another?
- S: No, not really. Well, maybe the scales.
- R: When we talk about scales in class, is there any kind of presentation that seems to help you more than another?
- S: No, I think it is fine. It's just getting the fingerings worked out.
- R: Has there been anything that we have done that has helped you work out the scales fingerings?
- S: Um, the scale sheet helped a lot.
- R: When we work on scale fingerings in class, is it helpful if I talk you through each scale as you play it, pointing out the fingering as we go, or . . . ?
- S: Um . . . I like to work on them on my own.
- R: Then, once you understand the patterns of fingerings for the scales that we have been working, it isn't important that I talk you through them each time we meet?
- S: No.
- R: Are the scale sheets that you mentioned earlier crucial to your learning to play the scales?
- S: Well, the finger patterns are easy to see using the sheets.
- R: Do you think that you could learn to play the scales as well without the sheets just using the notation of the scales in the book?
- S: Yeah.
- R: So the sheets make practicing the scales easier, but are not central to your understanding of how to play them?

- S: Yeah.
- R: Is that true for using the sheets for the arpeggios, too?
- S: Yeah.
- R: How about the chord progressions that we have done so far? Does it help if I talk you through the progression note by note each time we meet?
- S: Talking through it a couple of times is okay, but after that I can usually do it.
- R: After working through it a couple of times in class, then, you'd prefer to work on it on your own?
- S: Yeah.
- R: Of the different things that we did in class to learn the progression, or the things that I handed out to you, was there anything that was helpful to you?
- S: Well, the sheet with the diagram of the notes off the staff and with the arrows was a little confusing.
- R: What made it confusing, do you think?
- S: I think that it was better when you explained how the notes moved from chord to chord.
- R: Do you mean the talk-through kind of thing over the headphones?
- S: Yeah.
- R: Is it important that I talk you through the progression each time we play it in a different key?
- S: No, just once or twice and then I can work on it on my own.
- R: When you practice outside of class, what kinds of things do you do? Do you have a particular routine?
- S: I usually work on the scales first, and then just go through the stuff in the book.
- R: When we work on repertoire pieces in class, sometimes we have started with exercises that relate to the piece and then go to the piece to find out how they apply. Other times we have started with the piece itself and developed exercises to work on from the piece itself. Do either of those ways work better for you?
- S: No, they both are about the same, I think.

- R: So, it would matter which way we started a piece?
- S: No, it's all pretty much the same to me.
- R: When we work on a repertoire piece in class as a group, has there been anything that has not worked for you?
- S: Well, sometimes we worked on them just a little bit...for a few minutes, and played them too fast, I think.
- R: At those times, what kinds of things would you rather do?
- S: Maybe play a little slower and work on some of the technical things a little longer.
- R: Is it better, then, if we work a little more in-depth and not move on to something new too soon?
- S: Yeah.
- R: Is it important that I work with you, talking through the piece each time we work on it in class?
- S: No. Maybe talking through the hard spots first and then giving me time to practice it a little.
- R: What is the maybe the hardest thing about playing the piano . . . say in a repertoire piece?
- S: Coordination, I think.
- R: Has there been anything that we have done that has seemed to help you with improving your coordination?
- S: Um. I don't know.
- R: Does it help more if we work on hands alone first, or does it help if we work on putting hands together slowly and concentrating on coordination?
- S: Doing it slowly hands together. I can usually play hands alone.
- R: When we worked on the piece "Etude," we tried a number of different things in class, like going through the score to find chords and chord patterns related to the progression we were working on and blocking out the chords in each measure. And then I gave you a reduction of the score with the broken chords in the score stacked up. Did either of those ways of working on the piece seem helpful.
- S: The reduction helped, I think.
- R: Did you use it quite a bit in your practice outside of class?

- S: Yeah, I could play the piece a lot easier with the reduction.
- R: Would reductions help you with learning repertoire pieces in general?
- S: Um, it depends on the piece, I think.
- R: So you might not need or use a reduction for some kinds of pieces?
- S: No. I usually just look at the notes on the page and I can figure it out.
- R: So, reductions are nice to have, but are not always necessary?
- S: Yeah.
- R: When you look at a score, is it generally easy for you to see relationships between the notes?
- S: What kind of relationships?
- R: Chords . . . scales . . . inversions . . . things like that.
- S: Yeah. I usually can see those kinds of things pretty easily. If it is a new key that I haven't played in very much, though, I might have to look at it for a while.
- R: Has there been a piece that we have worked on that has been hard to figure out, or that has been more confusing than another to learn
- S: No, not really.
- R: When you think about working on a repertoire piece, do you think that working with a partner would be beneficial in your learning?
- S: No, I think I'd rather work on it on my own.
- R: Are there any kinds of activities that we do in class that you would like to work in small groups?
- S: No.
- R: After we have talked about a repertoire piece in class and have maybe found the trouble spots, or a places that might be technically challenging, is it important for you to have me go through it with you in class regularly?
- S: No, not really. I usually like to work on it on my own.
- R: Is that true of other things, too?
- S: Yeah. When I understand what the problems are, I usually like

doing it on my own.

R: Speaking of the class now in general, are there things that you would add to the class that would help you in your work in the class?

S: No, I can't think of anything.

R: When we work on a repertoire piece, do you like to work on exercises that relate to the piece first and take that knowledge, of skill, to the piece, or does it work better for you to start with the piece itself?

S: It doesn't really matter.

R: During the times that we have used the MIDI disks in class for exercises or repertoire, have they helped you in a particular way?

S: No, not really.

R: When we're working on things in class and I use the visualizer, or the overhead, or the disks in presentations of new material or for reviews, is there anything that seems to help you, or that is more effective in your learning?

S: No, they all seem to work for okay.

R: When you were learning to play the scales that we worked on in this first section of the course, was there any particular way that I presented the information that helped you?

S: Those sheets with the notes of the scale and finger numbers helped a little.

R: Do you mean the sheet where the black key names were on a higher level than the white key names?

S: Yeah.

R: After looking at the sheet that you just mentioned, does looking at the scales written out in notation seem different at all to you?

S: No.

R: Would it be harder, do you think, to learn the scales without a sheet like the one I gave you?

S: No, not really. It's just easier to look at the sheet.

R: So, it wouldn't have made much difference to you if I hadn't given you the handout?

- S: No.
- R: You could have learned them as well just using the notation and practicing them in class?
- S: Yeah, I think so.
- R: I have used the visualizer in class during discussions and demonstrations. What kinds of activities does that help you with?
- S: Um.. Learning chords, I think . . . learning the right hand shape.
- R: How about using it with chord progressions?
- S: Well, at first it's good to talk through the progression a couple of times, but after that it's good to see it on the visualizer.
- R: How does that help you?
- S: I just like to see that I'm playing the right notes . . . to see if it matches what I'm playing?
- R: So, you use it more as a reference to check what you are doing?
- S: Yeah.
- R: Do you think that learning a progression without using the visualizer would be harder?
- S: No, not harder probably. It's just good sometimes to be able to see it on the visualizer to be sure I'm doing it right.
- R: Do you think that you could you learn to play the progression using just the notation in the book and the discussions and practicing we do in class?
- S: Yeah, I think so.
- R: In general, when I use the visualizer in class, do you refer to the visualizer often? Or, may be a better question, would you like me to use the visualizer more in discussions or demonstrations.
- S: Um. I look at it when you use it.
- R: I guess what I'm asking is whether or not you feel that the visualizer is really important to you in understanding the things we talk about when I use it.
- S: No. It just adds to the things you are saying.
- R: Are there any changes that you would make in the way that I present things in class, or the way we practice things together in class that

would help you in your learning?

S: No, I can't think of anything right now.

R: Is there anything that we didn't talk about today that you would like to mention talk about concerning the class?

S: No, I don't think so.

R: Well, I think we'll stop for now. I'd like to thank you for coming in again to talk with me today about your learning experiences in the class so far. We'll meet again in about five weeks, right after the next exam, to talk again about some of the things that we have done in the class up to then.

S: Okay.

Field-Independent Learner #4 (FI-4)
Interview II
March 1998

- Researcher (R): Thank you for meeting with me again today. I wanted to touch base with you again to find out how things are going for you in the class since the last time we talked. How is the class going for you now?
- Student (S): Pretty good.
- R: Have you had any problems since the last time we talked?
- S: None that I can think of.
- R: Do you feel like you are reaching goals as far as your playing is concerned?
- S: I think so.
- R: How about the test we just had? Did you feel comfortable playing the scales and arpeggios?
- S: It went okay, I think.
- R: How about the sight reading? Did that go well for you?
- S: It went okay.
- R: I noticed when you played the exam, you played very well on the sight reading portion. Was there anything that we did in class that helped you develop your sight reading skills?
- S: Nothing special, I guess.
- R: Did it help that we sight read all those short examples in different keys?
- S: Yeah, that helped.
- R: Would that be something that you would like to continue doing in class to develop your sight reading skills?
- S: Yeah.
- R: When you were preparing that sight reading piece during the ten minutes that you had before you played, do you remember the kinds of things that you did?
- S: I looked for patterns and the kinds of chords there were. Then I just practiced the left hand, and then the right hand, and then I tried

putting them together by blocking them out.

R: Were the patterns pretty easy to see in that particular example?

S: Yeah.

R: What was the hardest thing about preparing that sight reading example?

S: Well the "e" on my piano wasn't working...that was a frustration and it threw me off a little. And, I guess when the left hand moved hand positions.

R: Did you do anything in particular to help you get that worked out?

S: Just practice it several times.

R: How about the scale and arpeggios? As you were learning those was there any way of practicing that seemed to work best for you?

