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A STUDY ON THE EFFECTIVENESS OF THE BREATH IMPULSE TECHNIQUE IN THE INSTRUCTION OF WIND INSTRUMENT PERFORMERS

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BY

JAMES ALLEN MIDDLETON

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A STUDY ON THE EFFECTIVENESS OF THE BREATH IMPULSE TECHNIQUE

IN THE INSTRUCTION OF WIND INSTRUMENT PERFORMERS

APPROVED BY

DISSERTATION COMMITTEE

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CHAPTER I

THE PROBLEM

Introduction

The place of instrumental music in the public schools of the United States has risen to a position of eminence in the last quarter of a century. More and more schools are inaugurating instrumental music programs, and many which have had instrumental music in the curriculum for some time are expanding the programs to reach more children. This may not be the situation in all areas, but sales figures from major instrument manufacturers indicate that more instruments are being built and sold than ever before in the history of the industry.[1]

Among all of these outward signs of affluence and the spiraling proliferation of instruments, music educators throughout the country are questioning the quality of pedagogical procedures being used to instruct the increasing influx of instrumental students in our schools.[2] Are the

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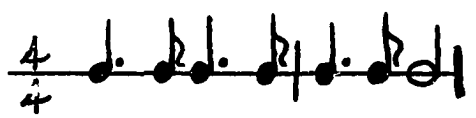
[1]H. A. Selmer, Inc., "A Compilation of Statistics from Government and Industry Sources," Music Educators Journal, LII, No. 1, p. 150.

[2]Charles Leonhard, "Philosophy of Music Education," Music Educators Journal, LII, No. 1, pp. 58-61.

aspiring instrumentalists in the public schools being taught properly? Are they given a thorough background and understanding of the basic entities which constitute good musicianship? Are the teaching techniques utilized in the classroom consistent with the highest principles of pedagogical practice which will nurture understanding of the basic requirements of musical performance? Do the teachers of the neophyte instrumentalists inculcate a standard of tone quality, a concept of breath support, a fundamental knowledge of rhythmic delineation which is commensurate with the best available techniques?

While searching for better methods with which to develop the basic requisites of musical performance on a wind instrument, such as tone quality, breath support, rhythmic understanding, and intonation, William C. Robinson, instrumental director of the Norman Public Schools at the time, discovered a possibly significant technique. While teaching a brass instrument class composed of student performers on cornets, trombones, baritone horns, and tubas, Robinson discovered an interesting phenomenon. A particularly frustrating pedagogical difficulty prevented the proper performance of a certain musical exercise containing dotted quarter notes followed by eighth notes.  After several attempts failed to secure accurate performance from each child, Robinson suggested that the students should blow three impulses of breath through the instrument at the rate of one pulse for each eighth note. He preceded this by having the students count the rhythmic figure with a noticeable measured impulse in the voice at the rate of eighth notes. Success in correctly counting the rhythmic figure was followed by immediate success

in playing the rhythm on the instruments. Apparently every child could comprehend and interpret the exact length of a dotted quarter note.

The writer, learning of Mr. Robinson's technical break-through, formulated comparable techniques to fit other varied patterns of rhythmic notation, and gradually discovered that this same technique had relevance to the learning and understanding of most, if not all, rhythmic configurations. For purposes of better communication, this technique has been labelled the breath impulse technique, further shortened in this treatise to the BRIM technique.

The breath impulse is a measured, accented exhalation of breath through the mouth as in speaking or singing, and through the instrument as in playing any wind instrument. One can grasp the sensation of this technique by pronouncing any vowel sound and sustaining the vowel sound while simultaneously emphasizing a measured sequence of volume intensity varying from loud to soft in strict alternation. To aid in the measurement of these accentuated volume variations of tone, it is helpful to use a steady footbeat and synchronize the accentuation with both the upbeat and the downbeat. This is the most basic use of the BRIM technique and the instructional reference to it calls for two breath impulses to a footbeat. Thus a whole note in common time is counted by saying the word, one, sustaining the vowel sound the full four beats, and accentuating with an increased volume of sound the four downbeats as well as the four upbeats.

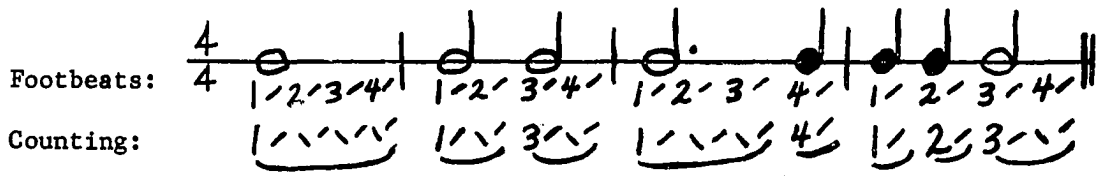
The volume accentuation of the down and upbeats sequentially alternated with valleys of diminished but connected sounds, results in a measured, controlled technique of using four footbeats and eight breath impulses to a whole note in common time. A half note consists of two

footbeats with four breath impulses. A quarter note is measured with one footbeat and two breath impulses to each beat.

After extensive experimentation and testing of the BRIM technique in instrumental classes, it was discovered that although the technique was primarily devised as an aid to the comprehension and performance of various rhythmic patterns, there were other benefits which proved to be significant to the whole area of performance on a wind instrument. Though these areas are closely integrated and interrelated, an attempt to delineate specific benefits to rhythmic understanding, tone quality, and intonation standards will be the focus of this study.

The Breath Impulse Technique as a Rhythmic Coadjutant

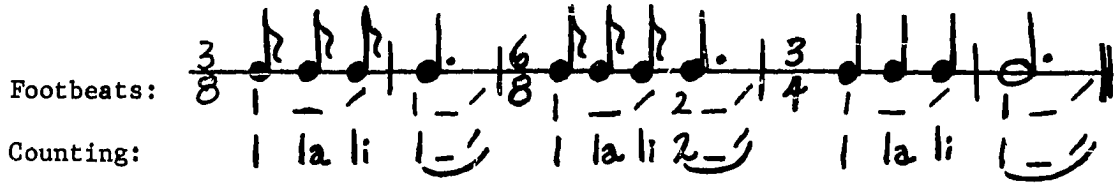
As stated previously, the most elementary use of the breath impulse technique is to measure each count with two impulses and one footbeat. This in effect equates the impulse to an eighth note in all measure signatures using the quarter note as the beat note. The student is taught that a whole note is measured with four footbeats and eight breath impulses, a dotted half note is measured with three footbeats and six impulses, a half note contains two footbeats and four impulses, and a quarter note receives one footbeat and two breath impulses.



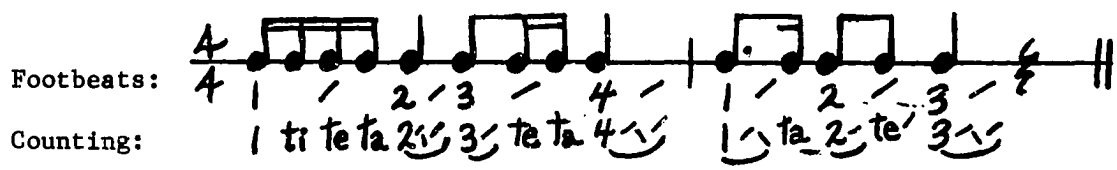
Although the breath impulse technique is applied most often in the performance on a wind instrument, there are very important benefits to be gained through counting the various musical exercises both in a

speaking voice and in a singing voice. In both cases, the exaggeration of the breath impulse appears to accelerate the learning of the various rhythmic elements with a subsequent beneficial assist in the playing of the same patterns on an instrument. In addition, the counting of a musical exercise on pitch enhances other aspects of the subsequent instrumental performance by preparing the cognitive processes of the student for proper pitch placement and a better acuity of intonation.

The early use of the breath impulse must be done at a slow tempo to insure controlled measurement and a positive respiratory reflex. When physical control is exhibited without difficulty by the student in using two breath impulses to a footbeat at up to eighty beats a minute, a natural next step is the introduction of three breath impulses to each beat. The utility of this increased ability is most apparent in the measure signatures involving three-eight, six-eight, nine-eight, twelve-eight, and fast or waltz-like three-four. Not only can these exercises be played or sung or counted in slow tempos in which the eighth note serves as the beat note (quarter note in three-four measure) using the regular two impulses to the beat, but these exercises will be readily understood by many children and performed in the faster tempos up to eighty beats a minute in which the dotted quarter note (or dotted half) is the beat note and is measured with three breath impulses to the beat. The students are taught to measure each beat by subdividing the count with a three part footbeat, (1) the downbeat, (2) press, and (3) the upbeat. These segments of the footbeat are synchronized with the three breath impulses which reinforce both conceptualization and an innate muscular rhythmic coordination.

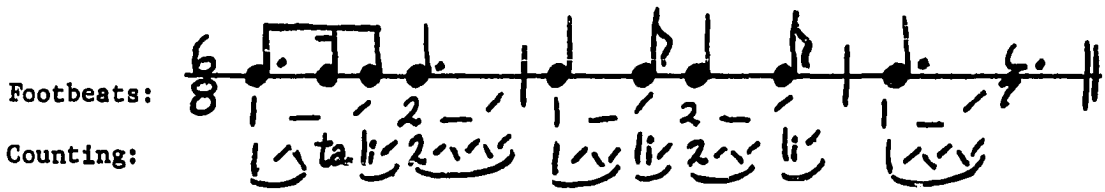


At the time that students have developed good control in the use of three breath impulses to a beat, the next natural sequence involves the development and control of four breath impulses to a beat. This should precede or possibly coincide with the concomitant use of four notes to a beat, such as four sixteenth notes to a beat in common time or slow three-four time, or four eighth notes to a beat as in cut time. By having the students become aware of the subdivision of a beat into four equal parts, the breakdown of all types of rhythmic figurations is possible to do with extreme accuracy. For instance, the supposedly difficult dotted eighth note followed by a sixteenth note is easily conquered by giving the dotted eighth note three breath impulses followed by one for the sixteenth note. In all cases when just one impulse is required for a note, the customary articulative or slurring approach to the note serves as the impulse. Once a student becomes aware of the subdivision of beats, rhythmic complexities can be performed with absolute precision by maintaining a steady rhythmic flow, giving the proper number of impulses to encompass the values of the notes encountered.

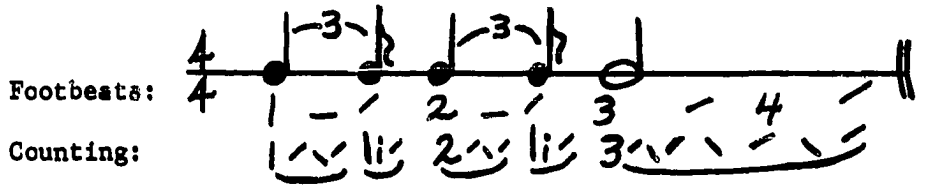


The final step in the development of the breath impulse in rhythm measurement comes with the learning of six breath impulses to a beat. After a student has mastered the use of four impulses to a beat at up to

eighty beats per minute, then the development of the use of six impulses to the beat is undertaken. Readily apparent is the fact that six impulses to the beat would match in time sequence the rhythmic patterns centered around six sixteenth notes to a beat that are found in three-eight, six-eight, nine-eight, and twelve-eight measure signatures, as well as matching six eighth notes to a beat that are used in fast three-four measure signatures. The subdivision of the beat into six equal parts by measured breath impulses aids in the proper assimilation of a rhythmic concept involving all possible common beat figurations. For instance, the student is taught to play the dotted eighth, sixteenth, eighth note figure by impulsing three times on the dotted eighth note, once on the sixteenth note, and twice on the eighth note.



Rarely does one encounter a rhythmic figure which cannot be broken into subdivisions which can be practiced readily by using breath impulses to assist mental conception and physical response in performance. Triplet rhythms in common time can be broken into threes or sixes even though the subsequent beat may return to subdivisions of two or four to the beat.



Breath impulse techniques are learned best at rather slow tempos, especially in the early stages of instrumental experience. As physical control and maturation extend abilities of comprehension and motility,

then increased tempos are possible. It is important that the student be made conscious of the relationship between speed of the breath impulse and the matching component in rhythmic notation, whether the impulse is equal to an eighth note, a quarter note, or a sixteenth note, and the number of impulses which should be synchronized with the footbeat. Two breath impulses should be coincidental with the down and the up motion of the foot. Three breath impulses to a beat should coincide with the three motion control segments of the footbeat: down, press, and up. Four breath impulses to a beat should synchronize with the four motion control segments of the footbeat: down, press, up, and hold. Six breath impulses to a beat need to be controlled by using two impulses on the downbeat, two impulses on the press, and two impulses on the upbeat of the foot motion control segment.

The Breath Impulse, a Concomitant of Tone Quality

That there is a salutary accretion to the tone quality of a wind instrument performer because of the use of the BRIM technique seems rather apparent to both the user and the auditioner. The early and proper use of the technique seems literally to compel the correct breath support needed to produce a tone on a wind instrument.

To ascertain the apparent depth of breath support engendered by the BRIM technique, place a hand on the body immediately below the frontal rib cage and sing a tone, or merely blow into the air with a series of firm breath pushes. This action will demonstrate the body involvement with proper breath support. The pumping action of the measured, or free, breath impulse apparently can be accomplished most readily by the correct

use of the respiratory mechanism. The vibrant, positive respiratory reflex does not allow shallow breath support which has always been an anathema to good tone production. This factor alone appears to justify the pedagogical innovation. The breath impulse, correctly used, tends to eradicate the insufficient and shallow breath use so conspicuous in many young wind instrument players. The connection between breath support and good tone quality is of such common pedagogical agreement that it need not be documented here. The concept of adequate breath support of the tone production in wind instrument performance has been a fundamental teaching practice of constant and continuing importance.

The deep source of breath support engendered by the BRIM technique provides a wind instrument performer the full resources of his respiratory system and correlative musculature in gaining a swifter mastery of a tone quality that is rich and full with an attendant freedom and vitality of sound that can come only through a completely unified body support of tone production.

An additional important facet in the benefits of the BRIM technique to many wind instrument players in the development of a characteristic tone quality is the acceleration of the development of a vibrato. The vibrato is a natural result of systematic learning accretions from the regular use of the breath impulse. Sequential development of the technique from the original use of two impulses to a beat to a physical control of three, four, and six to the beat leads to a thorough muscular control which serves as a progenitive basis for the full acquisition of a free vibrato, unmeasured and indigenously geared to the demands of the music. Breath impulses are literally synonymous with the respiratory

coordination exemplified in a regular diaphragm vibrato. Diaphragm vibrato can be taught through the systematic use of the breath impulse.

The full realization of a vibrato similar or equal to that expected of a professional performer will vary from student to student. There is evidence to believe that many students have mastered the development of a free, unmeasured, pleasing, and indigenously characteristic vibrato largely through the mechanism of the BRIM technique. A regular, consistent use of the breath impulse technique leads naturally and sequentially toward this vital increment of technical capabilities. Perhaps indicative of this fact is that for the past ten years, since the inception of the breath impulse technique in the Norman Public School system, members of the Norman High School Band have held from approximately ten to twenty per cent of the Oklahoma All State Band and Orchestra wind instrument positions each year. No other single Oklahoma high-school has approached this level of membership in the wind instrument positions of the All State Band and Orchestra. No doubt technical skill and sight reading ability figure into the selection of All State candidates, but included in consideration is the characteristic tone quality demonstrated by those who audition.

