THE INFLUENCE OF SELECTED FACTORS ON GROWTH IN SIGHT SINGING AND RHYTHMIC READING

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
JOYCE JOHNSON BOLDEN
1967

This is to certify that the

thesis entitled

THE INFLUENCE OF SELECTED FACTORS
ON GROWTH IN SIGHT SINGING AND
RHYTHMIC READING

presented by

Joyce Johnson Bolden

has been accepted towards fulfillment
of the requirements for

Ph. D. degree in Music

Robert H Sidwell
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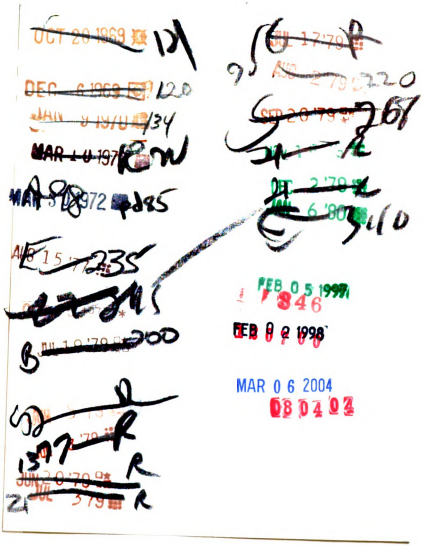
Date May 9, 1967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ABSTRACT

THE INFLUENCE OF SELECTED FACTORS ON
GROWTH IN SIGHT SINGING AND
RHYTHMIC READING

by Joyce Johnson Bolden

This experimental study was made to determine the extent of the influence, if any, of the piano keyboard, syllables/letters, and recorder on growth in sight singing and rhythmic reading. In addition, the study was to investigate the contention that there was a difference in the effectiveness of modes of instruction as growth regulators in regard to sight singing and rhythmic reading abilities.

Three hundred and forty-eight elementary education majors enrolled in nine sections of Music Foundations at Michigan State University were involved in the research. Three teachers taught three sections each of this class employing for each section a different mode of instruction, i.e., piano keyboard, syllables/letters, recorder. Thus, Teacher X taught one section emphasizing the use of the piano keyboard, one section emphasizing the use of syllables/letters, and a third section emphasizing the use of the recorder. Teachers Y and Z used the same procedure. These three factors were used in each case as an approach to sight singing and rhythmic reading.

Each student in the nine sections was given the following tests: pre-test sight singing, pre-test rhythmic reading, post-test sight singing, post-test rhythmic reading, and the Kwalwasser-Ruch Test of Musical

Accomplishment. A questionnaire was formulated in order to obtain some information about the musical background and interest of the student. A numerical representation of this information was included as one of the scores for each student.

The nine sections were subsequently arranged into three groups composed of three sections. Each group consisted of students in sections which had used the same approach to rhythmic reading and sight singing. A Counterbalance Design was chosen for the study. This provided the controls for the treatment, groups, and teachers. A one-way analysis of variance design was selected as an appropriate statistical procedure to test the hypothesis posited. The .05 level of significance was adopted as the criterion for accepting or rejecting this hypothesis. The necessary computations were done through the Michigan State University Computer Center.

In order to ascertain the effect of the three factors on growth in sight singing and rhythmic reading, it was necessary to obtain information on the following points: (1) rhythmic reading mean gain, sight singing mean gain, and total mean gain for the three groups, (2) rhythmic reading mean gain, sight singing mean gain, and total mean gain when musical training was the independent variable, (3) rhythmic reading mean gain, sight singing mean gain, and total mean gain when the Kwalwasser-Ruch Test of Musical Accomplishment was the independent variable, (4) rhythmic reading mean gain when sight singing mean gain was the independent variable, and (5) sight singing mean gain when rhythmic reading mean gain was the independent variable.

The mean scores for musical training and the Kwalwasser-Ruch Test of Musical Accomplishment were used to determine if the composition of the three groups was equal. The musical training mean scores for Groups I, II, and III were: 8.24, 7.74, and 7.62, respectively. The Kwalwasser-Ruch Test of Musical Accomplishment mean scores for each of the groups were: 173.33, 175.32, and 174.65. Thus, the results showed that the groups were basically equal.

Of the three modes of instruction used in the study, the emphasis placed on syllables/letters as a growth regulator in developing sight singing and rhythmic reading resulted in this approach exceeding both the piano keyboard and recorder in effectiveness as regards rhythmic reading gain and total gain. The differences in rhythmic reading mean gains and total gains for the three groups were statistically significant, in both cases, at the 0.00 level of confidence, or less than .005. Even though syllables/letters produced the greatest increase in sight singing skill, this increase was not statistically significant.