S: No, just playing them slowly.

R: When you were memorizing the scales, was there anything that helped you?

S: I looked at the patterns of black and white keys.

R: Was there anything about fingering patterns that helped?

S: Well, the fingering pattern for the three scales that were the same...I remembered them.

R: It helped to remember what was similar between those scales?

S: Yeah.

R: How about the arpeggios? Was there anything that helped you with them?

S: Just repetition.

R: In class I handed out two different kinds of sheets for those arpeggios. One was just a list of the names of the notes of the arpeggio black keys indicated on a higher level. And then, the other was a similar pattern, but underneath there were fingerings in blocks, or boxes. Did those help you at all.

S: That's the one I used . . . the one with the blocks.

R: The one with the boxes helped you?

S: Um hum.

- R: When you practiced, did you practice playing the blocks of notes and then breaking them up, or did you play not-by-note?
- S: Usually I played the first fingering pattern, finger group, and stopped, and then found the next pattern and played that group.
- R: That seemed to work for you then?
- S: Um hum.
- R: Were the arpeggios easy to memorize when you practiced them that way?
- S: Yeah.
- R: When you memorized the arpeggios, did you memorize the notes, the finger patterns, the note groups? How did that work for you?
- S: The finger patterns mostly, and then I think about the notes.
- R: So, it helped to know where your handed needs to be, it that right?
- S: Um hum.
- R: How about the repertoire piece that you played? Was there any particular way that you used to learn that piece?
- S: No.
- R: When you practice outside of class, do you have a particular routine that you use?
- S: I just work on the things that I think that I need to improve on.
- R: How about the progression that you had to learn for this exam? How did you find it to learn?
- S: It was easy.
- R: What made it easy?
- S: The fingers just moved one at a time mostly, so it was easy to play.
- R: When you were learning that progression, was there anything that we did in class that seemed to make the progression easy to learn?
- S: No, not really . . . just reading the notes, I guess.
- R: So, seeing the notation was the best help?
- S: Yeah.

- R: When we were working on the progression in class, did it help at all when I talked you through it note by note or finger by finger?
- S: Yeah.
- R: Did you like the talk-through kind of thing every time we worked on the progression in class or was once enough?
- S: One time was enough for me to get it.
- R: The next progression we will be working on is similar to the one we just did. In learning that progression, is there a particular way that you would like to have that taught to you in class?
- S: The talk-through thing at the beginning helps a lot.
- R: How about the kinds of handouts that I gave you in class for this last progression? Would any of those help?
- S: Maybe the one where you list the step-by-step things to do. I'd probably use that if I forgot what I needed to do next. The graphic with the arrows . . . I did really look at or use that.
- R: Of the three ways that I used in class, the step-by-step hand out, the graphic, or the talk through, which one would you prefer to use.
- S: Probably the step-by-step one. If you gave that to me, I could probably do it or figure it out on my own.
- R: In thinking about the course as a whole...what would you say about the pacing? It is too fast? too slow?
- S: It's about right, I think.
- R: If you could change anything about the class, what would you change?
- S: I can't think of anything. It seems fine to me.
- R: Do we spend enough time in class on the things you need to learn?
- S: Yeah.
- R: On the seventh chord exercise that we just started today in class, did it help you to talk through that exercise?
- S: Yeah, it helped a little bit.
- R: What is the hardest thing for you about playing the piano so far?
- S: Sometimes stretching my hands out to get the notes. And playing things with my left hand.

- R: Is there anything that I could do in class that might give you more confidence in using your left hand?
- S: No, just practicing.
- R: Has there been any piece or exercise that we have done so far that has been harder than any other one for you?
- S: No, I can't think of anything.
- R: The last time we met we talked about how your studies in theory and your class piano studies affected each other. I think you mentioned that they both helped each other. Is that still true?
- S: Yeah. I'll learn something in theory that helps me in piano, and then in theory we'll be talking about something and I'll think about how I would play it in the piano.
- R: So theory and piano kind of work together for you.
- S: Yeah.
- R: Okay. How about when we work on repertoire in class? It is helpful for you to work through the whole piece together, or is it better if we find the trouble spots and just work on them?
- S: I think it is better if we just work on the trouble spots. I can usually get the other things myself.
- R: We just started the piece "The Harpist" in class, the one with the broken seventh-chords. Did you find it easy to see the seventh-chords in the music when we talked about them in class.
- S: Yeah, pretty easy.
- R: One of the things we did in class was to block out the chords to find the finger, or hand, patterns. Did that help?
- S: Yeah.
- R: In the next class you will be getting a handout with the chords blocked out like the other pieces we have done. Do you think that will help you?
- S: Yeah. It will show me where my hands should go.
- R: Have those blocked versions of repertoire pieces helped you in general to see patterns better, or are patterns pretty easy to see in the music?
- S: They helped, but I can see patterns pretty easy most of the time.

- R: When we work on a piece like “The Harpist” in class, is it more helpful to talk you through it a couple of times as you play, or does it work better if I just explain the patterns that you will be finding and pointing them out in the score and then give you a chance to practice it on your own?
- S: Just talking about the piece, probably, and then giving me a chance to practice works better.
- R: Is there anything that we have done in class that you would like to do more of?
- S: No.
- R: Is there anything that you would add to the class that would be helpful to you in your learning?
- S: No, I can’t think of anything.
- R: How about reading the kinds of chord symbols that you might find on a lead sheet, like the ones we studied in “Alexander’s Ragtime Band?” Did that come fairly easily for you?
- S: Yeah, sort of.
- R: Do you like developing your own accompaniment patterns or do you like to be given models to use to help you create one?
- S: I like the models first.
- R: We performed that piece a few times in class as a group ensemble activity. Did that help you in a particular way in learning that piece?
- S: No, nothing particular.
- R: Would you like working in groups like that more or would you prefer to be practicing solo repertoire things, or does it make a difference?
- S: I don’t really have a preference, I guess.
- R: How about the daily routine in class? Do you like to know when you come to class that we will be doing the same kinds of things each day, or do you like things a little more varied?
- S: I like them a little more varied.
- R: How about the number of topics we discuss or cover in a class period? Do you like spending more time working in depth on just a few things, or do you like a touching upon a number of topics?
- S: Probably doing more things in a class period and just reminding me

of the things I need to remember to do in practice.

R: So, doing a variety of things in one class period is better?

S: Yeah.

R: Do you find that you have enough time to ask questions in class or get help on things that you are working on?

S: Yeah.

R: Is there anything that we didn't talk about today that you want to mention?

S: No, I can't think of anything.

R: Thank you for coming in today. I appreciate your willingness to give me information about how the class is going for you so far. We'll meet one more time at the end of the semester to talk about the class again. Thanks again.

S: Sure.

Field-Independent Learner #4 (FI-4)
Interview III
April 1998

- Researcher (R): Thank you for coming in today for the last interview. Rather than start with specific things, I'd like to ask you first how the semester as whole has gone for you.
- Student (S): I think I've gotten better.
- R: What kinds of things in you playing have gotten better for you?
- S: I can look at things in the music better. I see more things in the music.
- R: What things to you see now that maybe you didn't see before?
- S: Patterns and chords and stuff.
- R: Has there been anything that we did in class during the semester that have helped you see patterns better?
- S: I think just looking for them more.
- R: Has your practice routine changed in any way as a result of being more aware of looking for patterns in the music?
- S: No, I don't think so.
- R: Do you do anything different in practice now?
- S: No, not really.
- R: Do you have a particular routine that you use in your practice sessions outside of class?
- S: Usually, I just go over the things I need to work on.
- R: Of the many different activities that we have done in the class, what has been the most challenging?
- S: The repertoire.
- R: When you work on a repertoire piece, have you developed a procedure that helps you learn a piece more efficiently?
- S: Yeah. I block things out more now, I think, especially in the place where the hands come together.
- R: When we have studied or worked on repertoire pieces in class, there have been a number of ways that we have gone about it. Is there a particular way that seemed to work better for you?

- S: No, not really. I can't think of anything.
- R: Was there a difference in the way you learned a piece when I gave you a reduction of it?
- S: No, I don't think so.
- R: Did talking through a repertoire piece in class, say to identify patterns or hand positions or particular problems help you?
- S: When we first started a piece together in class, it helped to have you point out some of the problems, maybe.
- R: Do you think that you would have found those things, like the patterns, or hand positions, on your own if I had not gone through it with you?
- S: Yeah, I think so.
- R: What kinds of things have helped you learn the scales or arpeggios that we have worked on during the semester?
- S: That sheet that you handed out with the picture of the keyboard with the circles on the notes of the scale.
- R: Did writing the fingering for the scale in the circles help?
- S: Yeah.
- R: How did that help you, or make a difference in your learning?
- S: Because it looked more like the keyboard.
- R: If I hadn't handed out that sheet to you, would there have been anything else that would have helped you master the scales?
- S: I think the other sheet . . . the one with the names of the notes written out with the black keys on a higher level . . . would have been as helpful, I think.
- R: When we worked on scales and arpeggios in class, sometimes I talked you through the scale or arpeggio slowly identifying the note names and fingerings. Was that kind of thing important to you in your learning?
- S: No, not really. It was just practice.
- R: In learning progressions over the semester, was there anything that sticks in your mind that we did in class that was helpful to you?
- S: I can't remember all the things we did. Remind me.