Carl Seashore[1] states that the vibrato is the most important of all musical ornamentations because of the significant changes in the coloration of tone quality, and because it is the factor which best enhances tone quality and exemplifies the mature, professional performer. The vibrato is a necessary accoutrement to the tone quality of most solo

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[1]Carl E. Seashore, Psychology of Music (New York: McGraw-Hill Book Co., 1938), p. 33.

instruments. The body control that is refined to a sensitive degree in the implementation of the vibrato is able to produce the conditions necessary for the production of a straight tone indigenous of certain instruments or of any wind instrument under certain conditions which call for a straight, vibrato-less tone. This writer has never observed that any of the hundreds of students trained with the breath impulse had any difficulty in producing a straight tone when the need for it existed.

The tone quality benefits accruing from the use of the BRIM technique are not so readily apparent during the early stages of instrumental instruction, especially in the area of vibrato. The full fruition of the technique seems to be most apparent after the second or third year. Even during this interim, there is an acceleration toward a mature tone quality exhibited by many students. Most beginning instrumentalists taught in the public schools in the United States begin instruction anytime from the fourth to the seventh grade. Many of those who start as late as the seventh grade will be able to demonstrate a beautiful, mature tone quality while yet in a junior highschool.

A most obvious generalization is that no two individuals are completely alike. Developmental skill susceptibility varies from person to person in all areas of performance, including tone quality development. Some students learn or assimilate the techniques of the breath impulse respiratory control sequence very quickly, and rather easily progress to a free, professionally characteristic vibrato and general tone quality. Other students learn the musculature control more slowly and are somewhat delayed in the full realization of a free, musical, tone enriching vibrato. A few students may never be able to release an obvious

neuro-muscular control of the measured vibrato. However, a measured vibrato in many instances is superior to the non-rhythmic and pallid tone quality so often observed in the performances of students who play without any vibrato.

In the early stages of instruction, when students are regularly using two or three breath impulses to a beat, the vibrato effect will sound unnatural and artificial because of the slowness of pitch undulation. This may elicit criticism of the use of the technique, but critics should remember that there are learning procedures and movements in many motor skill areas that are not graceful nor mature in the early stages of development. A novice skier or skater will proceed slowly, possibly awkwardly with attendant falls before becoming a graceful performer. A teaching technique should be evaluated upon the end product as well as concurrent pedagogical devices. If the ends justify the means, then the means need only be pedagogically sound and musically relevant.

There are no apparently harmful effects to the user of the BRIM technique. The use of the technique is almost as natural as breathing requirements which exist in speaking or singing. The technique requires deep breathing and a complete use of the entire respiratory mechanism. The automatisms created serve to free the embryonic performer from the complexities of trying to perform without adequate breath support. This freedom from such a basic functional requirement enables the performer to concentrate more fully upon the more cognitive elements of performance as well as other facets of motor coordination through digital and related manipulations.

The BRIM technique is analogous in breath function requirements

to the accentuation of words or syllables in speech or in singing. The principal difference is that the BRIM technique requires a steady rhythmic accentuation in a series of breath pushes, a measured recurrence of breath accents regulated to a certain number per beat. This measuring requirement serves as a mental stimulus to the motor control of the respiratory mechanism. Subsequently, a time will be reached by most performers when mental stimulus is no longer needed to consciously actuate the pulsations of the diaphragmatic-respiratory coordinates in order to provide a sensitive accommodation of tone needs in the performance of music. The vibrato will be present, provided by a reflexive arrangement coordinating nerve cells and muscle, and responding to the cognitive emotional needs of the music being performed. This freedom from measured vibrato provides to the instrumentalist a tone fulfillment of similarity to that of the vocalist who develops a vibrato which is controlled, yet free and responsive to the emotional interpretative needs of the music and the performer. The vibrato is clearly an integral and vital part of the tone, not isolated and separate, but an identifiable concomitant component of a mature tone quality.

Even the beginning wind instrument student, using a slow measured breath impulse, will demonstrate in many cases a better tone quality because of the breath support engendered by the BRIM technique. The direct, although pulsating, support of breath through the instrument will help provide the full, resonant, supported, intense centeredness of tone that can only come through a totally functionalized breath push.

Breath Impulse: Aid to Intonation

While there is some evidence to believe that a sense of pitch is inborn and that there is limited possibility of improving it by practice because of hereditary factors,[1] most educators will agree that playing in tune on a wind instrument is enhanced by playing with adequate breath support. If the BRIM technique does improve breath support of tone production, then intonation thereby should be improved.

A rather common statement found in the criticism sheets of adjudicators who evaluate the performances of bands, ensembles, and soloists using the BRIM technique is that the music has forward motion, vitality, intensity, maturity, and usually includes a commendatory statement concerning the quality of intonation in performance. Observation of young performers often reveals that many intonation problems are compounded on a wind instrument by a lack of breath support. The compelling nature of the breath support created by the proper use of the BRIM technique appears to give a performer a sufficient amount of breath with such a consistent intensity and constancy, that the tone is centered and has a characteristic quality which aids in better pitch placement whether in sustained passages, intervallic leaps, or in other types of voice leading relationships.

There is no reason not to expect good intonation by wind instrument performers at a very early date in their instrumental experience. There is no reason to allow young performers to play with a weak, insipid

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[1] Carl E. Seashore, The Psychology of Musical Talent (Boston: Silver, Burdett and Co., 1919), pp. 60-61.

tone, which is indicative of a lack of breath pressure. The breath impulse causes a student of any age to intensify body musculature in a coordinated and unified effort which propels the air from the lungs in sufficient quantity and continuity to insure adequate breath support for proper intonation of any tone to be played.

Brasswind performers are not only plagued with intonation problems of narrow ranges, but also have the additional problem of being able to produce the proper pitch from a valve or slide setting that could facilitate many differing pitches. Young players who fail to support a tone properly are constantly confronted by difficulty in obtaining the proper pitch placement even though the fingering or slide positions are correct. By using a full and free breath support engendered by the BRIM technique, many young brass players seem to be enabled to gain increased accuracy in pitch placement. In effect, the automatism set up by a habituated use of the breath impulse not only tends to assure the performer a sufficient amount of breath support, but relieves him of one performance problem which enables him to have a deeper concentration on the other facets of playing an instrument.

Educational Aspects: Introductory Summation

The goal of every teacher of wind instruments should be to provide materials and pedagogical skills conducive to the development of able and perceptive wind instrument players: instrumentalists who can intelligently interpret music manuscript by putting the correct note (pitch), in the right place (rhythm), in the proper manner (phrasing), and with a pleasing and characteristic sound (tone quality). A key

technique in striving to accomplish these fundamental goals is the breath impulse (BRIM) technique, analogous with breath vibrato.

Utilization of the breath impulse technique, applied correctly, appears to improve breath support in the production of a tone on a wind instrument. Another apparent benefit is both rhythmic understanding and rhythmic development. Using the BRIM technique, the beginning band student learns to subdivide the beat, at first into two equal parts, later in three, four, and six equal subdivisions. The student is taught to do this in separate, yet related activities, both while playing an instrument and while counting musical exercises either on pitch or in a speaking voice. The BRIM technique is coupled with a counting system which appears to aid in the development of both a specific body response and a mental concept of most rhythmic figurations.

The instructional phases in presenting the BRIM technique follow these general patterns: (1) the instrumental student is taught to vigorously exhale the breath in a measured rhythm; (2) in the early stages of learning, the student uses two impulses (breath exhalations) per footbeat; (3) in slow four-four, three-four, three-eight and similar measure signatures, each beat note has two subdivisions; (4) increased skill in the vigorous rhythmic exhalation of air enables students to master in sequential order, three exhalations per beat, then four, and later, six. This body function appears to strengthen the conceptualization of rhythms in the interpretation of the symbology of music notation. In addition to accelerated rhythmic perceptivity and breath support, the use of the breath impulse technique seems to improve intonation capabilities and stabilize and orient concepts of tone quality toward indigenous maturity.

Need for the Study

An educator is engaged in a never ending quest for methods of teaching which will improve the acquisition of skills and knowledge by students in the classroom. A resourceful teacher is always alert to study pedagogical innovations for possible application in his own teaching situation. The need for improvement in music education in general and in the development of better wind instrument players is quite evident. Almost any observation of the sight reading performances of school bands and orchestras will reveal certain deficiencies in performing skill. Some of the most obvious flaws in the performances of school musicians are in the areas of tone quality, intonation, and the omnipresent flaw of rhythmic misapprehension and the resulting ambiguity of performance.

Higgins and Merwin[1] affirm that capable music teachers everywhere are in a continuing process of evaluating curricula and educational techniques and have improved the educational process, but that much more needs to be accomplished. Choate[2] states that all music educators need to become more active in the involvement with appraisals of the whole spectrum of music education activities, with a willingness to restructure instructional processes and perhaps reorder classroom influences. Giles and Ricci[3] report the sobering details of the widespread weaknesses in

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[1]Martin J. Higgins and Jack C. Merwin, "Assessing the Progress of Education in Music," Music Educators Journal, LIII, No. 8, p. 52.

[2]Robert A. Choate, "Tanglewood Symposium Project Report," Music Educators Journal, LIII, No. 8, pp. 46, 51.

[3]Allen Giles and Robert Ricci, "An Experimental Music Curriculum for Gifted High School Students," Music Educators Journal, LIII, No. 3, p. 57.

the preparation of entering college freshmen in schools of music, affirmed by the inability to read music notation with any degree of fluency. One might assume that students who enroll in colleges to major in music would be among the best prepared of the highschool graduates in musical skills. If college music departments are reporting an appalling lack of ability to read the printed score among entering college freshmen, then it becomes highly conceivable that the educative processes in the earlier years of instruction need reassessment and re-evaluation. Hughes[1] suggests that music educators must determine whether they are providing really worthwhile music experiences for children and whether these experiences are contributing to a foundation for excellence in musical growth. If the breath impulse technique is superior to other techniques in the teaching of the wind instrument students, then dissemination of the BRIM technique would seem advisable and expedient.

1) Use of the BRIM technique in the public schools by teachers of instrumental music classes would benefit many wind instrument players.

2) Teacher training institutions that educate instrumental majors for band and orchestra positions in public or private schools could prepare these future instrumental teachers in the techniques of the breath impulse system.

3) Verification of the effectiveness of the breath impulse technique may serve to encourage additional research in related and innovational pedagogical techniques.

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[1] William O. Hughes, "Planning Educative Experiences in Junior High General Music," Music Educators Journal, LII, No. 3, p. 76.

Statement of the Problem

The purpose of this study is to determine the effectiveness of an innovational technique of teaching beginning wind instrumentalists. This pedagogical device is referred to as the breath impulse technique (BRIM). The data from this study may indicate the degree of effectiveness of this method when compared with classes taught with conventional techniques, expressly excluding the breath impulse technique.

The General Substantive Hypothesis

The general substantive hypothesis of this study is that in the early stages of instruction, wind instrumentalists taught with the BRIM technique reflect a greater degree of maturity and accomplishment in musical performance in certain areas than those students who are taught by methods which exclude the BRIM technique.

Specific Hypotheses

1) After seven months of instrumental instruction, beginning wind instrument students taught to use the BRIM technique play an instrument with more accurate intonation than those students who are taught with methods which exclude the BRIM technique.

2) After seven months of instrumental instruction, beginning wind instrument students taught with the BRIM technique produce a more mature sound and characteristic tone quality than those who are taught with methods which exclude the BRIM technique.

3) After seven months of instrumental instruction, beginning wind instrument students taught with the BRIM technique are able to sight

read rhythmic patterns with greater accuracy than those who are taught with methods which exclude the BRIM technique.

4) After seven months of instrumental instruction, beginning wind students who are taught with the BRIM technique are able to sight sing more accurately than those taught with methods which exclude the BRIM technique.

5) After seven months of instrumental instruction, beginning wind instrument students who are taught with the BRIM technique are able to sight read on their instruments more accurately than those taught with methods which exclude the BRIM technique.

Procedures

The design for the study included exploratory procedures and evaluations of procedures in the elementary schools of Norman, Oklahoma. A preliminary form of the performance testing instrument was administered to evaluate the individual test items as well as the administration techniques. The final form of the performance test was administered to one hundred subjects in six selected schools in three sites. Each response on the test was recorded by a quality tape recorder. These tape recorded responses were then evaluated by a group of seven judges, graduates or graduate students in instrumental music. These seven judges evaluated the performances using a variation or adaptation of the semantic differential rating instrument[1] using either bipolar or paired adjectives and a seven step modified Likert rating scale:

good _____ _____ _____ _____ _____ _____ _____ bad

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[1]Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957).

Five performance items were evaluated with nine pair of adjectives. Each blank on the semantic space was assigned a value from one through seven and the semantic space means provided the raw score data for statistical treatment. Data analysis included measurements of judge reliability by using ten percent of the sample in a Kendall Coefficient of Concordance W test. This was an attempt to show the degree of agreement among the seven judges over the five concepts. The test used is sensitive to differences in two related samples and had to be used in this study because of the related measures across all seven judges for both experimental and control groups. This test is referred to as the t test for dependent measure.

Limitations

This study was limited to the areas of performance which encompass tone quality, intonation, rhythmic accuracy, sight singing and sight playing. The study was limited to those students who enrolled for beginning band classes in three selected sites and six selected schools in central Oklahoma.

Although the possibility exists that there could have been a disparate range in the home environment and cultural influences reflected in the subjects of this study, delimitation of the research scope obviated an analysis of this variable. There was no attempt to evaluate differences in innate musical talent, intelligence level, nor academic achievement of the subjects in this study. It is hoped that the results of this study may indicate the effectiveness of a method of teaching instrumental music which will bear relevance to other general population

groups of similar circumstance. It was assumed that there is a relatively high degree and proportion of general population groups which are similarly actuated by parental guidance, cultural and environmental considerations, and other analogous conditions which encourage children to enroll in instrumental music. It was assumed that there are more similarities than differences in the general population group members representative of those who choose to participate in instrumental music.

Definitions

BRIM--breath impulse technique.

Breath impulse--the intensive expulsion of air from the lungs through the mouth.

Breath impulse technique--any pedagogical procedure which involves more than a normal expulsion of air from the lungs through the mouth in measured sequence. This may occur in playing a wind instrument, or in vocalization, speaking, or singing rhythmic or melodic and rhythmic music figurations.

Diaphraghm vibrato--an undulation of the instrumental (or vocal) tone reflected by a variance in the intensity and quantity of breath used to produce the tone.

Semantic differential--an innovational design for rating concepts developed by Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum.

Wind instrumentalist--a performer upon any of the orchestral or band wind instruments normally taught in public school instrumental music classes.

CHAPTER II

SURVEY OF SELECTED RELEVANT MATERIALS

A survey of sources of information related to teaching procedures and instructional techniques reveal a determined paucity of material which relates specifically to the use of the breath impulse technique in the educational continuum of instrumental instruction. It may be presumptive to assert that this technique seems to be innovative, original, and probably limited thus far in its use to areas bounded by the peripheries of direct or indirect influence of the originators. Published materials concerning this approach to instrumental instruction are similarly circumscribed.