- R: One kind of thing I handed out was a written out checklist, or step-by-step procedure, to use as you practiced. Another thing was a diagram showing how the notes of one chord moved to the next chord and the distance, half-step or whole step. At other times I talked through the progression as you played and I pointed out the notes that moved, the fingering to use, and the distance.
- S: No. Actually, I think I learned it by looking at the way it was written in the book and learned where my fingers went from that.
- R: So, you used the notation.
- S: Yeah.
- R: So, the things we did in class to work on the progressions were not essential to learning the progression?
- S: No.
- R: If we hadn't done all those different things, you would have learned the progression as well from reading the notation.
- S: Yeah.
- R: If you could design a class period around the way that you like to learn, what kinds of things would you include in the class session?
- S: I'm not sure what you mean.
- R: For example, in some class periods I have limited our discussion to a few topics and have talked you through the exercise, or example and then given you a couple of minutes to work on it on your own before moving on to something different. Other times, I have included more topics, talked you through an example or two, and then moved on to another topic or activity.
- S: I liked it when we did a little work together and then had a few minutes to practice on it before moving on to the next thing.
- R: How does that help you?
- S: That way I can practice the things we talked about right away. It fresher in my mind, I guess.
- R: If I hadn't given you some short practice times throughout the class period sometimes would it have made a difference in your learning on certain kinds of activities?
- S: No, I don't think so. I would have just waited to try things out later in the practice room.

- R: On days when we went through a number of different activities without short periods of practice time between topic, would it have helped if I had give you a short list, either written or verbal, of things to remember to do in your practice time outside of class, either verbal or written?
- S: No. I think I always knew what I needed to practice on outside of class.
- R: If you could design a class period around the way you like to learn, what kinds of things would you want to be included?
- S: I have no idea.
- R: Say, for instance, would it work better for you if there were a number of topics covered in the class period with suggestions given to you on what to practice outside of class; or would it be better if there were fewer topics, or activities, but more in depth practice or discussion.
- S: Well, I don't like to move too quickly through things, but I think after I am familiar with what I need to do, if we do a little practicing on a number of things give me some suggestions, or remind me of things to do, and then move on.
- R: So, the pacing in your ideal class would be a little quicker?
- S: Yes, probably. But, if it was something new that I have not done before, I think spending a little time on it is okay.
- R: How about learning a repertoire piece in your ideal class? What kinds of things would you like to have happen?
- S: I'm not sure what my choices are.
- R: Sometimes in the class we have worked on exercises similar to the things that are in the music, and other times we have started with the music first and found things in the piece itself.
- S: I like stating right with the piece of music first, and then working on things that are in it.
- R: Can you tell me why that approach seems to work better for you?
- S: I think that exercises are okay and are good to do for developing general kinds of skills, but they might not be written exactly the same as in the piece we have to learn. I like looking at the music so I can find the things that I need to work right away. That way when I practice, I am learning to play the piece from the beginning.
- R: So, it's it more efficient for you when you start with the music?

- S: Yes, I think so.
- R: Has there been a time when we learned a repertoire piece this semester that it has helped to do preparation exercises before going to the music?
- S: In a couple of pieces where you gave us a reduction, it helped see things a little quicker, and know what to practice.
- R: Were the reductions at that time important to you in your learning of those pieces?
- S: Well, they were helpful, but I didn't use them much after the first couple of times we talked about them and how they were related to the pieces.
- R: So, if I hadn't handed them out, do you think that you would have learned the pieces as well?
- S: Yes, I think so. I used them as references a few times, but I really didn't practice the piece with them very much.
- R: Would you think that in your ideal class that you would include them as part of learning to play a piece?
- S: Yes, I think they are good to have, but I probably wouldn't have to have them.
- R: Did the reductions help you to look at music in a different way at all?
- S: Yes. I remember in the "Harpist" it helped to see the patterns of chords better.
- R: Do you think that your overall ability to recognize patterns has improved over the course of the semester?
- S: Yes, I think so.
- R: In general, do you find it easy to find or see patterns in music?
- S: Yes, pretty easy.
- R: Has that always been true?
- S: Once I know what kinds of patterns to look for, I usually don't have much trouble.
- R: When you think back on the different kinds of activities that we have done in the class during the semester, like scales, arpeggios, progressions, repertoire pieces, and learning to read chord symbols, did they seem like things that you might find useful in how you might use of the piano in your professional career after graduation?

- S: Well, some of the things we did I probably wouldn't use every day in my teaching, but I think they are important things to help me develop my general piano playing skill.
- R: Did it make a difference to you in your learning that some of the things we did were maybe not directly related to how you might use the piano in the future?
- S: No. They all were good things to learn how to do.
- R: If you could have changed the class in any way, what things would you have changed?
- S: Nothing really. I think it has been fine. There have been some things that have been a little bit challenging, but there hasn't been anything that has been too overwhelming that I couldn't get it done.
- R: When we have worked together in class, sometimes discussions or presentations have focused on knowing and learning techniques to analyze music to prepare for practicing. At other times the things we have done in class have been focused on the physical aspects of playing and going through things together and discussing things as we went along. Did either of those ways of doing things in make a *difference in how you learned in the class?*
- S: The things we did to look at and analyze the music in class were pretty much the same things that we did in theory, so that was more like a review of things that I already knew. Playing through things in class, or talking about how to practice was probably more important to me most of the time.
- R: When we have have worked on learning how to choose chords to use to accompany a melody and then playing the example, which of the two things find you find to be more challenging?
- S: I think the playing was.
- R: Was deciding what chords to choose a challenge for you?
- S: No, I usually didn't have much trouble with that. It was usually putting it all together on the keyboard that was a little challenging sometimes.
- R: Did it help to play through the example in class together often and talk about the things to remember to do, or practice?
- S: Yes, but usually I just needed to have time to practice it on my own before we played it together as a class.
- R: You mentioned before in an earlier interview that you liked to have a little bits of time to practice on things during the class period, as

opposed to going through things together all the time. Is that still true?

- S: Yes, I think so. If it is something that we have already talked about and gone through together a couple of times, I like to practice it on my own. But if it is something new that we haven't done before, it helps to go through it together a few times just to get familiar with how to work at it.
- R: So, once you understand what to do working on your own is better?
- S: Yes, I usually know what I need to work on, or what I need to do to get it done.
- R: We're almost out of time, but is there anything that we didn't talk about today that you would like to mention or talk about concerning the class?
- S: No, I think the class has gone well as whole.
- R: Thanks for the information you have given me during our discussions. I appreciate your willingness to share your thoughts about the class and the things that helped you in your learning.
- S: You're welcome.

APPENDIX E
DEPARTMENTAL COURSE SYLLABUS
FOR LEVEL II GROUP PIANO

UNIVERSITY OF OKLAHOMA

GROUP PIANO

Richard Grace, Coordinator

Level 2 - MUTE 1321 - Section _____ - Instructor _____

OBJECTIVE:

The objective of the group piano program for non-keyboard music majors at the University of Oklahoma is to develop functional keyboard skills to allow students to cope with practical situations at the keyboard: sight reading, harmonization, accompanying, transposition, improvisation and creative activities.

REQUIRED MATERIALS:

Alfred's Group Piano For Adults, Book 1

Available from: Norman Music Center, 317 West Gray

GRADING:

- 30% FIVE-WEEK EXAM - Scheduled during fifth week of class and heard by class instructor
- 30% TEN-WEEK EXAM - Scheduled during tenth week of class and heard by class instructor
- 40% FINAL EXAM - Scheduled during finals week and heard by Dr. Lancaster and graduate assistant(s).

**ANY STUDENT WHOSE FINAL EXAM GRADE IS D OR F
WILL BE ASSIGNED THAT GRADE FOR THE COURSE,
REGARDLESS OF OTHER GRADES FOR THE SEMESTER.**

ATTENDANCE:

More than four unexcused absences will result in the final grade being lowered one letter. Grades will be lowered two letters for eight absences and three letters for twelve absences.

APPENDIX F
UNIT INSTRUCTIONAL GOALS

Instructional Goals for Units 16-30
in
Group Piano for Adults
by
E. L. Lancaster and Kenon D. Renfrow

Unit 16
“Primary Chords in Minor”

1. Play i-iv6/4-i-V6/5-i chord progressions in all minor keys.
2. Perform solo repertoire that uses tonic, dominant and subdominant harmonies in minor keys.
3. Sight-read and transpose music that uses tonic, dominant and subdominant chords in minor keys.
4. Harmonize and transpose melodies over tonic, dominant and subdominant chords in minor keys.
5. Improvise melodies over tonic, dominant and subdominant chords in minor keys.
6. Create two-hand accompaniments from chord symbols.
7. Create ensemble parts to accompany solo repertoire.

Unit 17
“Minor Scales”

1. Play natural, harmonic and melodic minor scales in tetrachord position.
2. Play harmonic minor scales and arpeggios beginning white keys using traditional fingerings.
3. Perform solo repertoire that uses minor scale and arpeggio patterns.
4. Sight-read and transpose music that uses minor scale patterns.
5. Harmonize and transpose melodies with tonic, dominant and subdominant chords in minor keys.
6. Create two-hand accompaniments from chord symbols.

Unit 18
“Triads of the Key in Minor”

1. Build a triad of the key on any note of the harmonic minor scale.
2. Perform solo repertoire that uses triads of the key in minor keys.
3. Sight-read and transpose music that uses triads of the key in minor keys.
4. Harmonize minor melodies with roots of chords and root-position triads of the key.
5. Improvise scale melodies over roots of chords and root-position triads of the key in minor keys.
6. Create a four-part ensemble from chord symbols.

Unit 19
“The ii Chord”

1. Play I-ii6/5-I6/4-V7-I chord progressions in all major and minor keys.
2. Perform solo repertoire that uses supertonic harmonies.
3. Sight-read and transpose music that uses supertonic chords.
4. Harmonize and transpose melodies with supertonic chords.
5. Create two-hand accompaniments from chord symbols.

Unit 20

“Major Scales Beginning on Black Keys”

1. Play major scales and arpeggios beginning on black keys, using traditional fingerings.
2. Perform solo repertoire that uses supertonic harmonies.
3. Sight-read and transpose music that uses supertonic chords and major scales beginning on black keys.
4. Harmonize and transpose melodies with supertonic chords.
5. Create two-hand accompaniments from chord symbols.
6. Perform duet repertoire with a partner.

Unit 21

“Review Worksheet”

(No instructional Objectives Identified by the Authors)

Unit 22

“The vi Chord”

1. Play I-vi-IV-ii6-I6/4-V7-I chord progression in all major and minor keys.
2. Perform solo repertoire that uses submediant harmonies.
3. Sight-read and transpose music that uses submediant chords.
4. Harmonize and transpose melodies with submediant chords.
5. Create two-hand accompaniments from chord symbols.

Unit 23

“Seventh Chords”

1. Play five types of seventh chords and inversions.
2. Perform solo repertoire that uses seventh chords.
3. Sight-read music that uses seventh chords.
4. Harmonize and transpose melodies with seventh chords.
5. Create two-hand accompaniments from chord symbols.

Unit 24

“Minor Scales Beginning on Black Keys”

1. Play harmonic minor scales and arpeggios beginning on black keys, using traditional fingerings.
2. Perform solo repertoire that uses primary and secondary chords in minor.
3. Sight-read and transpose music that uses primary chords, secondary chords and seventh chords in minor keys.
4. Harmonize and transpose melodies with primary chords, secondary chords and seventh chords.
5. Create two-hand accompaniments from chord symbols.
6. Create a four-part ensemble from chords symbols.

Unit 25

“Triads of the Key on Minor Scales Beginning on Black Keys”

1. Build a triad on any note of a harmonic minor scale that begins on a black key.
2. Perform solo repertoire that uses triads of the key, scale and arpeggio patterns in minor.

3. Sight-read and transpose music that uses primary chords in minor.
4. Harmonize and transpose melodies with primary chords, secondary chords and their inversions.
5. Perform duet repertoire with a partner.

Unit 26
“The iii Chord”

1. Play I-IV-vii^o-iii-ii-V-I chord progressions in all major and minor keys.
2. Perform solo repertoire that uses mediant harmonies.
3. Sight-read and transpose music that uses mediant chords.
4. Harmonize and transpose melodies with mediant chords.
5. Improvise melodies from chord symbols.

Unit 27
“Modes Related to Major”

1. Play Lydian and Mixolydian scales built on any note.
2. Play triads of the key in Lydian and Mixolydian modes.
3. Sight-read music in Lydian and Mixolydian modes.
4. Harmonize melodies in Lydian and Mixolydian modes.
5. Improvise melodies in Lydian and Mixolydian modes as the teacher plays an accompaniment.

Unit 28
“Modes Related to Minor”

1. Play Dorian and Phrygian scales built on any note.
2. Play triads of the key in Dorian and Phrygian modes.
3. Sight-read music in Dorian and Phrygian modes.
4. Create a four-part ensemble from chords symbols.
5. Improvise melodies in Dorian and Phrygian modes as the teacher plays an accompaniment.
6. Perform solo repertoire in Dorian mode.
7. Create a four-part ensemble from chord symbols.

Unit 29
“Other Scale Structures”

1. Play chromatic, whole tone and blues scales.
2. Sight-read music that uses chromatic, whole tone and blues scales.
3. Perform solo repertoire that uses chromatic scales.
4. Harmonize and transpose melodies with primary, secondary and seventh chords.
5. Create two-hand accompaniments from chord symbols.
6. Improvise melodies over a 12-bar blues accompaniment.

Unit 30
“Review”

1. Play I-vi-IV-ii⁶-I^{6/4}-V⁷-I chord progressions in all major keys.
2. Play five types of seventh chords.
3. Play exercises that use harmonic minor scales and triads of the key.

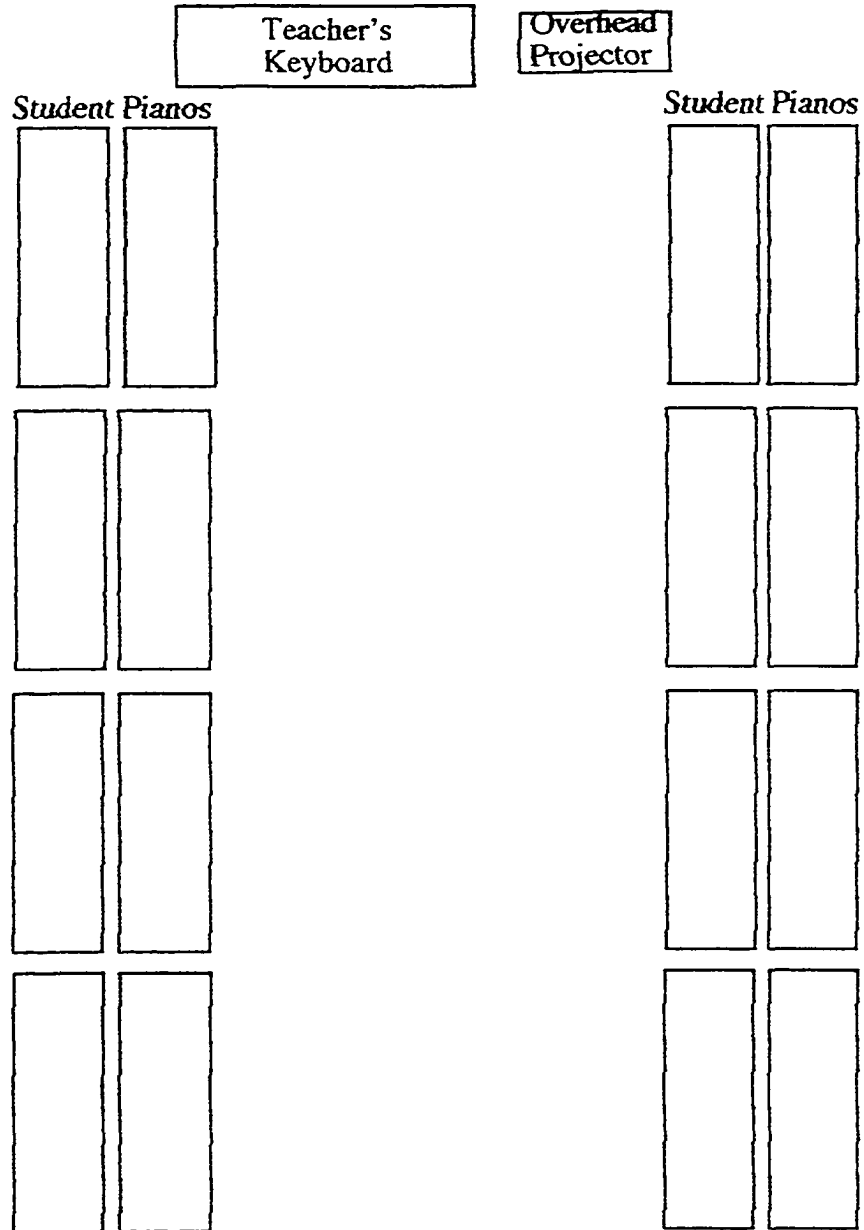
4. Perform solo repertoire that uses scale patterns and primary and secondary chords.
5. Sight-read and transpose music that uses primary and secondary chords.
6. Harmonize and transpose melodies with primary and Create two-hand accompaniments from chord symbols.
7. Improvise melodies over primary, secondary and seventh chords.

APPENDIX G
CLASSROOM TECHNOLOGIES AND PLACEMENT

Classroom Technologies

1. One Kurzweil MARIO Digital Ensemble Grand Piano.
2. One Roland MT 120 Digital Sequencer and Sound Module.
3. Standard MIDI File (SMF) disks (Nos. 9-16) of digitally sequenced accompaniments designed for use with Lancaster and Renfrow's *Group Piano for Adults, Book I*.¹
4. Sixteen Kawai MR370 Digital Pianos used by students during instruction.
5. One Key/Note Visualizer 7000/9000 manufactured by SCI Music Products of Medford, Minnesota.
6. One Kawai KML-SG Group Lesson Controller and the individual headphones used during instruction.
7. One overhead projector manufactured by the 3M Corporation.

¹Emmanuel L. Lancaster and Kenon D. Renfrow, *Group Piano for Adults, Book I* (Van Nuys, CA: Alfred Publishing Co., Inc., 1995).

Placement of Technologies in the Classroom**Key/note Visualizer**

APPENDIX H
INSTRUCTIONAL STRATEGIES

Instructional Strategy Planning Sheet
Group Piano For Adults
Unit 16¹
“Primary Chords in Minor”

*a restatement of the authors’ Instructional Objectives using the instructional design format for stating instructional objectives suggested by Dick and Carey.²

Instructional Objective: 1.0 “Play i-iv6/4-i-V6/5-i chord progressions in all minor keys”

Performance Objective: (The student will play the i-iv6/4-i-V6/5-i chord progression, as specified in the exercises written by the authors on page 199 of the text, in all minor keys on the piano using either left or right hand in a steady tempo with no more than two combined errors in notes and rhythms.)*

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
1.1 Distinguish the sound of the progression from a similar progression in major learned in the previous unit.	Intellectual	Lecture-Demonstration	Sequencer/MIDI	Audio (provides concrete aural model)
1.1.1 Hear and describe the difference between the sound of the progression in minor and in major after listening to the sequences of the progression with accompaniment on the MIDI disk.	Intellectual	Lecture-Demonstration	Sequencer	Audio (provides aural contrast of model and similar progression)

¹Lancaster and Renfrow, 187-196.