However, there are references which reinforce concepts of communality with the techniques involved in the use of the breath impulse. These are presented with concomitant reflections of considered importance in advocating instructional validity of this innovative pedagogy. The rather unusual interpolation of comments are used to reinforce unilateral concepts of the relatedness between the breath impulse and other existing techniques.

Integrated Cognition: Perceptivity and Kinaesthesis

The use of the breath impulse in the performance of rhythmic configurations in music appears to reinforce the learning of most, if not all of the related patterns of rhythmic symbology. Relating comparable

observations, Jaques-Dalcroze[1] speaks of a motor-tactile consciousness in which the body reacts physically to the perception of musical rhythms.

To be wholly musical, one should command a combination of physical capabilities including a whole body consciousness of rhythm. This consciousness perceives fractions of time in gradations of speed and power and are reflected in the muscular system. It is possible to divide rhythms and accentuate each division by energetic control of the respiratory muscles.[2] Rhythmic consciousness is physical in nature, and when perfected through practice, will result in a thorough understanding of its scope. To develop rhythmic sensitivity in a child, one must go beyond the execution of regular movements to a variety, introducing rhythmic patterns calling for related rhythmic movements. Reflexive rhythmic delineation is extant in all our muscles. Parenthetically, rhythmic movement is the visible demonstration of rhythmic consciousness.[3]

This writer does not mean to infer that Jaques-Dalcroze is referring exclusively to the respiratory muscles or the footbeat in his treatise on eurythmics. But it is interesting to note that he makes many references to the whole body response to rhythm, which includes by his own words, many references solely to the respiratory muscles including the following reference to the training of a musicians body:

> "...his respiratory muscles, fully trained, will be entirely under his control."[4]

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[1] E. Jaques-Dalcroze, Rhythm, Music and Education (New York: G. P. Putnam's Sons, 1921), p. vi.

[2] Ibid., pp. 79-82. [3] Ibid., p. 86. [4] Ibid., p. 90.

There is some evidence to believe that the study of rhythms and their perception serves to develop the sensibilities, in addition to the more obvious comprehension of time, symmetry, and balance.[1] Possibly the most fundamental, powerful, and primeval element in music is rhythm; it must surely be the element most closely related to life which is so basically orientated rhythmically. All of the intricacies of musical time can be depicted by the acuteness of body sensations. One needs to have more than mere intellectual grasp of rhythmic connotations represented by musical symbology, but to perform accurately and musically, one must have a completely free communication through the nervous system from the mind which perceives and the body which enacts. Freedom of sensory transmission between the perceptive and executive faculties is often contracepted by muscular disablement or by neural malfunction reflected in retarded transmission of mental orders for contraction or relaxation. Awareness of this discrepancy in fluency of the neural connection results in a confused lack of confidence and lack of concentration.[2] Intensive practice will create body automatisms which increase functional effectiveness and may increase confidence and concentration.

The ability to measure time without mechanical assistance is extremely limited. This limitation seeks relief through the desire for alternation of sounds which fall into accented and unaccented patterns, thus creating rhythmic segments.[3] Most everyone has experienced this sensation while hearing the repeated drips of a leaky water faucet, or

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[1] Ibid., p. 100.

[2] Ibid., p. 116.

[3] C. F. Abdy Williams, The Rhythm of Modern Music (London: Macmillan and Co., Limited, 1909), pp. 20-22.

the monotonous refrain created by the wheels of a train speeding over the joints between rails. These regularly recurring, more or less precisely equivalent stimuli, create a series of pulses which the listener tends to group. Although these pulses are generally established by extraneous means, a sense of pulsation may exist subjectively and once established in the cognitive and muscular faculties may continue beyond the cessation of the exterior stimuli.[1]

Jaques-Dalcroze refers to the role of the body as the intermediary between aural stimuli and perceptivity of the mind; dormant body resources which can be animated to serve as rhythmic reinforcers.[2] Carl E. Seashore[3] affirms that rhythm, as a complex process, involves the whole body organism in the responsiveness to measures of time intervals, and that the whole of rhythm involves a two fold response: perception and reaction. Rhythm represents movement involving time and space. Rhythm is essentially physical in nature. If the physical resources are trained and perfected in rhythmic delineation, then the resulting clarity of perception will aid the consciousness of musical rhythm.[4]

The grouping phenomenon and the attendant periodicity is a biological principle that, coupled with the predilection to respond in rhythmic movements, is a decided physical advantage. A lack of rhythmic

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[1]Grosvenor W. Cooper, The Rhythmic Structure of Music (Chicago: The University of Chicago Press, 1960), p. 3.

[2]Jaques-Dalcroze, op. cit., p. 8.

[3]Carl E. Seashore, The Psychology of Musical Talent (Boston: Silver, Burdett and Co., 1919), p. 115.

[4]Jaques-Dalcroze, op. cit., p. 83.

body unity is deemed awkwardness and results in movements that are less than completely efficient. Controlled sensitivity anticipates needs in a given situation and thereby adapts unconsciously with a minimum of wasted motion.[1]

The use of the breath impulse technique appears to enable many students to have an innate sensitivity to shifting rhythmic complexities, possibly even prior to a perceptive recognition. Various music educators who have been in position to hear students taught with the breath impulse have stated that the student will revert to a physical breath control emphasis while sight reading music of varying complexities although initially they were performing without the impulse. Apparently one comprehends a rhythm positively, effectively, and innately under conditions of physical movement. Rhythm, whether in cognition or translation by a physical response is emotional when thoroughly developed, and the whole being is involved in sublimation to its effects.[2]

Rhythm and Kinaesthetic Involvement

Ruckmick[3] discovered that fundamental cognizance of rhythm required the existence of kinaesthesis, but that the need for muscular movement inclined to disappear without necessarily losing the perceptivity of a thoroughly established rhythmic pattern. Many times it is necessary for students, who have been taught with the BRIM technique, to perform

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[1] Seashore, op. cit., p. 121.

[2] Ibid., p. 122.

[3] James L. Mursell, The Psychology of Music (New York: W. W. Norton & Company, Inc., 1937), pp. 160-164.

without the obvious physical character of the technique. This does not seem to impair their recognition of the rhythmic patterns that have been thoroughly learned through the use of the breath impulse.

Though many assume that a sense of rhythm is innate, it would not be acceptable to say that responsiveness to rhythm is wholly instinctive and not amenable to learning. Specific responses to specific rhythmic configurations must be learned and assimilated. In this assimilation, proper breath control can be a beneficial aid in the development of sensitivity toward rhythmic and musical flow.[1]

Rhythmic training can be very readily transferred from one set of muscles to another in the human body. Large movements of the body are the most readily adaptible to the rigors of rhythmic reflection. The kinaesthesis of large body movements equates to an extremely sensory experience, creating immediate impact on the perceptivity of a rhythm. Motor coordinations required to manipulate small instruments such as the flute or clarinet are rather limited and minute, not conducive to a motor cognition of rhythms. Thus it is a valuable teaching technique to isolate the facets of the problem, incorporating large body movements to speed rhythmic understanding while minimizing the intricacies of technical minutiae. Once the student has mastered a rhythmic pattern through large, rigorously coordinated body movements, the conquering of the complexities of rhythmical-technical manipulation are assisted markedly.[2]

Many music instructors ask students to use a footbeat while playing an instrument as an aid to pattern development. There are many rhythmic

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[1] Ibid., pp. 154-155. [2] Ibid., pp. 167-168.

activities suggested for class and individual rhythmic development in most of the textbooks written for elementary music classes. Action songs, dances, marches, interpretative movements, and other rhythmic centered devices are recommended for use as an aid to the finer development of musical sensitivity through rhythmic involvement. Far more numerous and possibly more important in pedagogical practices are those instructional uses which sequentially order the movements related to stress and release in the musculature of the tongue, throat, chest, and abdomen.[1] Stetson[2] states that the most direct, significant, inherent rhythm procreative apparatus is the vocal musculature. Musicians are taught to count, and suppressed counting is rather common. The tongue is quite animate, and the respiratory coordinates of the body contribute effectively in rhythmization.

The BRIM technique determinedly utilizes the concept of the importance of the tongue, throat, chest, and abdomen areas of the body in the implementation of the technique. From the first day of instrumental instruction, students are instructed to count music exercises both with a speaking voice and a singing voice, the latter as an implement toward greater pitch consciousness in sight singing development. The students are instructed to use the breath impulse in the voice which serves to provide a massive body movement in the subdivision of the beat. The massive quality of the body movement is controlled by the extent of the exaggeration of the vocal or breath impulse. By observation, it has been found that students conceptualize rhythm demarcations more rapidly when

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[1] Seashore, op. cit., p. 106.

[2] R. B. Stetson, "A Motor Theory of Rhythm and Discrete Succession," Psychological Review, XII (1905), p. 257.

the impulse is exaggerated. The exaggeration of the breath impulse is more decisive at slow tempos and with fewer impulses to the beat. As tempos increase, or the number of impulses per beat increase, then the voice fluctuations must of necessity be somewhat narrowed and less marked. Possibly the greatest speed of the impulse to be expected from students would be four impulses to a beat at one hundred beats per minute. This speed development would have to be prefaced by several months of practice at slower tempos. Speed of the impulse control is not nearly so important as is the regular and continued use of the voice impulse at slower tempos to subdivide rhythmic components. This ability to subdivide the beat with the voice impulse transfers immediately and easily to the use of a breath impulse while playing a wind instrument.

The BRIM technique correlates with the stated concepts of rhythmic training by the previously quoted authorities in many concrete ways. The animated force of muscle control which expels the breath in measured sequence is of sufficient body involvement to be considered a large body movement. The vigorous character of the breath impulse emphasis involves the coordination of many muscles in the respiratory tract and may indirectly affect most of the upper trunk of the body. This is of no inconvenience, because the over-all body motion is minimal from an exterior viewpoint even though it involves a large part of the body. This movement fits the prescription of large body movements necessary to gain the full kinaesthetic sensation and involvement in rhythmic pulse. An obvious benefit is that this is a large body movement of huge kinaesthetic dimensions that can be easily used while performing on a wind instrument. Consider other large body movements such as the waving of the hands or

arms, or marching, or dancing steps; these can only interfere with the production of a good tone on a wind instrument if engaged in simultaneously with performance. The BRIM technique enhances most, if not all, of the fundamental facets involved in the playing of a wind instrument and does not interfere with any implementation necessary for the production of a good sound.

Transference of Rhythmic Learning

The possibility of the translocation of rhythmic synchronization is hypothetically important. Apparently, the learning of a rhythmic pattern is indicative of the perceptive process comprehending the pattern in a cognitive continuum. The understanding of the rhythmic pattern is most quickly realized through the medias of kinaesthesis. Not only will the assimilated rhythm coordination easily transfer from one muscle area to another, but the kinaesthetically reinforced concept will transfer to the aural or visual faculties. Even though the psycho-motor manifestations of rhythmic learning disappear, the perceptual patterns remain.[1] In practice, it was discovered that although the use of the BRIM technique were eliminated after an extended period of practice, it appeared highly probable that the absorption through such massive kinaesthetic dimensions continued to translate perceptivity of a rhythmic vocabulary both aurally and visually as an aid to the performance of music on a wind instrument.

It would seem to be of pedagogical importance to utilize the rhythmic training of the body resources to create automatisms accruing

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[1] Mursell, op. cit., p. 169.

from cognitive rhythmic imagery.[1] Much of learning which takes place in the human life is in the area of motor skills. As one learns to play an instrument, there are no readily apparent changes in perceptivity as the skill progresses. There seems to be less and less awareness of the perceptive element and an increasing mental independence of the motor response; the motor function is depended upon to act almost involuntarily. At a very high level of skill, many of the movements incorporated are carried on automatically.[2] As habit and skill in the use of the BRIM technique take place, the user becomes less dependent upon the necessity to mentally control the individual movements of the diaphragm and respiratory musculature to attain a satisfactory degree of performing skill in the interpretation of rhythmic patterns.

The correctness and speed of rhythmic understanding and performance appear to rely on the use of acquired body automatisms in intimate coordination of neuro-muscular elements.[3] Constant repetition of rhythmic movements of the body musculature causes a bypass of the cognitive dimensions of the nervous system minimizing the length of time elapsing between the conception and the realization of the stimuli. These automatisms should be exercised in all nuances of tempo.[4] Thus the concept of gradual acceleration of the movements of the respiratory musculature from two, three, four, and finally to six impulses per beat at slowly

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[1] Jaques-Dalcroze, op. cit., p. 265.

[2] Robert M. W. Travers, Essentials of Learning (New York: MacMillan Co., 1963), pp. 467-468.

[3] Jaques-Dalcroze, op. cit., p. 127.

[4] Ibid., p. 125.

increasing tempos, serves as a learning sequence which is pedagogically verified.

It is necessary for the instructor to carefully assess the physical capability of each student in the ability to implement the sequential requirements of the technique. A too rapid acceleration of tempos has the tendency to cause some students to transfer the desirable movement of the respiratory musculature to a jaw movement or other undesired movements of the respiratory tract in the throat area. These malfunctions of the technique can be corrected by slowing tempos, careful observation, and by encouraging the errant student to implement a regimen of free yet forceful type of mouth exhalation coupled with extra-muscular relaxation in all areas of the body except the exhalation provoking musculature. This forceful type of mouth exhalation can be experienced by a simple experiment, such as blowing out the fire on a lighted match with quick, forceful streams of air. This action reveals an almost instantaneous depression of the body nomenclature immediately below the frontal rib cage. This is the type of body movement that is as natural as the first cry of a child at the moment of birth. The BRIM technique used this natural body response in the ordered development and reinforcement of body rhythm in the creation of automatisms which serve as rhythmic pattern reinforcement phenomena superior to most observed techniques.

It is the opinion of many music educators that a student cannot properly execute rhythms until they can feel them. This sense of feeling rhythms comes not from the thinking part of the brain, but rather from the medulla oblongata, the source area of the controls exerted on the movements of the body. Thus it is necessary in the mastering of rhythms

that the motor senses be exercised.[1]

Many of the leading educators, concerned with the development of music in the current educational scene stress among other needs the idea of the importance of a fine development of the motor skills and rhythmic refinement. Sinichi Suzuki, the eminent Japanese educator, spends much time in teaching children how to overcome the rhythmic and muscular barriers to effective performance before he introduces the visual and cognitive involvement with the printed score. Karl Orff and Zoltan Kodaly[2] stress the necessity of rhythmic activity as a concomitant of the learning processes in developing musical consciousness with the highest degree of effectiveness.

Pertinent Implications: a Summary

The breath impulse technique appears to have significant pedagogical implications in many facets of the art of creating music through the medium of a wind instrument. The benefits are inter-related and in many instances concomitant. Possibly the most apparent benefit is in the area of rhythmic perceptivity and understanding coupled with the increased rhythmic performance capability on the part of the student. The impulse measurement of the duration of note values guarantees accurate length of notes and correct relationships of one note to another in a rhythmic phrase. This measuring technique stimulates a vivid, body centeredness type of kinaesthesis which augments the cognitive process in providing

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[1] W. Otto Miessner, "How to Master Rhythm," Music Educators Journal, LIII, No. 3, p. 49.