²Dick and Carey, 120.

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
1.1.2 Hear and describe the difference between the sound of the progression in minor and in major after listening to the sequences of only the progressions on the MIDI disk.	Intellectual	Lecture-Demonstration	Sequencer	Audio (provides aural contrast of model and similar progression)
1.1.3 State the differences between the progression in minor and in major.	Verbal	Lecture-Discussion	Sequencer	Audio
1.1.3 Describe the chords that are different in sound between the progression in minor and in major.	Intellectual	Lecture	Electronic Piano	Audio (provides realistic model identifying differences)
1.2 Describe the differences between the chord symbols for the progression in major and minor.	Verbal	Lecture-Demonstration	Overhead	Visual (compares how the symbols differ when written for use in major and minor keys)
1.3 Describe the motion of notes between chords of the progression in A Minor.	Verbal	Lecture-Demonstration	Overhead	Visual Diagram (provides diagram of motion of notes)
1.3.1 Describe motion of notes between i-iv6/4 chords in the progression in A minor.	Verbal	Lecture-Demonstration	Overhead	Visual Diagram (abstract)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
1.3.2 Describe the motion of keys on the keyboard when playing i-iv ^{6/4} in A minor.	Verbal	Lecture-Demonstration	Key/Note Visualizer	Visual/Audio (provides visual of motion of keys)
1.3.3 Describe motion of notes between i-V ^{6/5} in the progression in A minor.	Verbal	Lecture-Demonstration	Overhead	Visual Diagram (abstract)
1.3.4 Describe the motion of the keys on the keyboard when playing i-V ^{6/5} in A minor.	Verbal	Lecture-Demonstration	Key/Note Visualizer	Visual/Audio (provides visual of motion of keys)
1.3.5 Describe the motion of the notes between all the chords of the progression.	Verbal	Lecture-Demonstration	Overhead	Visual (illustration of movement of all notes in the
1.3.6 Describe the motion of the keys between all the chords of the progression.	Verbal	Lecture-Demonstration	Key/Note Visualizer	Visual (illustration of movement of keys when playing the progression)
1.4 Describe fingering to be used to play the progression in left and right hands. in A minor.	Verbal	Lecture-Demonstration	Overhead	Visual Diagram (provides diagram of finger numbers)
1.4.1 Describe the fingering used to play i-iv in right and left hands in A minor.	Verbal	Lecture-Demonstration	Overhead	Visual Diagram

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
1.4.2 Describe the fingering used to play i-V6/5 in right and left hands in A minor.	Verbal	Lecture-Demonstration	Overhead	Visual Diagram
1.5 Perform the progression with right and left hand alone in A minor.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (opportunity to apply verbal and intellectual skills learned)
1.5.1 Practice progression with metronome right and left hands separately.	Psychomotor	Directed Practice	Metronome Electronic Piano	Audio (aural rhythmic support)
1.5.2 Practice progression with MIDI disk accompaniment using only piano track.	Psychomotor	Directed Practice	Sequencer Electronic Piano	Audio (expanded rhythmic support)
1.5.3 Practice Progression with full MIDI disk accompaniment.	Psychomotor	Directed Practice	Sequencer Electronic Piano	Audio (opportunity to perform in final format with rhythmic support)
1.5.4 Apply understanding of progression to the key of D minor.	Intellectual (transfer of knowledge and understanding)	Lecture-Demonstration	Overhead	Visual (diagram of notation to indicate motion of notes in new key.

(The instructor will use the same instructional strategies of 1.3, 1.4, 1.5 for the keys of D and E minor. Instruction in performing the progression in A, D, and E minor will constitute the first week of instruction. In the following four weeks, the instructor will choose three other minor keys to be the basis for similar instruction until all minor keys have been discussed. The pattern of minor

keys for each week will be as follow:

Week 2: B, E, and F# minor
 Week 3: C, F, and G minor
 Week 4: B-flat, E-flat, and F minor
 Week 5: C#, F#, and G# minor

This strategy will prepare the student for the regularly scheduled exam at the end of the fifth week of instruction.)

Instructional Objective: 2.0 “Perform solo repertoire that uses tonic, dominant and subdominant harmonies in minor keys.”

Performance Objective: (The student will apply knowledge and understanding of the i-iv6/4-I-V6/5-i chord progression in minor to perform the solo repertoire piece, “Etude,” [p. 189] on a student electronic piano in a musical manner with no more than two combined errors in notes and rhythm.)*

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Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
2.1 The student will recognize and identify the sound of the repertoire piece, “Etude”(p.189).	Intellectual	Lecture-Demonstration	Sequencer MIDI disk	Audio (an aural model of the final performance standard)
2.1.1 Identify the use of of a broken chord pattern in the score	Intellectual	Lecture-Demonstration	Overhead	Visual (reproduction of score will be used to illustrate broken chord use)
2.1.2 Condense broken chords in the score to blocked chord reduction.	Intellectual	Lecture-Demonstration	Overhead	Visual (visual illustration of chord reduction)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
2.1.3 Apply knowledge of i-iv6/4-i-V6/5-i progression to blocked chord reduction (includes fingerings).	Intellectual	Lecture-Demonstration	Overhead	Visual (demonstrates similarities between progression learned and "Etude")
2.1.4 Perform blocked chords of "Etude" from a copy of the reduction distributed to each student (hands separately then hands together).	Psychomotor	Directed Practice	Electronic Piano Handout	Kinesthetic Visual
2.1.5 Perform blocked chord reduction with sequenced accompaniment on MIDI disk.	Psychomotor	Directed Practice	Sequencer Electronic Piano	Audio/Kinesthetic (aural support for notes and rhythm)
2.1.6 Perform broken chord pattern from original score.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice for performance)
2.1.7 Perform "Etude" as written in original score with MIDI disk accompaniment.	Psychomotor	Directed Practice	Sequencer Electronic Piano	Kinesthetic (practice for performance)

(These strategies will be repeated during succeeding class sessions until the students can meet the performance standards identified in the Instructional Objective.)

Instructional Objective: 3.0 "Sight-read and transpose music that uses tonic, dominant and subdominant chords in minor keys."

Performance Objective: (The student will sight-read the musical examples in the text on pages 192-193 using tonic, dominant and subdominant chords in the keys of D,G, A, and E minor, and transpose the music to the keys of C, A, B, and F minor with no more than two combined errors in notes or rhythm. The student will use a student electronic piano.)*

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
3.1 Identify and name the minor key of sight-reading exercise.	Intellectual	Lecture-Discussion	Text	Print-Music Notation (reference to music to prepare to sight-read)
3.2 Recognize and describe the use of the i-iv6/4-i-V6/5-i chord progression in the minor key of the exercise.	Intellectual	Lecture-Demonstration	Overhead	Visual (overhead visuals of scores to illustrate the use of the progression)
3.3 Recognize and describe the accompaniment pattern used.	Intellectual	Lecture-Discussion	Text	Print/Music Notation (reference to music to identify the accompaniment pattern)
3.4 Recognize the sound of the the accompaniment pattern in the sequenced performance on the MIDI disk.	Intellectual	Lecture-Demonstration	Sequencer	Audio (provide an aural model)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
3.5 Perform the accompaniment of the exercise using only left hand as instructor plays right hand melody.	Psychomotor	Directed Practice	Electronic Piano Text	Kinesthetic (practice for sight-reading)
3.6 Perform the left hand accompaniment with melody track on MIDI disk.	Psychomotor	Directed Practice	Sequencer	Kinesthetic (practice for sight-reading)
3.7 Identify hand patterns necessary to perform notes of right hand melody.	Intellectual	Lecture-Demonstration	Overhead	Visual (to identify note grouping of hand patterns needed)
3.8 Recognize the sound of the melody of the sequenced performance on the MIDI disk.	Intellectual	Lecture-Demonstration	Sequencer	Audio (aural model)
3.9 Perform the right hand melody with accompaniment track on MIDI disk.	Psychomotor	Directed Practice	Sequencer	Audio (practice to sight-read)
3.10 Recognize the sound of the final performance standard.	Intellectual	Lecture-Demonstration	Sequencer	Audio (model of final performance)
3.11 Perform exercise using both hands with MIDI disk accompaniment	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice for performance)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
3.11 Transpose left hand accompaniment pattern to minor key indicated for the exercise.	Intellectual	Lecture-Demonstration	Key/Note Visualizer	Audio/Visual (visual and aural model for the use of accompaniment pattern in a different minor key)
3.12 Perform left hand accompaniment in new minor key using patterns of original key of the exercise.	Psychomotor	Directed Practice	Electronic Keyboard	Kinesthetic (transfer of previously learned pattern)
3.13 Perform left hand accompaniment with melody track on MIDI disk.	Psychomotor	Directed Practice	Sequencer Electronic Keyboard	Kinesthetic (reinforcement of transfer of skill to a different key)
3.14 Transpose right hand melody to minor key indicated for the exercise.	Intellectual	Lecture-Demonstration	Key/Note Visualizer	Audio/Visual (visual and aural model for hand patterns needed to transpose melody)
3.15 Perform transposed melody in key indicated in text.	Intellectual	Directed Practice	Electronic Keyboard	Kinesthetic (application of understanding of new hand patterns needed)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
3.16 Perform transposed melody with accompaniment track on MIDI disk.	Psychomotor	Directed Practice	Sequencer Electronic keyboard	Kinesthetic (reinforcement of transfer of skill to a different key)
3.17 Perform both melody and accompaniment in new key with MIDI disk.	Psychomotor	Directed Practice	Sequencer Electronic Keyboard	Kinesthetic (practice of final performance standards)

(The procedures for this instructional objective will be repeated for each of the three other sight-reading exercises in the chapter.)

Instructional Objective: 4.0 “Harmonize and transpose melodies over tonic, dominant and subdominant chords in minor keys.”

Performance Objective: (The student will harmonize and transpose the two melodies in the text on page 194 on a student electronic piano using the indicated chord symbols of the tonic, dominant and subdominant chords in minor with no more than two combined errors in notes and rhythm.)*

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
4.1 Recognize and identify chord symbols above melody and their relationship to i-iv6/4-i-V6/5-i in minor previously learned.	Intellectual	Lecture-Discussion	Text	Print
4.2 Perform left hand accompaniment reading the chord symbols indicated.	Psychomotor	Directed Practice	Text	Print (utilize ability to read chord symbol)
4.3 Perform left hand accompaniment with melody track on MIDI disk.	Psychomotor	Directed Practice	Sequencer Electronic Piano	Audio/Kinesthetic (practice with model)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
4.4 Recognize and describe hand positions needed to perform right hand melody.	Intellectual	Lecture Demonstration	Overhead	Visual (reproduction of melody to identify note groups that define hand patterns)
4.5 Perform right hand melody using correct hand patterns.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice of motor skills needed to perform melody)
4.6 Perform melody with accompaniment on MIDI disk.	Psychomotor	Directed Practice	Electronic Piano Sequencer	Kinesthetic (practice with model)
4.7 Perform melody and accompaniment hands together.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice complete exercise)
4.8 Perform melody and accompaniment with sequenced model on MIDI disk.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice with model to meet final performance standards)

(These procedures will be employed for both harmonization exercises in the text.)

Instructional Objective: 5.0 “Improvise melodies over tonic, dominant and subdominant chords in minor keys.”

Performance Objective: (The student will improvise melodies above the two chord progression in minor using the directions and rules indicated by the authors on page 196 of the text. The student will perform the improvisations on a student electronic piano in a steady rhythmic pulse with no more than two errors in rhythm.)*

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
5.1 Understand and describe “Rules for Improvisation” supplied by authors.	Verbal	Lecture Discussion	Text	Print (identify list of steps needed to perform improvisation)
5.2 Identify and describe similarities between chord symbols indicated in exercise and the progression learned.	Intellectual	Lecture Discussion	Text	Print
5.3 Apply “Rules for Improvisation” to chord progression indicated in the music.	Intellectual	Lecture-Demonstration	Key/Note Visualizer	Audio/Visual (illustration of how rules are applied)
5.4 Practice improvising a melody using sequenced accompaniment on MIDI disk.	Psychomotor	Directed Practice	Sequencer Electronic Piano	Audio (practice applying “Rules for Improvisation”)
5.4 Play left hand accompaniment indicated by the chord symbols printed in text (p. 196).	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice playing accompaniment to be used for improvisation)
5.5 Practice improvising a melody while playing left hand accompaniment in left hand.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice improvisation skill)

Instructional Objective: 6.0 “Create two-hand accompaniments from chord symbols.”

Performance Objective: (The student will create one two-hand accompaniments to “Joshua Fought the Battle of Jericho” (p. 195) using tonic and dominant harmonies in the key of e minor. The student will perform the two-hand accompaniment with the MIDI disk melody track with less than two combined errors in notes and rhythm.)*

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
6.1 Identify the minor key of “Joshua Fought the Battle of Jericho.”	Intellectual	Lecture Discussion	Text	Print
6.2 Identify and describe the similarities between chord symbols in the score and the progression in minor learned.	Intellectual	Lecture Discussion	Text	Print
6.3 Identify and describe the broken chord model provided by the authors in measure one.	Verbal	Lecture Discussion	Text	Print/Music Notation (notated pattern of notes to be played in both hands)
6.3.1 Perform tonic harmony using broken chord model.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice applying model pattern)
6.3.2 Perform dominant harmony using broken chord model.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice applying model pattern)
6.3.3 Perform complete chord accompaniment pattern using model.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice applying model pattern)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
6.4 Perform accompaniment with MIDI disk melody track.	Psychomotor	Directed Practice	Sequencer Electronic Piano	Kinesthetic (Practice for final performance standard)

Instructional Objective: 7.0 “Create ensemble parts to accompany solo repertoire.”

Performance Objective: (The student will create three accompaniment parts for the four-part ensemble to accompany the repertoire piece, “Etude” (p. 189). The student will use the indicated chord symbols and patterns specified for harmonies in the key of A minor, and perform the ensemble part as an accompaniment to the MIDI disk track of “Etude” with no more than two combined errors in notes and rhythm.)*

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
7.1 Identify and describe the descending five-finger pattern of ensemble Part 2.	Verbal	Lecture-Demonstration	Overhead	Visual (reproduction of score to identify pattern)
7.1.1 Describe the use of the descending five-finger pattern with indicated chord symbols.	Intellectual	Lecture-Demonstration	Overhead	Visual (reproduction of score to identify use of pattern)
7.1.2 Identify hand position on keyboard needed to perform the five-finger pattern.	Intellectual	Lecture-Demonstration	Key/Note Visualizer	Audio/Visual (realistic illustration of skill)
7.1.3 Perform five-finger pattern using indicated chord symbols.	Psychomotor	Directed-Practice	Electronic Piano	Kinesthetic (practice for final performance)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
7.1.4 Perform five-finger accompaniment pattern with "Etude" track on MIDI disk.	Psychomotor	Directed Practice	Sequencer	Audio (practice with model for final performance standard)
7.2 Identify and describe the two-handed broken chord pattern of ensemble Part 3.	Verbal	Lecture-Demonstration	Text	Print/Music Notation (illustrate distribution of notes between the hands needed to perform the pattern)
7.2.1 Describe the hand positions needed to perform the pattern on the keyboard.	Intellectual	Lecture-Demonstration	Key/Note Visualizer	Audio/Visual (demonstrate the keys needed to perform the accompaniment pattern)
7.2.2 Perform pattern of Part 3 using chord symbols indicated in score.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice of skill needed to perform the pattern)
7.2.3 Perform accompaniment pattern "Etude" track on MIDI disk.	Psychomotor	Directed Practice	Electronic Piano	Kinesthetic (practice with model for final performance standard)
7.3 Identify and describe the two-handed pattern of broken octave roots of the harmonies used in ensemble Part 4.	Verbal	Lecture-Discussion	Text	Print/Music Notation (notated pattern of accompaniment)

Subordinate Objectives	Learning Skill	Instructional Method	Technology	Media
7.3.1 Perform octave pattern using indicated chord symbols.	Psychomotor	Directed Practice	Electronic Keyboard	Kinesthetic (practice of skill needed to perform accompaniment pattern)
7.3.2 Perform accompaniment pattern with "Etude" track on MIDI disk.	Psychomotor	Directed Practice	Sequencer	Kinesthetic (practice with model for final performance standard)

APPENDIX I
COURSE EXAMINATIONS

Course Examinations

Five-Week Examination

1. Playing the $i - iv6/4 - i - V6/5 - i$ or $i - iv - i - V7 - i$ Chord Progression (p. 188). Students may play their choice of the two progression in selected random keys without reference to the book.
2. Playing Harmonic Minor Scales and Arpeggios. 2 octaves, hands separately (pp. 204-207). Keys of A Minor, E Minor, B Minor, D Minor, G Minor and F Minor.
3. Harmonization with Two-Hand Accompaniment (p. 239). Students play the accompaniment while the teacher or sequencer plays the melody.
4. Individual Solo Repertoire. Students perform a solo repertoire piece assigned from class. Memory is optional.

Ten-Week Examination

1. Playing the $I - vi - IV - ii6 - I6/4 - V7 - I$ Chord Progression (p. 255). Ask students to play this progression in four selected random keys.
2. Playing Major Scales and Arpeggios. 2 octaves, hands separately (pp. 232-234). Ask students to play scales and arpeggios in four different keys selected from Db Major, Eb Major, Gb Major, Ab Major and Bb Major.
3. Sight-reading. Give students 3-5 minutes to study **Exam Example #4** and then perform.
4. Individual Solo Repertoire. Students should play a repertoire piece of their choice. Memory should be optional.

Final Examination

1. Individual Solo Repertoire. Students perform a solo repertoire piece assigned from class; memory is optional.
2. Sight-reading. Students are given an example to prepare in their 15 minutes of warm-up time.
3. Playing Harmonic Minor Scales and Arpeggios, 2 octaves, hands separately (pp. 271-273). Keys of F#, C#, G#, Bb and Eb minors.
4. Modal Scales in Tetrachord Position. Students prepare the following keys;
 Lydian - C, G, Bb, Eb
 Mixolydian - C, F, D, A
 Dorian - A, E, G, C
 Phrygian - A, D, B, F#

5. Harmonization with Secondary Chords. Students are given an example to prepare in their 15 minutes of warm-up time. No chord symbols are given.
6. Playing the I - vi - IV - ii6 - I6/4 - V7 - I Chord Progression (p. 327). Students should be prepared to play in any major key.
7. Playing Five Types of Seventh Chords (p. 264). Begin randomly in any key and continue downward by half-steps without reference to the book.
8. Harmonization with Two-Hand Accompaniment (p. 333). Students perform with the sequencer playing the melody.
9. Improvisation from Chord Symbols (p. 334). Students perform their choice of #1 or #2.