[2] Zoltan Kodaly, "Folk Song in Pedagogy," Music Educators Journal, LIII, No. 7, p. 59.

a massive body response to rhythms. The continued attempts to become rhythmically sensitive may encompass and foster natural body rhythms. The continued use of the BRIM technique creates muscular coordinations which seem to become automatisms enabling a performer to have an unobstructed utilization of other faculties for the comprehension and mastering of performance problems.

Skill in any motor activity seems to be developed by the number of movements which are learned so thoroughly that their use becomes automatic, unthinking, fluent, coordinated, and reflexive. The more facets of a performance that can become automated, the more possible it is to become skillful. If the rhythmic implications of the breath impulse system serve as a problem solving automatism to most rhythmic figurations, one very significant area of performance is made accessible to all wind instrument players utilizing the technique.

Benefits received from automatisms developed through the BRIM technique can be traced through such performance areas as tone quality, intonation, breath support, and possibly even musicianship, though this factor may be rather tenuous and no attempt at documentation other than incidental references to observations will be made.

The propelling force of breath support engendered by the breath impulse technique alleviates the necessity for a conscious lift of the muscles of the diaphragm. The utilization of the BRIM technique thus frees the performer from another area of conscious interference with other musical needs. The performer has greater freedom to accelerate the comprehension of musical details unencumbered by many of the problems engendered by too little breath support or by the conscious enforcement

of breath support which should be a natural body automatism. This freedom translates into an encompassing possibility of possessing a rich, resonant, supported, centered, characteristic tone quality that is easier to play in tune.

The possibility that the BRIM technique not only helps rhythmic perception, breath support, tone quality, and intonation, but also may aid musicianship may seem an all too encompassing claim. A technique that gives a performer freedom from conscious physical manipulations must surely give that performer the greater opportunity to perform in a musical manner. The necessity to practice scales, arpeggios, broken chords, articulation techniques, and other myriad motor coordination skills is obvious. The thoroughly practiced knowledge of all facets required in music performance is the first requirement of musicianship which should be reflected by the maturing musician. Conceivably then, a key requirement to the accomplishment of these needs is to be given the freedom from such basic complexities in performance as labored rhythmic vocabularies and freedom from ill-supported tone. All of these performance assets can be received by virtue of a complete diaphragm-respiratory breath support automatism.

CHAPTER III

IMPLEMENTATION OF THE STUDY

Procedure

This study was prefaced by a lengthy exploratory developmental period in the creation of pedagogical techniques which seemed to demonstrate efficacy of various breath impulse teaching devices. The initial development concerned the basic subdivision of the beat into two parts and was used in only the simplest of the various rhythmic configurations. As students demonstrated accelerated understanding of the elementary rhythmic patterns, a slow but continuous evolution of increasing uses for the technique were developed, tested, and over the interim of months and years of use were found to be pedagogically sound and singularly effective, exhibiting superior advantages in teaching increased perceptivity toward performance fundamentals to instrumental students.

These techniques became systematically used in the Norman Public Schools from approximately 1961 to the present time. The value and effectiveness of the techniques were evident to the writer and proved equally effective when taught by each of the staff members added from time to time to the instrumental program of the Norman Public Schools. New staff members were exposed to the technique and were requested to give it a fair trial and possible inclusion into their own teaching techniques. By their own admission, each of the staff members added to the

staff has accepted the technique without reservation and have used it in all situations which were properly adaptable to its use. This technique is used in all schools from elementary through junior high school, and including the senior high school.

The most important stage in the development of an instrumentalist is the beginning, and it is with beginning students that the greatest emphasis is placed on the fundamental facets of the technique. However, there is no decrease in the emphasis placed on its use through the intermediate junior high school level of instrumental instruction. As students approach public performances at the junior high school level, there is a temporary cessation in the request for tone undulation in certain instruments in order to accommodate the traditional straight tone requirements of clarinets and some of the brass instruments. The use of the breath impulse technique is continued through the advanced junior high school level in all of the technical, rhythmical materials used for digital and motor coordination.

Although there is a decreasing use of the teaching of the BRIM technique as a student develops into the advanced stages, it is at this point that the significant benefits of the technique become most apparent. Sight reading skills of the Norman School bands are apparent from the many superior ratings received in the event at music contests. Maturity of tone and skilled performance levels of individual students are indicated by the acceptance of large numbers of students into all district honor bands, and especially into the previously mentioned All State Band and Orchestra. Indicative of the performance skills of individual students is the fact of many superior ratings given for solo

and ensemble performances at the district and state music contests.

Convinced of the demonstrated effectiveness of the technique in a local setting and under the influence of one of the originators, it was felt that a study needed to be made by having the BRIM technique used by other instructors in other cities and schools in order to ascertain the effectiveness of the method divorced from the acute critical presence of the writer, or the presence of staff members or fellow students who had been exposed to the method over great periods of time and practice.

Conceivably, the fact that many outstanding instrumentalists were being produced in the Norman Public Schools, could be a result of environment, or hereditary factors, or an efficient instrumental staff that could produce good results under several pedagogical systems. By implementing the study in other school systems, it would offer an opportunity to control several variables and at the same time assess the teaching technique under a more typical environment.

Three sites were chosen for the experimental study. Each of the three cities is in central Oklahoma within a radius of fifty miles, but none are located in the metropolitan Oklahoma City school district. The three sites have a population of similar size, but with school enrollments somewhat variable. One site is a city containing one of the state colleges, one site is a somewhat typical urban suburb area, and the third site is a city of both agricultural and urban characteristics.

At each of these three sites, two separate classes which were matched on a socio-economic basis were chosen. One group received the experimental technique, the other group was taught with techniques which excluded the breath impulse technique.

The advanced preparation involved in the instruction of the three teachers who were to conduct the classes included letters of instruction, personal visitation, and a complete detailing of the classroom techniques to be used with every exercise in the beginning band method book which was to be used for the class instruction.

At each of the three sites, the classes began after a typical period of recruitment and orientation at the beginning of the 1966-1967 school year in early September. At two of the sites, the students were placed immediately on the band instrument chosen by the individual. At the third site, actual instrumental instruction was prefaced by a six week course on song flutes. However these children in the experimental group were taught with breath impulse techniques on the song flutes, so the periods of exposure to the technique were relatively the same at all three sites.

To ascertain the effectiveness of the individual teachers in following written instructions concerning the BRIM technique, the writer communicated with each of the instructors from time to time during the course of the study. This communication consisted of letters, telephone conversations, personal conferences outside the classroom, and actual classroom observation of both the experimental groups to ascertain use of the breath impulse technique, and the control group to verify the exclusion of the breath impulse techniques. In cases where some techniques were being overlooked or improperly handled, the teachers were counselled regarding improvements or changes needed in the instruction. At no time did the writer take actual charge of the experimental or control groups in any class session.

Efforts at Control

As indicated in the limitations section of this report, many facets of the experiment were not controlled. But the following measures were used to exert as much control as possible:

1) There were three experimental groups and three control groups.

2) At two of the sites, several citizens of the community were polled in the attempt to match the schools on a basis of similarity of environmental conditions related to socio-economic status of the population groups, and similarity of cultural and educational motivation. In the third site there were only two classes available, so the assumption of general equality was based on the fact that the two classes were equalized on random assignment without bias by the principal of the school.

3) The experimental and control groups were selected randomly at each site.

4) The three experimental groups were taught with the breath impulse technique; the three control groups were taught with existing techniques already used in the school system and specifically excluded the BRIM technique.

5) The control and the experimental groups at each site were taught by the same instructor, used the same textbooks, had the same length of class periods and the same number of classes per week.

6) After seven months of instruction, the students were tape recorded on a performance test in five categories: (1) intonation, (2) tone quality, (3) rhythmic reading, (4) sight singing, and (5) sight

reading on their wind instrument. All of the five test items were identical for each instrument.

7) The subjects at each site were recorded randomly without bias.

8) The control and the experimental groups at each site were tape recorded in the same room, with the same tape recorder (Ampex, Model 601), the microphone was identical (Neuman, Model U-67), the tape used was the same and new (Scotch 111-12). The volume setting was constant, and each child was recorded by the same machine operator who gave each child near identical instructions.

9) Subjects from each population sample were selected by incidental representative sampling without bias.

10) Seven judges, six graduates or graduate students at the University of Oklahoma, plus one local teacher, all with advanced degrees in music education served as adjudicators; the tapes were graded in the same room, with the same type and quality of play-back facilities, and with the student, school, site, and type of class unidentified.

11) The judges evaluated the taped performances using the semantic differential adaptation and a modified Likert scale to provide rating indices.

Performance Evaluation Instrument

By its very nature, music performance is extremely difficult to evaluate. Quite frequently one hears of adjudication ratings given to performing groups at a music contest ranging from ratings of superior to average for the same performing group of musicians from the three judges. This discrepancy is difficult to explain in terms of rational objectivity, and yet this variance may be reflected by adjudicators who

have widespread public acceptance and acclaim for their erudite and perceptive musical knowledge in evaluative capacities. Music performance is more than a sensory perceptive experience of purely objective significance. The listener as well as the performer becomes a part of the whole, and the efforts of the performer are translated into impressions variable with every person's own unique sensitivity to sights, sounds, and perhaps aesthetic nuance. Music performance evaluation becomes a highly subjective value-judgment largely based on the experiential insights of prior influences.[1]

The hypotheses of this study evolved around such performance areas as intonation, tone quality, rhythmic accuracy and pitch accuracy. These segments of music performance are somewhat more objective in the sense that most musicians can find a common ground of understanding and evaluative compatibility among descriptive terms, polar or paired adjectives which encompass the concepts relevant to music performance.

A rather recent innovative assessment instrument referred to as the semantic differential has become more and more accepted as an evaluative instrument design. It is felt that this instrument can be designed to use significates which if used as a stimulus will regularly and reliably produce responses of pattern predictability.[2]

The semantic differential is comparative to the operation of descriptive procedures in the communicative processes and may function graphically in the generic context. Individuals will of course have varying meanings for the same designations, reflecting the varied influences of the total experience. Granting that most human organisms are

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[1]Paul Mansur, "An Objective Performance-related Music Achievement Test," (unpublished D.Ed. dissertation, University of Oklahoma, 1965).

[2]Osgood, Suci, and Tannenbaum, op. cit., p. 6.

more alike than different and the relative immutability of physical laws, most fundamental significates will have similar meanings across individuals. If these individuals have had approximate parallel instruction within a similar culture, definitions of many basic words will be similarly understood.[1] Thus it would seem reasonable to infer concerning a group of graduate students in a university school of music that there would be a common identification agreement to the terms often used in reference to tone quality, rhythmic accuracy, intonation, sight singing, and sight reading performance.

Music tone quality is often found described in such adjective terms as good or bad, ugly or beautiful, pleasant or displeasing, dull or resonant, rich or thin, strident or pure, centered or diffuse, coarse or refined, and polished or harsh. Sight reading ability, intonation, and rhythmic accuracy have been described in such adjective terms as good or bad, uncertain or definite, perceptive or insensitive, vague or precise, controlled or erratic, erroneous or accurate, confident or faltering, careless or meticulous, and stable or variable. These adjectives are sensitive to meaningful states and may be minimally dependent upon other variables. By using a seven space scoring differential between the paired adjectives, it is felt that the conditioning of one mediator will affect the elicitation of others in ratio to the tenor of their contradiction to the first response.[2]

In order to use linguistic encoding as a reflection of meaning, it is necessary to have a suitably designed sampling of alternative

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[1] Ibid., p. 9.

[2] Ibid., pp. 10-14.

responses which can be standardized or adapted to various concepts. It is necessary to have the alternative responses be elicited rather than issued to eliminate word fluency as a variable. The various alternatives should reflect the broad outlines within which meanings vary. Rather than a dependence upon spontaneous utilization of words concerning a sign, the forced choices among successive alternatives progressively by degrees eradicates indefiniteness concerning the object of assessment.[1]

The semantic differential is basically a two-fold associationistic assessment instrument. The subject is provided with a concept to be rated in a series of bipolar scales in which an indication of direction of the association and intensity will be reflected on a seven-step scale.[2] The use of the semantic differential scoring instrument is a very general way to ascertain scores in measurement. The researcher must adapt the procedure to the requirement of the problem to which it is applied. The concepts chosen must reflect unitary meanings which can allow for individual differences. The concepts must have a common degree of familiarity and bear relevancy complementary to the development of the research.[3]

The raw data gathered with the semantic differential are an accumulation of check marks in the particular paired adjective scales. To each of the seven choice blanks an assignation of digit value is given. A score on an item is the value corresponding to the choice made. Each subject creates a scale times concept matrix which provides the basic data.[4]

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[1] Ibid., p. 20. [2] Ibid., p. 21. [3] Ibid., p. 77. [4] Ibid., p. 80.

In the use of the semantic differential, there are several considerations which have to be made. It must be assumed that the intervallic relationships between scales and within scales are equal. Also there must be an equal number of scales to represent each concept in the construction of the form to be used.[1]

Persons using the semantic differential scoring instrument are encouraged to work at a fairly high speed in making the necessary assessments. It is the first impression, the immediacy of the effect upon the assessor which may bear the highest degree of relevance to the problem.[2] Discrimination between concepts as a result of stimulus encoding is a form of microlinguistics, dealing with message structure. Subsequent to the encoding of a message, the results can be specified as being objective, natural science events by inherent existence.[3] Each assessment delineates a choice among a series of listed alternatives and aids in the localization of the concept at a point in the semantic or linguistic space. The successive selectivity of choices in the linguistic alternatives provides a dependable concept rating.[4]

It was felt by the writer that the use of the tape recorder and the subsequent playback for the concept assessments by the judges eliminated many variables that might alter concept ratings. In face to face observation and evaluation of a performance, there may be subconscious

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[1] Ibid., p. 92.

[2] Ibid., pp. 83-84.

[3] Charles E. Osgood, Thomas A. Sebeok, and A. Richard Diebold, Psycholinguistics: A Survey of Theory and Research Problems (Bloomington: Indiana University Press, 1965), p. 3.

[4] Osgood, The Measurement . . . , p. 26.

reflections on a rating scale because of the appearance of a subject, the posture, position, type of dress, and other influences of less obvious but perhaps subtle effect.

In addition, the tape recorder allows delayed use of the research material, which in the case of performance would be lost forever if not recorded. The tape recorder also allows sampling of the most natural situations in observational research.[1]

The seven adjudicators chosen to assess the performance tests had a total of fifty-seven years of music teaching experience, ranging from one with eighteen years experience to one who was finishing work on a Master of Music Education degree with no teaching experience. The adapted form of the semantic differential assessment instrument used by the seven judges may be seen in the Appendix. Also the item by item individual assessments made by the judges may also be found in the Appendix.

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[1]Osgood, Psycholinguistics: . . . , p. 77.