APPENDIX J
RESEARCHER-DESIGNED HANDOUTS AND OVERHEADS

Arpeggios Beginning on Black Keys **Right Hand Fingering Groups**

C# Minor

3	1	2	4	1	2	4
C#		G#	C#		G#	C#
	E			E		

Eb Minor

1	2	3	1	2	3	5
Eb	Gb	Bb	Eb	Gb	Bb	Eb

F# Minor

3	1	2	4	1	2	4
F#		C#	F#		C#	F#
	A			A		

G# Minor

3	1	2	4	1	2	4
G#		D#	G#		D#	G#
	B			B		

Bb Minor

2	3	1	2	3	1	2
Bb	Db		Bb	Db		Bb
		F			F	

Arpeggios Beginning on Black Keys Left Hand Fingering Groups

Db Major

Db		Ab		Db		Ab		Db	
F				F					
2	1	4	2	1	4	2			

Eb Major

Eb		Bb		Eb		Bb		Eb	
G				G					
2	1	4		2	1	4		2	

Gb Major

Gb	Bb	Db	Gb	Bb	Db	Gb
5	3	2	1	3	2	1

Ab Major

Ab		Eb		Ab		Eb		Ab	
C				C					
2	1	4	2	1	4	2			

Bb Major

Bb			Bb			Bb		
D			D					
F			F					
3	2	1	3	2	1	3		

Arpeggios Beginning on Black Keys**Db Major**

Db Ab Db Ab Db
F F

Eb Major

Eb Bb Eb Bb Eb
G G

Gb Major

Gb Bb Db Gb Bb Db Gb

Ab Major

Ab Eb Ab Eb Ab
C C

Bb Major

Bb F Bb F Bb
D D

Harmonic Minor Scales

TWO OCTAVES

A Minor

A B C D E F ^{G#} A B C D E F ^{G#} A

E Minor

E ^{F#} G A B C ^{D#} E ^{F#} G A B C ^{D#} E

D Minor

D E F G A ^{Bb} ^{C#} D E F G A ^{Bb} ^{C#} D

C Minor

C D ^{Eb} F G ^{Ab} B C D ^{Eb} F G ^{Ab} B C

G Minor

G A ^{Bb} C D ^{Eb} ^{F#} G A ^{Bb} C D ^{Eb} ^{F#} G

Harmonic Minor Scale Fingerings

TWO OCTAVES

(Student Worksheet - Fingerings added in class discussions)

A Minor

A B C D E F ^{G#} A B C D E F ^{G#} A

E Minor

E ^{F#} G A B C ^{D#} E ^{F#} G A B C ^{D#} E

D Minor

D E F G A ^{Bb} ^{C#} D E F G A ^{Bb} ^{C#} D

C Minor

C D ^{Eb} F G ^{Ab} B C D ^{Eb} F G ^{Ab} B C

G Minor

G A ^{Bb} C D ^{Eb} ^{F#} G ^{Bb} C D ^{Eb} ^{F#} G

F Minor

F G ^{Ab} ^{Bb} C ^{Db} E F G ^{Ab} ^{Bb} C ^{Db} E F

Minor Scales Beginning On Black Keys

C# Minor

C# D# F# G# C# D# F# G# C#
 E A B# E A B#

Eb Minor

Eb Gb Ab Bb Eb Gb Ab Bb Eb
 F Cb D F Cb D

F# Minor

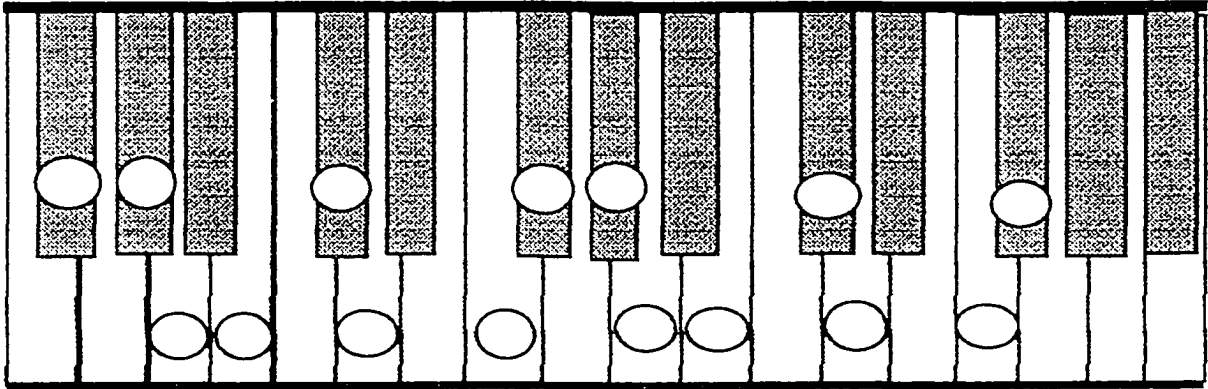
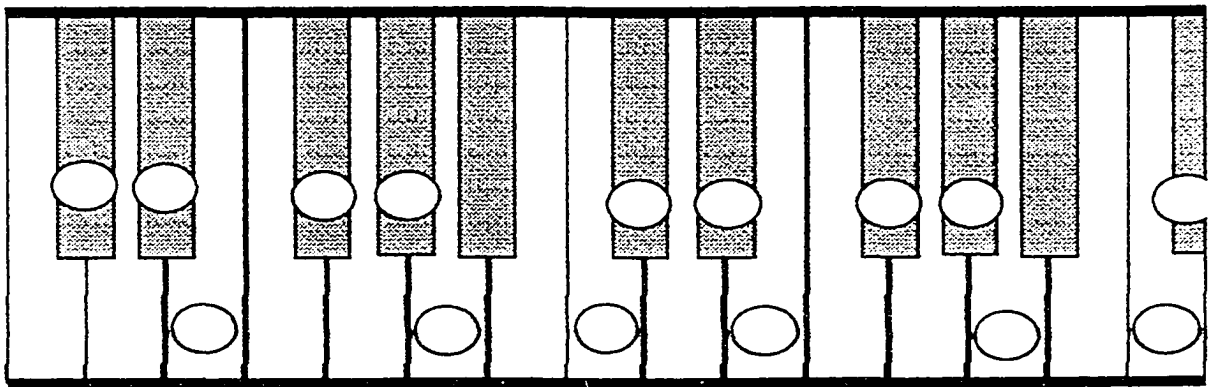
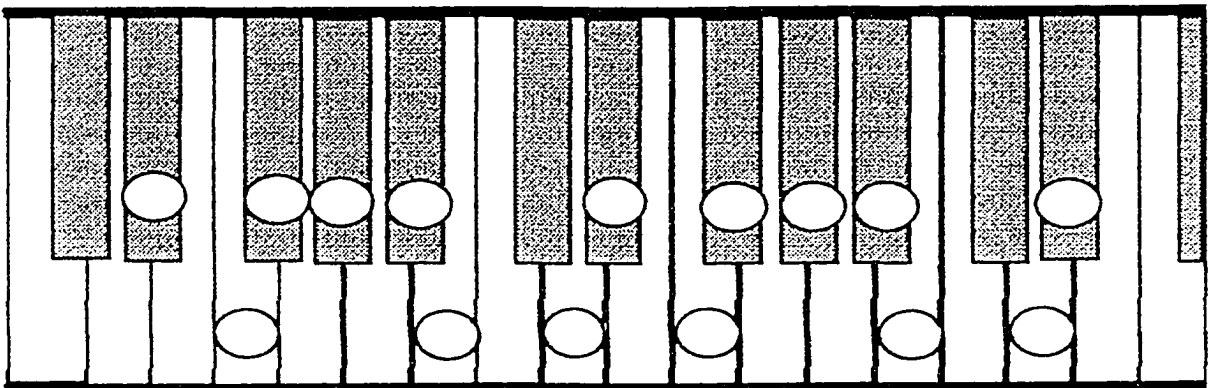
F# G# C# F# G# C# F#
 A B D E# A B D E#

G# Minor

G# A# C# D# G# A# C# D# G#
 B E FX B E FX

Bb Minor

Bb Db Eb Gb Bb Db Eb Gb Bb
 C F A C F A

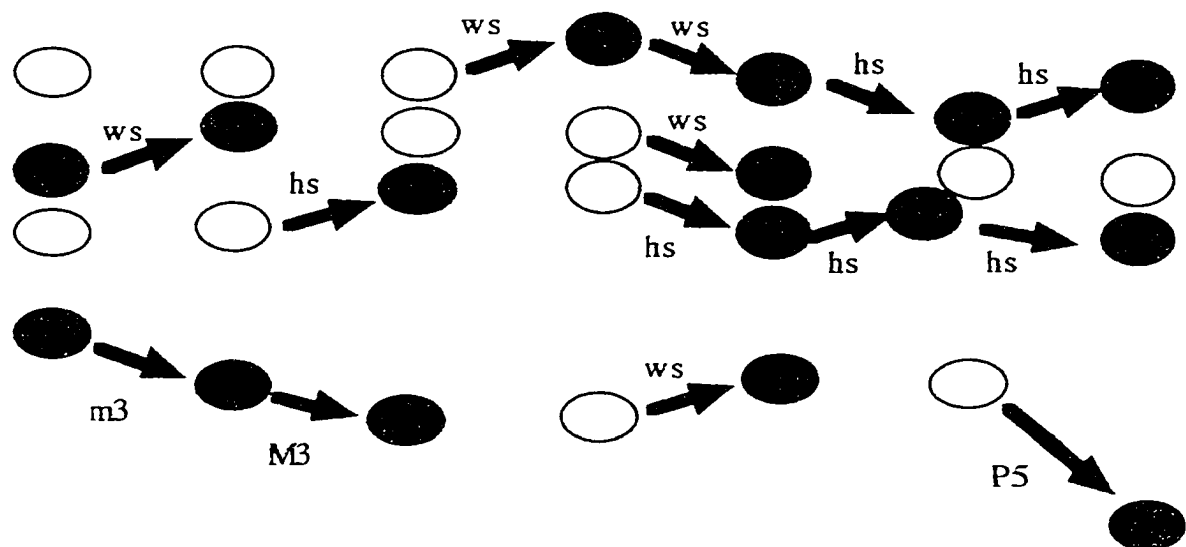
F# Harmonic Minor Scale**C# Harmonic Minor Scale****Eb Harmonic Minor**