CHAPTER IV

STATISTICAL DEVELOPMENT

The raw score data for statistical study were ascertained from the semantic differential scoring instruments provided for the seven judges. The semantic differential was adapted to fit the study in an effort to gain objectivity across concepts that are basically subjective in nature. Each judge scored each child in each of the five concept test areas: intonation, tone quality, rhythm, sight singing, and sight reading. The judges were asked to place a check mark in the semantic space between paired adjectives which most nearly registered their opinion of the level of performance weighed against the concept being rated. These seven semantic spaces between each set of paired adjectives were arbitrarily assigned values of from one to seven from the least desirable rating to the most desirable. Each concept had nine pairs of adjectives to be scored. These concept scores multiplied by nine semantic scales times seven judge assessments provided a total raw score for each student in each concept area.

The design for hypothesis evaluation that was followed is indicated by the following paradigm:

$$R \quad \begin{array}{ccc} X_1 & Y_1 & Z_1 \\ \hline X_2 & Y_2 & Z_2 \end{array} \quad \begin{array}{l} \text{(Experimental)} \\ \\ \text{(Control)} \end{array}$$

The R indicates that the groups have been randomly assigned to

be either an experimental or a control group. The research design enables the study to be multivariate, testing several hypotheses, as well as being statistically verifiable and probabilistically relevant.[1]

Because of unequal N's, (subjects rated) random sampling from the control group was exercised to gain an equal number of subjects in the control and experimental groups from each school site. Subjects were paired in each of the five concept areas by ranking each sample from low to high, then separately pairing each subject with the respective rank for each concept from the opposite group. In this manner the lowest score in the experimental group was matched with the lowest score in the control group, the next lowest in the experimental was matched with the next lowest in the control group, and so on through the complete ranking order.

This balancing of experimental with control group N left a total of eighty-four N, divided equally into forty-two experimental and forty-two control subjects. This figure is well over the minimum of thirty N which is recommended as being adequate for statistical treatment with semantic differential scoring techniques by Downie and Heath,[2] statistics specialists.

From the remaining sixteen subjects, ten were randomly selected to test the judgment reliability or the amount of agreement existing among the seven judges over the five concepts. Kendall's Coefficient

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[1]Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1965), p. 303.

[2]N. M. Downie and R. W. Heath, Basic Statistical Methods (New York: Harper, 1959).

of Concordance W was used to test for the amount of agreement among the judges and a Chi Square test appropriate to the W was used to test the significance of the agreement. This was to assert a measurement of the relationship among the several rankings of concepts and individuals. This test is particularly useful in studies of interjudge or intertest reliability, and has usefulness in problems with clusters of variables.[1]

A standard score was arbitrarily set as the basis for agreement in order to have an index of the divergence of the actual score agreement shown in the data. W then is the coefficient of such concordance. To compute W, one must sum the ranks, R_j, in each column of a k (judges) times N (subjects) table. Then one must sum the R_j and divide that sum by N to obtain the mean value of the R_j. Each of the R_j may then be expressed as a deviation from the mean value. The s, the sum of the squares of these deviations is found. From this, one may compute the value of W. The W formula[2] is:

$$W = \frac{s}{\frac{1}{12} k^2 (N^3 - N) - K \sum T_t}$$

The formula applied for testing the significance of W was:

$$X^2_{(N-1)df} = k(N-1)W$$

Table 1 contains the W, X^2, and significance level for the reliability check. Reliability equal to or less than an alpha of .05 was accepted as significant. All five of the coefficients were highly probable at or above the .001 level of significance.

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[1]Sidney Siegel, Non-parametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Co., Inc., 1956), pp. 3-7.

[2]Ibid., p. 231.

A high or significant value of W may be interpreted as signifying essentially similar standards used by the judges in rating the subjects over the conceptual qualities. A high or significant value of W does not necessarily mean that the judgments are correct. But the assumption may be made that the content of the assessment instrument and the understanding and agreement of the judges were significant for all concepts. Another assumption that one may make is that the group of seven judges, all of whom have masters degrees in music education and most of whom are working on the doctorate in music education, have agreed to a significant degree upon those values and characteristics of music performance which should bear a high degree of relevance if education and experience can provide that criteria.

TABLE 1

RELIABILITY AND SIGNIFICANCE OF TEST MEASURES

Concept	W	X^2	p
Intonation	.615	38.745	.001
Tone Quality	.829	52.227	.001
Rhythm	.694	43.722	.001
Sight Singing	.712	44.856	.001
Sight Reading	.581	36.603	.001

W shows the coefficients of the agreement among the judges. X^2 is the assessed test of significance scores for W. (p) is the probability level.

The establishment of the reliability and significance index by the assessment procedures was followed with a test for the significant

differences between the experimental and control groups for each concept. This was conducted by using the t test for dependent measure under the following formula:

$$t_{(N-1)df} = \frac{\frac{\Sigma D}{N}}{\frac{N\Sigma D^2 - (\Sigma D)^2}{N^2 - (N-1)}}$$

In setting up the data for the t test for significant differences, scores from each of the experimental and control groups were sequentially ordered and then paired by rank from low to high. The control scores were subtracted from the experimental scores and the result was a D (difference) score for each pairing. These D scores were summed in the first column, then later squared as shown in column two, and the t formula was applied.

TABLE 2

TABLE OF SIGNIFICANT DIFFERENCES
EXPERIMENTAL VERSUS CONTROL

Concept	D	D^2	t	p
Intonation	1324	160958	3.788	.0005
Tone Quality	1787	168265	5.842	.0005
Rhythm	3804	475871	10.129	.0005
Sight Singing	1819	122219	8.624	.0005
Sight Reading	2639	251125	8.927	.0005

The differences indicated in Table 2 were all significant at or above the .0005 level of significance. This was an indication that the

breath impulse method was significantly a better method for achieving these five conceptual qualities in music performance than was the traditional method which excluded the breath impulse. The t scores also quantify the tested concept in such a manner as to allow the five concepts to be ranked based on the degrees of differences occurring. The largest t was for rhythm, this was followed by sight reading, sight singing, tone quality, and intonation in respective order of occurrence for t values. The indication was that the impulse method of teaching had the greatest degree of effect on the performance of rhythms when rhythm is judged by the methods used. Of the five qualities measured, intonation, although significant, was least affected by the breath impulse technique.

Statistical analyses on Table 1 and 2 were based of necessity on random sampling of the entire number of test participants. It is interesting to note that a table of means and medians based on raw scores show a number of relevancies to the findings under more disciplined measurement procedures.

Table 3 (A, B, and C) shows a raw score index demonstrating the medians and means scores for the entire sample of uneven N's separated into the three individual sites. At Site 1, the widest difference between means on any concept item differentiating between the experimental and control groups was in rhythm. The difference established is demonstrated by the score level of 228 for the experimental group and 165 for the control group. Site 1 had the only two scores in the entire study in which a control group scored higher than the experimental group. The two scores were in tone quality and intonation, but these were quite close to the comparable scores of the experimental group. In all other comparisons

TABLE 3 (A)

ADAPTED SEMANTIC DIFFERENTIAL RATING SCORES
MEANS AND MEDIANS

Site 1	Intonation		Tone Quality		Rhythm		Sight Sing		Sight Read	
	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.
	319	358	261	326	410	347	303	348	344	423
	249	325	242	311	355	286	160	177	343	387
	241	313	210	262	236	286	136	134	236	356
	222	310	174	217	209	272	114	124	208	338
	222	288	166	216	187	228	109	123	196	333
	161	287	127	215	180	215	86	96	176	180
	155	263	116	214	160	214	75	91	111	174
	154	261	98	212	77	199	63	89	63	168
		249		201		140		84		166
		242		193		137		81		118
		217		184		134		79		118
		208		183		126		78		117
		205		178		115		78		103
		203		142		100		77		99
		193		123		97		76		99
		181		120		90		76		85
		157		115		90		76		84
		156		107		86		69		82
		137		104		67		65		77
		120		96		66		63		72
Means	218	234	178	186	228	165	130	104	211	179
Medians	222	230	174	189	209	136	114	80	208	118

of means at all school sites, the experimental groups scored significantly higher than the control groups.

At the Site 2, the widest variance between means was scored in rhythm also. The experimental group scored a mean of 221 and the control group rhythm mean was 138. The performance area of intonation provided the closest measures of comparison in raw score with the experimental group being scored at a mean of 228, while the control group had

TABLE 3 (B)

ADAPTED SEMANTIC DIFFERENTIAL RATING SCORES
MEANS AND MEDIANS

Site 2	Intonation		Tone Quality		Rhythm		Sight Sing		Sight Read	
	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.
	343	290	323	245	429	258	324	177	420	260
	332	281	305	216	394	254	281	162	298	236
	327	263	290	198	390	212	250	160	289	207
	309	262	242	193	323	184	211	145	286	207
	301	256	238	191	290	163	200	133	286	199
	300	252	237	191	276	162	197	131	283	186
	292	235	226	187	261	149	170	119	226	171
	277	227	225	178	242	148	165	111	218	148
	260	222	218	174	237	145	152	109	196	144
	249	220	215	169	228	145	148	97	196	143
	241	214	198	163	218	142	138	96	195	137
	239	209	198	162	206	136	123	90	195	136
	210	209	181	159	199	132	122	90	194	136
	208	208	180	158	190	131	119	85	190	136
	187	205	176	157	187	116	117	85	178	123
	174	184	162	157	180	112	104	81	169	120
	172	179	158	155	163	109	94	79	138	112
	169	178	151	151	142	106	87	78	125	104
	164	168	143	144	126	105	81	78	123	99
	153	159	142	135	107	105	80	76	108	93
	128	147	141	133	102	99	74	75	106	91
	118	144	97	132	100	98	73	70	72	81
	88	105	94	128	99	93	72	70	69	77
		96		99		71		67		71
		90		81		63		66		66
Means	228	200	197	162	221	138	147	101	198	139
Medians	239	209	198	159	206	132	123	90	195	136

a mean score of 200. At Site 3, the greatest divergence of mean scores is indicated in the performance area of rhythm. Thus all three school sites showed by mean raw scores the greatest differences in the same area. The Site 3 experimental group received a mean score of 276 on

TABLE 3 (C)

ADAPTED SEMANTIC DIFFERENTIAL RATING SCORES
MEANS AND MEDIANS

Site 3	Intonation		Tone Quality		Rhythm		Sight Sing		Sight Read	
	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.
	375	309	310	322	397	244	301	294	337	332
	351	229	289	270	364	180	249	156	300	212
	349	217	279	219	333	154	237	129	293	189
	347	205	275	200	319	143	144	111	292	159
	345	188	272	183	300	142	131	106	282	146
	310	177	200	159	273	141	129	105	249	127
	242	177	193	155	246	123	120	102	197	106
	147	164	188	133	206	96	101	89	164	98
	109	156	158	117	170	94	87	81	160	94
	105	110	154	113	148	91	86	81	71	81
		100		94		75		67		66
Means	268	185	232	179	276	135	159	120	235	146
Medians	328	177	236	159	287	141	130	105	266	127

rhythm, while the control group received a score of 135. The closest score totals appeared in sight singing with the experimental group scored at 159 and the control group mean was 120. The highest mean score received by an experimental group occurred with the Site 3 group in rhythm. This mean score of 276 compares with other experimental group scores of 228 at Site 1 and 221 at Site 2. The highest group mean from any control group was at Site 1 in intonation. This Site 1 score of 234 compares with other control group scores of 200 at Site 2 and 185 at Site 3.

Observation of the Table 3 (A, B, and C) reveals that of the fifteen scored rankings of means related to the five concept areas at

three different school sites, the judges rated the experimental groups higher in thirteen and the control groups higher in two, and these two, intonation and tone quality at Site 1 were relatively close.

It was interesting to note that the median scores were in most instances relatively close to the means, but in no case were the scores of sufficient difference to change the rankings of the experimental and control groups as indicated by the means rankings.

CHAPTER V

CONCLUSIONS

This study was based on an effort to determine the effectiveness of an innovative technique of teaching the art of performance on a wind instrument. This innovational technique is referred to as the breath impulse technique and shortened in many references to it, as the BRIM technique. The BRIM technique is analogous in breath function to the accentuation of words or syllables in speech or in singing. The principal difference is that the BRIM technique requires a steady rhythmic accentuation in a series of breath pushes, a measured recurrence of breath accents regulated to a certain number per beat.

Most rhythmic demands of music require a feeling of subdivisions for the most accurate and subtle performances of notational requirements. These subdivisions of the basic pulse in music will usually relate to one of four types of beat fragmentations, two to a beat, three to a beat, four to a beat, and six to a beat. Most music can be played if a person has a basic concept and innate sensitivity to the proper positioning of these four basic subdivisions, if the physical skills are adequate to accommodate the performance on an instrument. The breath impulse technique causes a student to make these subdivisions with a natural body mechanism, one that is integral and intimately related to the processes of performance on a wind instrument. These four subdivisions can be learned and practiced through the means of a measurement of breath

exhalations synchronized to a given rhythmical pulse.

The compatibility of the primary requirements of music performance and the sequential characteristics needed to implement the requirements provides an ideal linkage of the breath impulse with rhythmic and rhythm learning. It is easier for the beginner to impulse only two times to a beat at leisurely tempos. Most of the musical rhythmic needs at this stage of development will require only this subdivision of the beat. As muscular development enables accelerated numbers of breath impulses to be used with a beat, the musical demands of the music tend to keep pace in basic requirements for more minute subdivisions of each beat. Thus muscular control, conceptualization of the meaning of musical symbology, and the increasing complexity of musical demands made upon the performer trace a pattern of parallelism and sequential justapposition.

These educational benefits are not restricted to rhythmic development alone. Through the impelling force of breath, the BRIM technique contributes substantially in the effort toward solid breath support of a tone being produced by a wind instrument. A completely activated respiratory support of breath facilitates the development of tone quality and intonation and pitch control. The tone quality requirements which encompass the development of a vibrato (diaphragm) are met by the very nature of the BRIM technique. This technique literally actuates the fundamental body involvement necessary for the production of a true diaphragm vibrato. The early and regular use of the BRIM technique appears to be a confirmed factor in the acceleration of control in this necessary facet of a mature, professional, indigenous tone requirement.

In setting up this problem, it was deemed feasible to implement

a study which would in effect place the breath impulse system in a school environment for the first time in situations where neither the students nor teacher had previous experience with the technique. The problem then centered around the implementation of this study in three school sites encompassing an experimental and a control group in each of the sites. The experimental group was scheduled to receive the breath impulse technique regularly. The control group was to be excluded completely from any use of the technique. It was hoped that from these samples an indication would be received relevant to the effectiveness of the technique in its application to procedures aimed at the development of performance skills on a wind instrument.

Literature selected for review related to this study centered for the most part around the concepts of body involvement with the innate dimensions of rhythm and rhythmic pulse. The consensus of most of the authors of the examined material confirmed concepts held by this writer that perceptivity of rhythmic configurations is aided immensely by the kinaesthetic quality of the experiences of confrontation. Massive body responses were said to have a more potent stimulus content than the more minute movements. There were theories stated relevant to the transferrance of the effects and learning accretions received by rhythmic stimuli. Arguments were documented in support of the importance of the uses of the vocal mechanism and the respiratory tract in a body centered type of kinaesthetic response to rhythm.

Other facets bearing upon the content of this study were involved in a discourse on the value and importance of tone coloration techniques.[1]

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[1] Seashore, op. cit., pp. 116-120.

Seashore extensively documents various studies based on the undulation of pitch in tone quality and the need for vibrato in the legitimate and professional performance of music. The importance of this reference to this study is that the vibrato is a natural by-product of the day to day use of the BRIM technique. The undulating characteristic of the breath impulse leads normally and easily to the full control and use of a diaphragm vibrato. The performer has the freedom of control in implementing the vibrato, or if not desired because of musical demands, he likewise has the control necessary to play with a straight, vibrato-less tone.

It was hypothesized at the outset of the study that a student taught with the breath impulse technique would show evidences of being a better, more mature sounding performer on a wind instrument after a certain period of time than would a student trained by methods which excluded the breath impulse technique. Specific hypotheses stated that after a certain length of time, students trained to use the BRIM technique would be able to play with better intonation, tone quality, and rhythm, and that they would be able to sight sing and sight read better than those students who were taught with methods which excluded the BRIM technique.

Collection and Collation of Data

After the exercise of many types of control and the passage of time required to expose the subjects to seven months of instruction, the initial step to collect data involved the tape recording of a performance test of a representative sample without bias of both experimental and control groups at each test site. These tapes were then played for the

assessment of performance levels by a board of seven music graduates or university graduate student judges.

The assessment instrument was an adaptation of the semantic differential, a development of Osgood, Suci, and Tannebaum. In this adaptation, nine paired adjectives separated by seven space steps were the descriptive terms that the judges were asked to spatially identify their ratings of the performance level of the concepts being performed which included intonation, tone quality, rhythm, sight singing, and sight reading. These semantic space steps were arbitrarily assigned a value score. The means of the nine paired adjectives provided the raw score for the subject on the given concept.

Statistical treatment of the raw data included random sampling procedures, an interjudge reliability assessment instrument under the Kendall Coefficient of Concordance W formula, a Chi Square evaluation to assess a test of significance score for W, and a t test for dependent measurement of significant differences between the experimental and the control groups. Referant to the W test, reliability equal to or less than an alpha of .05 was accepted as significant. All five of the coefficients were highly probable at or above the .001 level of significance. In the t test assessment for dependent measure, the differences were all significant at or above the .0005 level of significance.

Findings and Conclusions

The major findings of this experimental research were that the judges were in high agreement on the evaluation of students in the five concept areas. The highest point of agreement among the judges was on tone quality indicated by the W score of .829. Even though this

performance characteristic was in the lowest two concepts under the t test assessment of differences between the experimental and control groups, the judges were in highest agreement concerning the concept of tone quality. Rated next in terms of high agreement was sight singing at .712, followed closely by rhythm which was measured at the .694 level. Although the level of agreement for the concept of rhythm stands in third place, the t test for dependent measure placed rhythm in first place as the most significant difference in the scoring by the panel of judges.

In the t test for dependent measure of significant differences, following rhythm at 10.129, the next most significant difference between the experimental group and the control group was in the performance area of sight reading at 8.927, followed closely by sight singing at 8.624. As stated previously, tone quality was in the lowest two, standing at the 5.842 level, and lowest, though still significant was intonation which was assessed at 3.788.

It would be reasonable to assume that the two concepts, intonation and tone quality should stand at the lowest level in the assessment of differences between the experimental and control groups. As pointed out earlier in this report, these two areas of performance, especially tone quality, are more likely to show greater distinction after an interim of two or three years in the use of the breath impulse technique. It generally takes a student that length of time to fully assimilate and aptly coordinate the full resources of the technique. It is at this point that the fullest realization of its powers reveal the mature, characteristic concentration of tone beauty and fulfillment. Similarly, the substance of intonation is related closely to the complete control of the physical and mental implements of subtle concentration. Even though these factors

of performance may take two or three years to reach a more positive level of significance, it is still an acceleration of two of the most valued and important maturation coordinates of qualified musicianship.

It was gratifying to find that the three highest significant levels of differences between the experimental and control groups were in rhythm, sight reading, and sight singing. These three categories of performance are fundamentally important from every musical aspect. A performer, above all, has to have a fully developed sense of rhythm in order to be musically effective in any performing media. A beautiful tone quality, perfect intonation, and other necessary criteria for performance are nullified if a sense of rhythm is non-existent. Highly important also is the ability and skill of sight reading. A musician who must be taught by rote is seriously handicapped in every performing area which involves the ability to read at sight. The skill of sight reading provides a tool that is basically essential to all aspects of performance of an independent nature. Closely related to the skill of sight reading is that of sight singing. Even to the wind instrument performer, the ability to sight sing a passage enhances the musical character of its procreation.

The fact that students with only seven months of beginning band instruction have amassed such a significant difference in performance skills in all five areas is indicative of the importance of the breath impulse teaching technique. Based on the scores provided by the seven judges in the assessment of performing skills, the combined experimental groups measured significantly better than the combined control groups in all five performing categories. From the most significant difference to

the least, the categories of performance scored in this order: rhythm, sight reading, sight singing, tone quality, and least, but still significant, intonation. By the scores of measurements of these five essential performing skills, it may be safe to assume that the use of the breath impulse technique in the early stages of instruction will be reflected by wind instrument players with a greater degree of maturity and accomplishment in music performance in certain areas than those who are taught by methods which exclude the breath impulse technique.

It may be assumed that on the basis of the degree of significance and reliability of the testing procedure that the semantic differential adaptation may provide an assessment instrument that lends objectivity to a rather subjective limitation in the typical judgment of music performance. The fact that a high agreement did exist among the judges may indicate that the instrument is a feasible way to present linguistic spatial measurements uncluttered by variances in verbal skills or confusing rhetoric.

Recommendations

Based on present data, it seems fair to recommend the adoption of breath impulse techniques in the instruction of all wind instrument performers, especially in the early stages of instruction. It is further recommended that more detailed and exhaustive studies be made in the same general area of performance with stricter controls being exerted in the study by incorporating a standard pre-study assessment of musical talent and intelligence level. Though there is uncertainty about the validity of many of the existing talent and intelligence test, these rating indices may help substantiate to a higher degree the claims made for innovative

techniques. Other pre-study assessments might include a test or a survey of socio-economic and cultural influences. Other procedures might include a much broader scope in numbers of subjects and in a larger area. Another recommended procedure would involve the assessments of differences between experimental and control groups at various times in the course of development, possibly a test at the end of the first year of study, another at the end of the second, and still another at the end of the third.

Also recommended are further research studies into the use of the rating instrument used, the semantic differential in an adaptation. A careful and measured procedure to determine the proper kinds of polar or paired adjectives which would make the best descriptive semantic criteria for musical judgments would seem pertinent. Another recommended type of investigation would replace the panel of judges with a battery of scientific equipment. In this day of sophisticated instruments of measurement, it is no longer an impossible task to measure basic elements of tone quality, intonation, rhythm, and pitch with machines which can detect the most minute discrepancy in programmed measurement.

It is hoped that this present study will have actuated inquiry into the same and related teaching techniques. If successive research reinforces the conclusions seemingly justified by present data, the implications for the teaching of many fundamental skills will be increasingly significant. If improved teaching techniques result in increased opportunities for musical enrichment for the youth in our schools, any small contribution to that improvement is another step forward in the educational continuum.

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APPENDIX A

THE SCORING INSTRUMENT AND MUSIC PERFORMANCE TEST ITEMS

AN ADAPTATION OF A
SEMANTIC DIFFERENTIAL SCORING INSTRUMENT[1]

INSTRUCTIONS

The purpose of this evaluation is to measure as objectively as possible the performance on recorded tape of beginning band students who have had instrumental music instruction for approximately seven months. On each succeeding page of this booklet, you will have a concept to be judged simultaneously with the sounding of the performance on tape playback. As soon as it is possible for you to distinguish a rating of the concept, rate it on each of the scales in the order given.

If you feel that the musical concept to be assessed is very closely related to one adjective, place your check mark as follows:

good ___/___ ___ ___ ___ ___ ___ ___ bad

or

good ___ ___ ___ ___ ___ ___ ___/___ bad

If the musical concept is quite closely related to one of the adjectives, but not extremely, mark your assessment as follows:

good ___ ___/___ ___ ___ ___ ___ ___ bad

or

good ___ ___ ___ ___ ___ ___/___ ___ bad

If the musical concept seems only slightly related to one or the other adjectives but not neutral, check your judgment as follows:

good ___ ___ ___/___ ___ ___ ___ ___ bad

or

good ___ ___ ___ ___ ___/___ ___ ___ bad

If you consider the musical concept to be neutral on the scale, both sides similarly related, or if the scale is completely inappropriate, then indicate your decision in the middle blank:

good ___ ___ ___ ___/___ ___ ___ ___ bad

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[1]This form was adapted from a development by Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum. Refer to The Measurement of Meaning (Urbana: University of Illinois Press, 1957).

_____ Subject Code Number

_____ Score

_____ Test Item Number

AN ADAPTATION OF A
SEMANTIC DIFFERENTIAL SCORING INSTRUMENT

As you listen to the taped recording of the subject, formulate as objectively as possible an opinion regarding intonation. Disregard all other facets of the performance, concentrating solely on the demonstrated ability of the subject to play in tune. Rate the concept of the intonation on each of the scales in the order given.

CONCEPT TO BE JUDGED: INTONATION

good	___	___	___	___	___	___	___	bad
uncertain	___	___	___	___	___	___	___	definite
perceptive	___	___	___	___	___	___	___	insensitive
vague	___	___	___	___	___	___	___	precise
controlled	___	___	___	___	___	___	___	erratic
erroneous	___	___	___	___	___	___	___	accurate
confident	___	___	___	___	___	___	___	faltering
careless	___	___	___	___	___	___	___	meticulous
stable	___	___	___	___	___	___	___	variable

_____ Subject Code Number

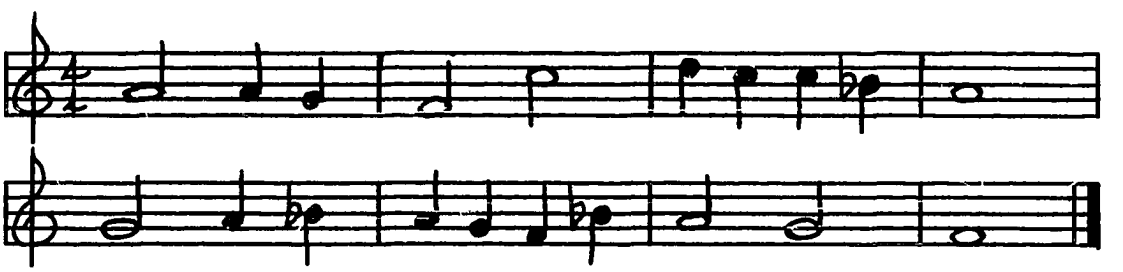
_____ Score

_____ Test Item Number

AN ADAPTATION OF A
SEMANTIC DIFFERENTIAL SCORING INSTRUMENT

As you listen to a taped recording of the subject, formulate as objectively as possible an opinion regarding the tone quality of the instrument heard. Disregard all other facets of the performance, including a possible traditional disapproval of a measured pulsation in the tone of certain instruments. Since some students were encouraged to use this measured, vibrato-like element in their playing, try not to discriminate against a tone on the basis of pulsating character.

CONCEPT TO BE RATED: TONE QUALITY



good	___	___	___	___	___	___	___	bad
ugly	___	___	___	___	___	___	___	beautiful
pleasant	___	___	___	___	___	___	___	deplorable
dull	___	___	___	___	___	___	___	resonant
rich	___	___	___	___	___	___	___	thin
strident	___	___	___	___	___	___	___	pure
centered	___	___	___	___	___	___	___	diffuse
coarse	___	___	___	___	___	___	___	refined
polished	___	___	___	___	___	___	___	harsh

_____ Subject Code Number

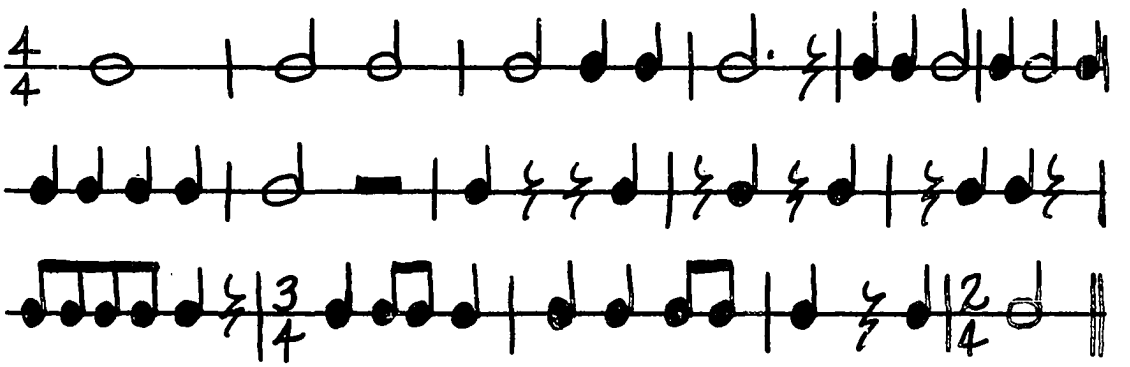
_____ Score

_____ Test Item Number

AN ADAPTATION OF A
SEMANTIC DIFFERENTIAL SCORING INSTRUMENT

As you listen to a taped recording of the subject, circle the measure(s) in which a rhythmic error occurs and formulate as objectively as possible an opinion relevant to the rhythmic grasp demonstrated by the subject. Disregard all other facets of the performance, concentrating only on rhythmic accuracy. Place a check mark on the space most indicative of your assessment.

CONCEPT TO BE RATED: RHYTHM



good	___	___	___	___	___	___	___	bad
uncertain	___	___	___	___	___	___	___	definite
perceptive	___	___	___	___	___	___	___	insensitive
vague	___	___	___	___	___	___	___	precise
controlled	___	___	___	___	___	___	___	erratic
erroneous	___	___	___	___	___	___	___	accurate
confident	___	___	___	___	___	___	___	faltering
careless	___	___	___	___	___	___	___	meticulous
stable	___	___	___	___	___	___	___	variable

_____ Subject Code Number

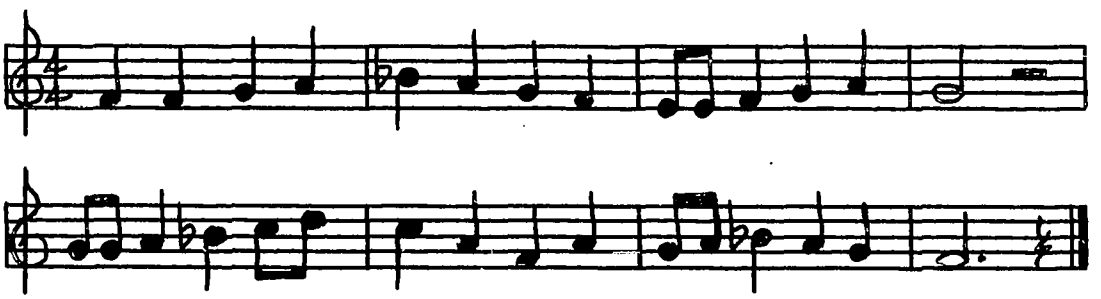
_____ Score

_____ Test Item Number

AN ADAPTATION OF A
SEMANTIC DIFFERENTIAL SCORING INSTRUMENT

As you listen to a taped recording of the subject, formulate as objectively as possible an opinion regarding the sight singing skill of the subject. Concentrate on the accuracy of pitch and rhythm; circle the measure(s) in which an error occurs. Indicate your assessment of the performance by placing a check mark on the appropriate space on each scale.