Chord Progression

I - vi - IV - ii6 - I6/4 - V7 - I

Step-by-Step Procedure

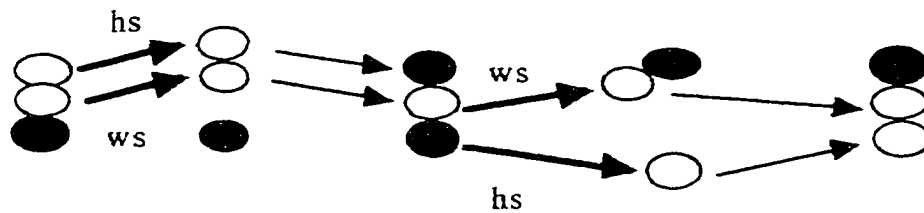
1. Right Hand: Begin with a major tonic triad in first inversion.
Left Hand: Play the root of the tonic triad with the thumb.
2. Right Hand: Move the middle note on the first triad up a whole-step.
Keep the other notes the same.
Left Hand: Play the note a minor 3rd below the tonic note with finger 3.
3. Right hand: Move the thumb up a half-step. Keep the other notes the same.
Left Hand: Play the note a major 3rd below the previous left hand note with finger 5
4. Right Hand: Move the top note of the previous chord up a whole-step.
Keep the other notes the same.
Left Hand: Repeat the previous left hand note...but play it with finger 2.
5. Right Hand: Move all the notes of the previous chord down (top two note a whole-step and the bottom note a half-step.)
Left Hand: Step the left hand note up a whole-step.
6. Right Hand: Move the top note down a half-step...move the bottom note up a half-step. Keep the middle note the same.
Left Hand: Repeat the previous bass note.
7. Right Hand: Move the top note back up a half-step...move the bottom note back down a half-step. Keep the middle note the same.
Left Hand: Play the note a fifth below the previous bass note...will be the tonic note.



**Procedure for Playing
i - iv^{6/4} - i - V^{6/5} - i
in Minor Keys**

1. Begin with a minor triad [i]
2. To form iv^{6/4}:
 - a. move top note of triad UP a Half-Step
 - b. move middle note UP a Whole-Step
 - c. keep lowest note of the triad the same
3. Return to notes of the original minor triad
4. To form the V^{6/5}:
 - a. keep top note of the triad the same
 - b. move middle note UP a Whole-Step
 - c. move lowest note DOWN a Half-Step
5. Return to notes of the original minor triad

Note Motions



Moderato**ETUDE****Ludvig Schytte**

The Harpist

Dmitri Kabalevsky
Op. 89, No. 24

The musical score for "The Harpist" is presented in four systems, each with a right-hand (rh.) and left-hand (lh.) part. The time signature is 2/4.

System 1:

- Measures 1-4: rh. part has chords Am7, Am7, G7, Em7. lh. part has notes 2, 4, 2, 4.

System 2:

- Measures 5-8: rh. part has chords G7, G7, FMaj7, Dm7. lh. part has notes 2, 4, 2, 4.

System 3:

- Measures 9-12: rh. part has chords Am7, Am7, Bm7(b5), Bm7(b5). lh. part has notes 2, 4, 2, 4.

System 4:

- Measures 13-16: rh. part has chords CMaj7, FMaj7, Dm7, Dm7. lh. part has notes 3, 1, 2, 4.

THE CHASE

Comelius Gurlitt

1 *Grazioso*

The musical score is written for piano in 6/8 time. It consists of four systems of staves, each with a treble and bass clef. The first system (measures 1-4) is marked '1' and 'Grazioso'. The second system (measures 5-8) is marked '5'. The third system (measures 9-12) is marked '9'. The fourth system (measures 13-16) is marked '13'. The music features a variety of chords, including triads and dyads, and some single notes. The tempo 'Grazioso' suggests a moderate, graceful pace. The piece concludes with a double bar line at the end of the fourth system.

Prelude No. 1

Catherine Rollin

Flowing forward

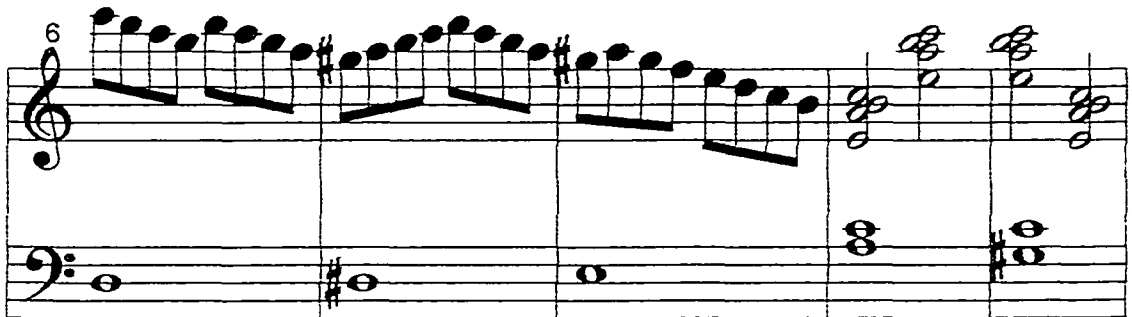
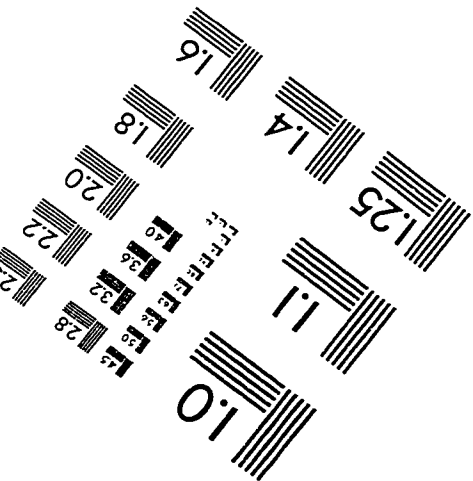
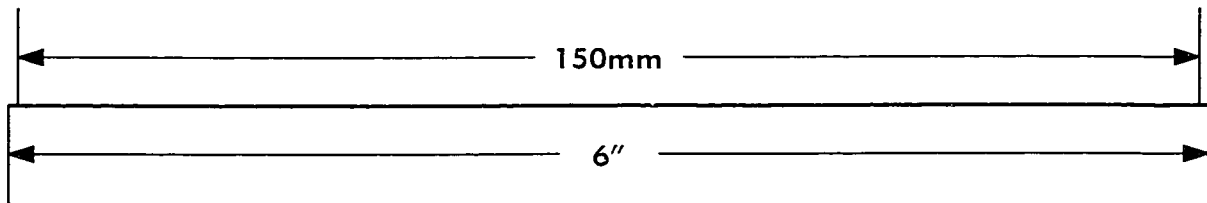
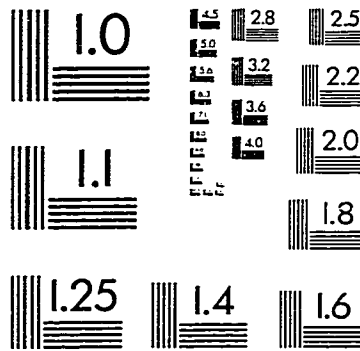
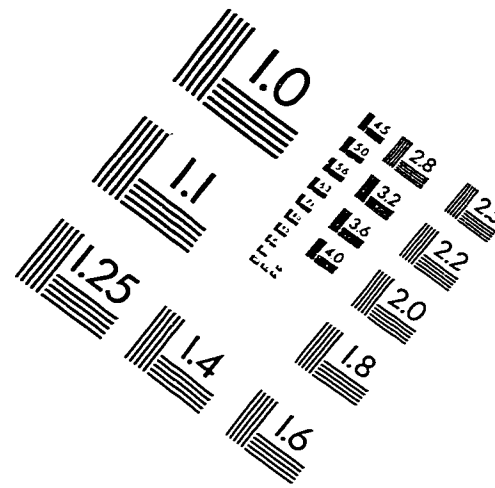
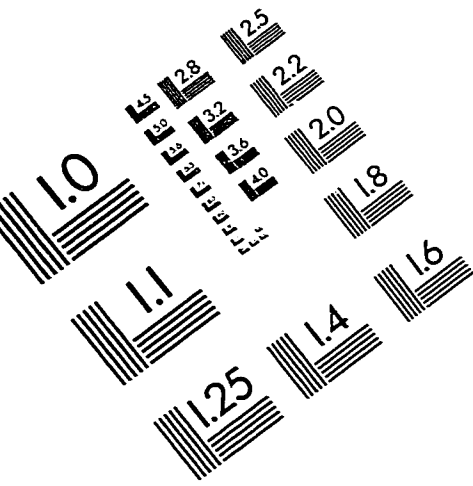


IMAGE EVALUATION TEST TARGET (QA-3)



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