CONCEPT TO BE RATED: SIGHT SINGING SKILL



good	____	____	____	____	____	____	____	bad
uncertain	____	____	____	____	____	____	____	definite
perceptive	____	____	____	____	____	____	____	insensitive
vague	____	____	____	____	____	____	____	precise
controlled	____	____	____	____	____	____	____	erratic
erroneous	____	____	____	____	____	____	____	accurate
confident	____	____	____	____	____	____	____	faltering
careless	____	____	____	____	____	____	____	meticulous
stable	____	____	____	____	____	____	____	variable

_____ Subject Code Number

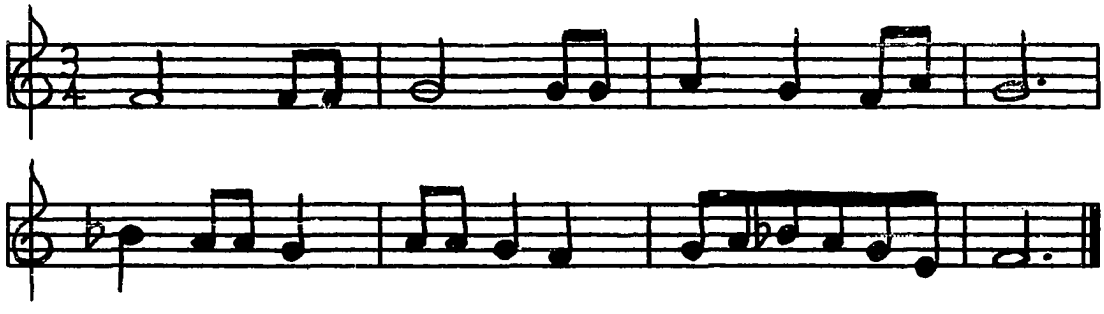
_____ Score

_____ Test Item Number

AN ADAPTATION OF A
SEMANTIC DIFFERENTIAL SCORING INSTRUMENT

As you listen to a taped recording of the subject, formulate as objectively as possible an opinion regarding the sight reading skill of the subject, the performance to be effected on a wind instrument. Concentrate on the accuracy of pitch and rhythm; circle the measure(s) in which an error occurs. Indicate your assessment of the performance by placing a check mark on the proper space on each rating scale.

CONCEPT TO BE RATED: SIGHT READING SKILL



good	____	____	____	____	____	____	____	bad
uncertain	____	____	____	____	____	____	____	definite
perceptive	____	____	____	____	____	____	____	insensitive
vague	____	____	____	____	____	____	____	precise
controlled	____	____	____	____	____	____	____	erratic
erroneous	____	____	____	____	____	____	____	accurate
confident	____	____	____	____	____	____	____	faltering
careless	____	____	____	____	____	____	____	meticulous
stable	____	____	____	____	____	____	____	variable

APPENDIX B

INDIVIDUAL SUBJECT SCORES AND JUDGMENT RATINGS BASED ON THE SEMANTIC DIFFERENTIAL ASSESSMENT INSTRUMENT ADAPTATION

A COMPOSITE TABULATION OF SCORES ON A

SEMANTIC DIFFERENTIAL ADAPTATION

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	28	35	28	24	35	46	26
	Tone Quality	11	40	55	20	32	31	21
EDE1	Rhythm	16	24	27	22	23	41	27
	Sight Singing	9	17	12	12	26	16	17
	Sight Reading	16	20	26	18	26	41	29
	Intonation	41	50	38	22	30	40	28
	Tone Quality	16	36	40	20	37	30	25
EDE2	Rhythm	13	50	43	34	35	30	30
	Sight Singing	20	27	17	18	20	12	26
	Sight Reading	22	49	23	28	29	16	29
	Intonation	32	39	34	26	27	62	21
	Tone Quality	24	43	52	25	16	57	25
EDE3	Rhythm	23	25	24	21	30	37	27
	Sight Singing	14	26	19	11	19	15	32
	Sight Reading	23	24	47	25	29	24	36
	Intonation	43	47	39	38	48	62	42
	Tone Quality	21	44	47	33	35	47	34
EDE4	Rhythm	28	27	20	25	45	42	22
	Sight Singing	35	42	49	41	48	45	43
	Sight Reading	19	43	29	31	45	42	27
	Intonation	16	18	18	18	21	45	19
	Tone Quality	9	18	30	9	21	12	17
EDE5	Rhythm	37	48	58	54	52	63	43
	Sight Singing	12	20	9	18	30	9	16
	Sight Reading	32	27	36	30	27	42	27
	Intonation	21	15	24	28	18	26	22
	Tone Quality	9	19	33	9	17	11	29
EDE6	Rhythm	14	20	33	44	42	46	37
	Sight Singing	9	9	9	9	12	9	9
	Sight Reading	9	9	27	9	9	16	20
	Intonation	21	12	36	36	9	36	11
	Tone Quality	9	17	20	9	14	9	20
EDE7	Rhythm	15	11	9	9	9	9	15
	Sight Singing	18	22	9	10	9	9	9
	Sight Reading	9	9	9	9	9	9	9

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	27	42	27	18	16	63	29
	Tone Quality	23	27	19	14	20	45	26
EDE8	Rhythm	16	15	9	18	18	45	39
	Sight Singing	9	9	9	9	9	9	9
	Sight Reading	32	46	54	54	37	63	60
	Intonation	31	30	27	27	41	52	28
	Tone Quality	18	30	35	9	18	28	28
EDE9	Rhythm	45	56	63	63	58	63	62
	Sight Singing	26	19	9	19	13	9	33
	Sight Reading	30	51	54	54	57	63	35
	Intonation	41	48	50	35	46	61	32
	Tone Quality	47	51	53	40	45	46	29
EDC1	Rhythm	44	54	17	45	46	49	31
	Sight Singing	17	24	12	15	21	15	19
	Sight Reading	52	56	44	46	53	48	39
	Intonation	57	54	53	34	59	63	38
	Tone Quality	37	54	57	35	52	47	44
EDC2	Rhythm	11	13	10	16	19	14	17
	Sight Singing	9	9	9	12	16	12	14
	Sight Reading	9	17	10	20	13	16	19
	Intonation	12	23	12	27	19	29	15
	Tone Quality	24	27	37	21	23	28	23
EDC3	Rhythm	21	29	14	21	24	18	22
	Sight Singing	25	23	19	14	18	10	15
	Sight Reading	17	28	15	14	11	10	23
	Intonation	46	44	50	31	54	54	31
	Tone Quality	20	36	42	22	28	36	31
EDC4	Rhythm	17	47	23	27	22	49	29
	Sight Singing	15	27	9	26	19	21	17
	Sight Reading	10	23	9	16	10	21	10
	Intonation	31	39	44	36	44	54	39
	Tone Quality	16	27	42	29	24	45	29
EDC5	Rhythm	15	32	50	28	39	26	25
	Sight Singing	9	12	13	12	14	9	10
	Sight Reading	59	61	63	63	56	63	63

TABULATION--Continued

Subjects Code No.	Concept Evaluated	Ratings Given by the Seven Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	30	33	41	39	44	43	25
	Tone Quality	14	19	31	9	19	14	14
EDC6	Rhythm	15	45	37	28	40	24	39
	Sight Singing	9	18	17	12	17	9	14
	Sight Reading	40	54	57	54	51	59	41
	Intonation	13	18	20	28	41	17	20
	Tone Quality	12	18	21	9	25	22	16
EDC7	Rhythm	12	18	22	28	13	17	27
	Sight Singing	9	15	10	9	16	10	9
	Sight Reading	18	22	18	25	22	53	16
	Intonation	41	43	52	34	49	54	52
	Tone Quality	27	30	37	21	23	54	25
EDC8	Rhythm	20	22	19	19	18	18	18
	Sight Singing	9	20	10	9	9	9	10
	Sight Reading	24	25	9	9	14	9	13
	Intonation	30	29	54	28	16	16	20
	Tone Quality	13	24	29	9	16	9	15
EDC9	Rhythm	9	15	18	14	11	9	14
	Sight Singing	9	15	9	9	9	9	9
	Sight Reading	9	13	9	9	9	9	14
	Intonation	32	34	27	27	17	49	19
	Tone Quality	21	32	28	18	22	39	33
EDC10	Rhythm	22	23	9	12	13	19	17
	Sight Singing	11	15	9	9	9	9	15
	Sight Reading	9	14	15	9	12	9	14
	Intonation	35	32	28	40	37	54	23
	Tone Quality	28	39	35	18	16	21	27
EDC11	Rhythm	30	49	32	38	41	54	42
	Sight Singing	47	49	54	40	59	46	53
	Sight Reading	48	56	62	45	54	63	59
	Intonation	31	31	18	25	43	54	40
	Tone Quality	17	44	32	18	35	31	24
EDC12	Rhythm	14	17	9	9	16	18	14
	Sight Singing	9	9	9	9	21	9	10
	Sight Reading	9	13	25	30	17	9	15

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	31	13	44	22	19	54	25
	Tone Quality	26	45	32	18	26	27	40
EDC13	Rhythm	25	13	18	20	13	12	25
	Sight Singing	9	9	9	9	9	9	11
	Sight Reading	18	23	25	17	14	47	22
	Intonation	18	28	45	29	18	54	31
	Tone Quality	28	28	39	20	24	30	47
EDC14	Rhythm	11	11	18	9	14	9	14
	Sight Singing	12	16	9	9	11	9	12
	Sight Reading	15	29	42	29	14	26	25
	Intonation	9	17	18	22	15	55	20
	Tone Quality	9	28	27	18	23	18	19
EDC15	Rhythm	9	11	9	9	9	9	11
	Sight Singing	11	16	18	10	9	9	11
	Sight Reading	11	23	18	18	11	17	19
	Intonation	17	25	27	17	17	53	25
	Tone Quality	14	15	17	19	10	14	18
EDC16	Rhythm	9	11	9	9	9	9	10
	Sight Singing	17	20	9	9	15	9	12
	Sight Reading	24	15	18	10	12	9	11
	Intonation	9	11	9	9	14	54	14
	Tone Quality	9	18	9	9	17	9	25
EDC17	Rhythm	9	45	27	45	25	18	30
	Sight Singing	9	13	9	9	10	9	17
	Sight Reading	9	16	18	9	10	9	14
	Intonation	27	44	18	9	12	63	30
	Tone Quality	9	23	9	10	14	16	23
EDC18	Rhythm	15	15	9	9	11	18	13
	Sight Singing	9	9	9	9	9	9	9
	Sight Reading	9	11	9	9	10	18	11
	Intonation	30	48	54	28	33	54	43
	Tone Quality	18	20	24	28	19	27	42
EDC19	Rhythm	14	48	45	45	35	45	40
	Sight Singing	16	20	9	9	12	9	14
	Sight Reading	14	21	18	18	29	36	32

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	53	46	34	28	34	63	30
	Tone Quality	53	25	36	32	23	54	39
EDC20	Rhythm	55	52	36	54	42	63	45
	Sight Singing	26	38	32	28	15	18	20
	Sight Reading	30	51	45	54	50	54	49
	Intonation	21	22	18	17	36	41	19
	Tone Quality	15	23	28	18	28	28	22
ELE1	Rhythm	51	26	9	30	28	46	28
	Sight Singing	24	44	27	31	28	23	23
	Sight Reading	14	36	27	27	15	50	26
	Intonation	9	9	9	30	36	16	9
	Tone Quality	9	22	26	18	36	13	17
ELE2	Rhythm	25	18	18	17	16	18	14
	Sight Singing	9	9	9	10	15	9	12
	Sight Reading	9	9	9	9	15	9	9
	Intonation	9	9	13	10	21	10	16
	Tone Quality	9	12	17	9	21	9	17
ELE3	Rhythm	18	18	12	9	15	9	18
	Sight Singing	25	45	36	41	44	54	36
	Sight Reading	9	22	19	20	23	28	17
	Intonation	39	27	18	18	23	63	22
	Tone Quality	24	40	21	13	43	63	38
ELE4	Rhythm	35	38	27	21	52	60	28
	Sight Singing	17	25	30	31	28	42	24
	Sight Reading	32	36	41	45	54	54	24
	Intonation	30	23	27	14	15	60	18
	Tone Quality	26	23	26	12	17	50	27
ELE5	Rhythm	22	19	9	9	9	20	14
	Sight Singing	36	9	9	9	36	9	14
	Sight Reading	18	17	9	9	15	18	20
	Intonation	39	40	28	25	14	63	32
	Tone Quality	25	24	31	30	24	44	27
ELE6	Rhythm	19	9	9	9	28	14	19
	Sight Singing	22	17	17	20	23	9	15
	Sight Reading	17	15	11	9	20	20	16

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	53	30	27	28	45	50	44
	Tone Quality	35	22	30	30	26	41	34
ELE7	Rhythm	39	21	27	30	25	27	30
	Sight Singing	18	9	9	9	18	9	15
	Sight Reading	17	37	28	37	28	50	22
	Intonation	9	25	27	24	23	22	23
	Tone Quality	21	16	32	23	24	9	26
ELE8	Rhythm	26	25	27	32	43	63	26
	Sight Singing	15	21	27	27	48	9	23
	Sight Reading	17	42	50	43	51	53	33
	Intonation	28	29	18	9	16	45	27
	Tone Quality	12	22	18	13	19	27	32
ELE9	Rhythm	24	39	18	13	9	42	18
	Sight Singing	9	9	9	9	18	9	9
	Sight Reading	9	41	27	24	24	49	22
	Intonation	22	24	18	16	23	53	54
	Tone Quality	29	26	18	18	23	30	36
ELE10	Rhythm	26	19	9	9	19	9	9
	Sight Singing	9	18	9	9	15	9	12
	Sight Reading	18	19	25	22	18	9	14
	Intonation	58	49	27	26	29	63	56
	Tone Quality	45	44	45	31	24	54	47
ELE11	Rhythm	49	46	29	29	44	45	48
	Sight Singing	14	18	18	9	15	9	11
	Sight Reading	42	33	47	45	43	54	22
	Intonation	38	46	28	23	32	27	45
	Tone Quality	36	33	39	19	24	27	20
ELE12	Rhythm	27	29	24	15	16	22	9
	Sight Singing	9	38	18	22	24	18	23
	Sight Reading	34	25	30	23	28	36	14
	Intonation	45	44	40	32	40	54	45
	Tone Quality	40	29	42	21	28	42	36
ELE13	Rhythm	28	27	35	16	29	17	28
	Sight Singing	9	9	9	9	15	9	14
	Sight Reading	37	40	44	36	41	54	31

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	48	48	24	33	39	63	46
	Tone Quality	35	18	26	12	31	27	27
ELE14	Rhythm	25	23	9	22	24	54	30
	Sight Singing	9	9	9	9	22	36	10
	Sight Reading	9	9	9	9	18	9	9
	Intonation	38	30	28	24	43	63	34
	Tone Quality	17	30	27	11	26	54	33
ELE15	Rhythm	35	27	27	19	27	63	30
	Sight Singing	29	34	26	20	28	45	29
	Sight Reading	27	30	27	19	28	45	18
	Intonation	53	50	45	43	43	48	50
	Tone Quality	39	34	35	36	30	27	36
ELE16	Rhythm	28	47	40	47	47	63	51
	Sight Singing	23	45	19	29	39	45	50
	Sight Reading	27	36	18	21	31	27	35
	Intonation	16	16	17	18	19	27	15
	Tone Quality	10	12	9	9	24	18	15
ELE17	Rhythm	9	18	44	47	27	56	36
	Sight Singing	19	23	27	28	21	9	21
	Sight Reading	13	26	14	9	24	16	21
	Intonation	26	23	18	19	18	36	24
	Tone Quality	9	21	39	12	24	11	26
ELE18	Rhythm	14	21	18	11	27	63	36
	Sight Singing	15	20	9	9	28	18	18
	Sight Reading	18	21	27	15	37	36	24
	Intonation	53	58	53	28	44	63	28
	Tone Quality	40	56	49	38	41	54	45
ELE19	Rhythm	63	63	59	63	55	63	63
	Sight Singing	33	51	41	45	46	54	54
	Sight Reading	60	59	63	55	57	63	63
	Intonation	55	51	44	31	54	63	45
	Tone Quality	40	37	45	35	52	54	42
ELE20	Rhythm	63	63	50	49	58	63	48
	Sight Singing	18	36	20	27	37	9	18
	Sight Reading	18	37	26	24	50	54	17

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	31	31	39	31	54	54	28
	Tone Quality	32	46	24	26	30	33	35
ELE21	Rhythm	50	52	62	63	47	63	53
	Sight Singing	9	9	9	9	19	18	9
	Sight Reading	47	27	44	34	41	54	50
	Intonation	34	32	26	20	23	18	16
	Tone Quality	23	21	25	18	23	18	30
ELE22	Rhythm	31	26	17	29	22	54	27
	Sight Singing	14	24	13	18	30	9	11
	Sight Reading	24	29	28	24	29	45	17
	Intonation	36	48	26	32	40	63	47
	Tone Quality	24	42	26	30	39	30	34
ELE23	Rhythm	38	47	43	26	40	54	28
	Sight Singing	18	32	31	9	21	9	18
	Sight Reading	26	27	25	12	34	18	27
	Intonation	50	50	27	24	46	32	27
	Tone Quality	24	29	18	19	19	23	27
ELC1	Rhythm	13	17	18	12	18	9	22
	Sight Singing	9	18	16	23	13	15	17
	Sight Reading	13	16	42	25	11	18	18
	Intonation	10	17	22	22	21	31	24
	Tone Quality	9	20	19	17	22	32	32
ELC2	Rhythm	13	12	20	19	27	29	22
	Sight Singing	9	15	9	10	16	9	10
	Sight Reading	9	14	24	11	23	9	14
	Intonation	37	29	27	20	44	54	24
	Tone Quality	9	23	23	16	32	27	27
ELC3	Rhythm	35	33	21	21	24	9	20
	Sight Singing	13	21	13	14	30	9	19
	Sight Reading	9	13	20	19	18	45	20
	Intonation	18	21	27	27	25	44	46
	Tone Quality	18	23	27	22	21	12	32
ELC4	Rhythm	24	22	18	12	19	9	27
	Sight Singing	20	23	27	21	16	9	17
	Sight Reading	25	29	28	28	23	18	20

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	19	32	28	28	34	45	28
	Tone Quality	21	23	31	20	25	26	33
ELC5	Rhythm	19	37	28	27	23	28	22
	Sight Singing	9	21	13	9	15	9	20
	Sight Reading	18	27	24	21	28	42	47
	Intonation	28	44	45	28	28	45	47
	Tone Quality	9	22	24	20	36	38	44
ELC6	Rhythm	15	25	9	35	30	57	41
	Sight Singing	22	27	18	30	28	9	28
	Sight Reading	16	30	27	27	28	47	34
	Intonation	42	31	45	38	29	54	51
	Tone Quality	27	25	25	20	26	29	39
ELC7	Rhythm	34	34	28	28	42	54	38
	Sight Singing	32	35	26	16	31	9	28
	Sight Reading	36	34	18	29	28	27	35
	Intonation	9	9	9	9	36	9	9
	Tone Quality	9	13	15	9	21	9	23
ELC8	Rhythm	9	9	9	9	9	9	9
	Sight Singing	9	9	9	9	12	9	9
	Sight Reading	9	9	9	9	12	9	9
	Intonation	33	19	27	31	24	18	26
	Tone Quality	32	14	31	26	25	18	23
ELC9	Rhythm	18	11	13	9	15	9	23
	Sight Singing	9	9	9	9	12	9	13
	Sight Reading	46	24	45	30	23	45	23
	Intonation	26	26	45	31	44	54	54
	Tone Quality	14	17	29	16	18	28	22
ELC10	Rhythm	18	22	18	9	14	27	24
	Sight Singing	9	20	9	9	12	9	11
	Sight Reading	9	25	19	9	24	9	17
	Intonation	16	24	27	14	28	43	27
	Tone Quality	21	20	29	15	25	38	39
ELC11	Rhythm	26	26	10	14	18	18	24
	Sight Singing	9	9	9	9	24	9	9
	Sight Reading	14	12	18	9	21	9	16

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	35	44	38	22	27	10	18
	Tone Quality	28	18	29	30	23	23	23
ELC12	Rhythm	22	24	14	9	24	36	19
	Sight Singing	9	9	9	9	36	9	9
	Sight Reading	18	23	18	17	24	18	19
	Intonation	33	35	18	16	36	49	35
	Tone Quality	25	37	27	9	28	37	35
ELC13	Rhythm	19	9	9	9	31	9	20
	Sight Singing	14	17	9	9	19	9	13
	Sight Reading	14	9	18	9	18	9	16
	Intonation	9	9	9	9	23	18	19
	Tone Quality	9	9	27	9	25	27	22
ELC14	Rhythm	9	9	9	9	15	9	11
	Sight Singing	15	9	9	9	30	9	16
	Sight Reading	9	9	9	9	21	9	15
	Intonation	24	19	18	9	27	23	24
	Tone Quality	9	13	23	10	26	26	25
ELC15	Rhythm	9	9	10	9	28	18	22
	Sight Singing	9	9	9	9	21	9	15
	Sight Reading	9	18	18	9	31	27	11
	Intonation	30	39	26	20	33	45	27
	Tone Quality	29	16	9	9	24	18	28
ELC16	Rhythm	9	12	18	9	18	9	18
	Sight Singing	9	9	9	9	13	9	9
	Sight Reading	21	11	9	9	19	9	9
	Intonation	9	22	9	9	20	9	27
	Tone Quality	9	9	9	9	16	9	20
ELC17	Rhythm	15	25	9	9	25	18	11
	Sight Singing	9	9	9	9	22	9	18
	Sight Reading	9	14	9	9	12	9	9
	Intonation	36	51	45	23	43	27	27
	Tone Quality	34	23	45	27	44	27	45
ELC18	Rhythm	17	15	27	18	19	18	31
	Sight Singing	9	9	9	9	15	10	9
	Sight Reading	10	24	18	9	33	27	16

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	41	34	17	18	45	27	45
	Tone Quality	22	26	27	18	51	36	36
ELC19	Rhythm	27	32	39	33	33	45	45
	Sight Singing	25	26	17	27	38	9	18
	Sight Reading	44	29	27	20	50	54	36
	Intonation	10	27	27	39	44	36	26
	Tone Quality	9	22	14	11	29	40	33
ELC20	Rhythm	29	16	9	9	18	9	9
	Sight Singing	9	11	18	9	20	9	9
	Sight Reading	18	22	21	9	26	9	15
	Intonation	26	24	18	24	25	28	23
	Tone Quality	23	18	27	9	28	31	27
ELC21	Rhythm	21	19	17	18	23	27	24
	Sight Singing	9	9	9	9	22	9	9
	Sight Reading	14	20	17	17	27	27	14
	Intonation	14	33	17	30	30	45	36
	Tone Quality	10	32	15	27	22	29	27
ELC22	Rhythm	18	23	17	29	33	9	33
	Sight Singing	20	31	16	27	28	9	14
	Sight Reading	14	23	17	23	25	54	30
	Intonation	39	37	18	21	21	27	26
	Tone Quality	31	24	22	9	28	22	21
ELC23	Rhythm	27	27	17	9	26	18	21
	Sight Reading	28	32	17	9	28	9	13
	Sight Singing	13	27	18	9	23	9	10
	Intonation	46	43	45	35	31	36	27
	Tone Quality	23	24	36	30	29	18	30
ELC24	Rhythm	17	23	17	11	21	9	18
	Sight Singing	25	25	27	15	21	9	9
	Sight Reading	14	23	17	9	27	49	9
	Intonation	9	14	17	25	25	51	18
	Tone Quality	9	21	18	18	24	27	18
ELC25	Rhythm	21	19	17	9	19	9	11
	Sight Singing	9	9	9	9	21	9	9
	Sight Reading	21	11	17	9	15	9	9

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	49	55	54	45	52	63	57
	Tone Quality	33	47	37	27	48	63	55
ME1	Rhythm	33	45	37	54	55	57	52
	Sight Singing	33	44	28	30	44	45	25
	Sight Reading	38	46	42	45	48	54	20
	Intonation	45	52	45	45	56	63	41
	Tone Quality	35	34	18	9	32	34	31
ME2	Rhythm	15	17	9	9	51	45	24
	Sight Singing	17	20	18	9	25	9	22
	Sight Reading	26	22	45	46	42	45	23
	Intonation	18	28	27	18	20	18	18
	Tone Quality	28	45	18	18	19	53	19
ME3	Rhythm	50	49	54	54	41	63	53
	Sight Singing	20	14	9	9	9	9	17
	Sight Reading	19	36	45	45	45	54	38
	Intonation	54	51	45	45	44	57	53
	Tone Quality	50	31	45	28	24	45	52
ME4	Rhythm	55	57	45	63	51	63	63
	Sight Singing	32	51	45	33	52	36	52
	Sight Reading	31	54	54	39	54	51	54
	Intonation	23	10	18	18	17	9	14
	Tone Quality	16	20	32	10	22	36	22
ME5	Rhythm	18	18	9	17	21	38	27
	Sight Singing	16	16	9	9	15	9	12
	Sight Reading	9	14	9	9	9	9	12
	Intonation	32	50	54	39	29	63	43
	Tone Quality	49	23	37	34	24	58	47
ME6	Rhythm	47	47	37	33	15	36	38
	Sight Singing	20	23	9	9	13	9	18
	Sight Reading	23	29	26	27	26	15	14
	Intonation	54	53	41	16	45	63	59
	Tone Quality	45	43	42	26	37	52	44
ME7	Rhythm	55	44	52	54	39	48	27
	Sight Singing	28	41	36	24	25	36	47
	Sight Reading	25	40	56	46	43	60	22

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	18	29	33	30	27	63	42
	Tone Quality	20	20	35	21	23	50	19
ME8	Rhythm	26	32	54	54	43	58	33
	Sight Singing	12	27	18	9	25	18	22
	Sight Reading	23	39	50	45	48	58	37
	Intonation	51	50	43	40	44	63	54
	Tone Quality	42	44	36	29	43	54	31
ME9	Rhythm	35	26	35	29	29	27	25
	Sight Singing	21	28	18	29	11	9	13
	Sight Reading	29	25	45	35	23	18	22
	Intonation	18	17	9	13	21	9	18
	Tone Quality	21	28	32	20	23	9	21
ME10	Rhythm	32	29	45	45	21	50	24
	Sight Singing	24	21	27	18	24	9	21
	Sight Reading	13	18	45	29	31	9	19
	Intonation	23	14	9	25	20	45	20
	Tone Quality	9	18	24	9	18	9	26
MC1	Rhythm	9	10	22	18	12	9	14
	Sight Singing	9	9	9	9	11	9	11
	Sight Reading	9	9	9	9	12	9	9
	Intonation	18	17	18	18	17	54	22
	Tone Quality	12	24	18	13	16	14	20
MC2	Rhythm	11	14	9	9	10	9	13
	Sight Singing	14	20	9	9	10	9	10
	Sight Reading	11	17	18	18	15	9	18
	Intonation	54	44	45	33	34	49	49
	Tone Quality	52	49	49	42	26	55	49
MC3	Rhythm	50	42	43	47	13	28	21
	Sight Singing	34	54	54	49	30	18	55
	Sight Reading	43	53	54	54	30	53	45
	Intonation	25	32	30	28	30	36	24
	Tone Quality	22	22	27	24	17	21	22
MC4	Rhythm	36	27	28	17	14	36	22
	Sight Singing	28	24	9	9	9	9	14
	Sight Reading	31	23	27	11	12	34	21

TABULATION--Continued

Subject Code No.	Concept Evaluated	Ratings Given by the Seven Judges: #1	#2	#3	#4	#5	#6	#7
	Intonation	15	18	9	14	12	27	15
	Tone Quality	9	21	24	9	20	27	28
MC5	Rhythm	27	23	27	13	10	27	15
	Sight Singing	28	22	9	9	9	9	19
	Sight Reading	31	33	36	22	15	54	21
	Intonation	32	25	45	47	14	45	27
	Tone Quality	27	30	33	30	22	30	28
MC6	Rhythm	37	25	27	19	13	18	15
	Sight Singing	21	21	18	9	36	9	15
	Sight Reading	24	16	9	10	12	9	14
	Intonation	30	23	18	29	36	27	14
	Tone Quality	30	40	41	45	27	54	33
MC7	Rhythm	30	22	18	22	10	18	21
	Sight Singing	24	11	9	9	15	9	12
	Sight Reading	20	18	27	11	18	34	18
	Intonation	22	22	31	33	19	27	23
	Tone Quality	14	25	18	18	22	36	26
MC8	Rhythm	9	20	9	10	18	9	16
	Sight Singing	20	26	9	9	18	9	20
	Sight Reading	9	14	19	14	13	9	20
	Intonation	9	9	9	12	36	9	16
	Tone Quality	9	21	9	9	21	9	16
MC9	Rhythm	9	13	27	9	15	9	14
	Sight Singing	9	16	9	9	15	9	14
	Sight Reading	9	11	18	9	13	9	12
	Intonation	43	36	36	36	36	9	21
	Tone Quality	44	30	27	37	27	9	45
MC10	Rhythm	20	27	18	14	13	27	30
	Sight Singing	24	29	9	27	27	18	22
	Sight Reading	36	25	31	31	20	27	19
	Intonation	33	25	28	36	30	9	27
	Tone Quality	23	24	35	34	36	9	22
MC11	Rhythm	13	26	18	12	18	18	18
	Sight Singing	27	21	10	9	15	9	15
	Sight Reading	23	22	18	9	15	27	13