Musical training exerted significant influence on each group individually in sight singing. It was shown that there was no relationship, however, between the amount of musical training and growth in rhythmic reading and total gain.

The Kwalwasser-Ruch Test of Musical Accomplishment scores did not show any relationship with any of the areas tested: rhythmic reading gain, sight singing gain or total gain.

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By

Joyce Johnson Bolden

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Music

1967

ACKNOWLEDGEMENTS

The writer wishes to express sincere appreciation to Dr. Robert G. Sidnell, her Thesis Director, for his wise counsel and guidance throughout this study.

She is also indebted to Dr. William R. Sur for his continuing encouragement and assistance as her Guidance Committee chairman.

Appreciation must also be expressed to others who contributed to this investigation:

Dr. Paul O. Harder, Dr. Walter H. Hodgson, and Miss Martha L. White, members of the writer's Guidance Committee, for their advice and direction.

Dr. George Duerksen for many helpful suggestions.

Miss Mable O. Miles, Dr. Charles M. McDermid, and Miss Eunice Wilcox, teachers in the study, for their invaluable participation.

James L., the writer's husband, and Pamela Joyce, her daughter, for their patience, understanding, and encouragement.

J. J. B.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

For many years the inclusion of music in the school curriculum has been foremost in the minds of music educators. A considerable amount of time has been trying to justify the place of music in the curriculum. "Why Teach Music," "Music, Too, Has A Place," or titles with like sentiments have commonly been read. Thus, music educators set out as similitudes of defense attorneys, armed for the fray. Circumstances, hopefully, have changed. Foster[1], in a book review, states:

> Frankly, it should no longer be necessary that music educators continue to vindicate the teaching of music. However, Mrs. Byer presents this section briefly and painlessly, not becoming guilting [sic] of circumlocution and ethereal claptrap.

It is true, music has proven that it is an integral part of the school curriculum. The "why" of music has been defended, however, a recurring problem continues to rear its head--the problem of "who", who should teach music.

The problem of who should teach music, unlike that of why music should be taught, is one which has been argued primarily among music

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[1]Jesse S. Foster, Review of Music Education in the Elementary School, by Maude Gerrior Byer, Journal of Research in Music Education, VI (Fall, 1958), 149.

educators. The "why" has been debated mainly by administrators and music educators. The attention that is being focused on the musical training of students preparing to become elementary teachers is partly the result of this dichotomy. Who should teach music in the elementary school, the classroom teacher or the music specialist?

This same controversy was discussed in Basic Concepts in Music Education.[2] Many of the authors took the position that the music specialist should be used in conjunction with the classroom teacher. On the other hand, many educators support the position that music should be treated as a special subject and taught solely by the music specialist. There is also a third opinion:

> There is little doubt that the best person to teach music is the classroom teacher who is musically competent. However, the application of this concept in situations where teachers lack musical competence has resulted in what is probably the most obvious failure of the self-contained organization plan, and in the resurgence of music as a special subject taught by music specialists in an effort to rebuild elementary music programs that have fallen into decay.[3]

When music education was first introduced into the public schools, persons specifically trained in music were employed to teach. Thus, music specialists were responsible for all classroom instruction in the public schools. Later, classroom teachers were given the responsibility for teaching music in elementary schools.[4] Currently,

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[2]National Society for the Study of Education, Basic Concepts in Music Education, Fifty-seventh Yearbook, Part I (Chicago: The University of Chicago Press, 1958).

[3]Robert Evans Nye and Vernice Trousdale Nye, Music in the Elementary School (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964), p. 377.

[4]Edward Bailey Birge, History of Public School Music in the United States (Philadelphia: The Oliver Ditson Co., 1937).

there are three general groups of music teachers in elementary schools.[5] In group one classroom teachers are responsible for the total program. The second group is composed of music specialists who are responsible alone for the entire music program. Classroom teachers and music specialists, acting jointly to produce an effective school music program, compose the third group. This category is often the most advantageous for it can combine the advantages of both the classroom teacher and music specialist. One of the new innovations being tried by some school systems is team teaching. The teacher whose strength lies in a given area teaches that area for the members of the team.

A survey was made by Ernst[6] of the school music programs in 48 cities whose population was over 150,000. It was revealed that the trend was toward greater use of the classroom teacher. A concern was expressed at the 1966 International Seminar on Teacher Education in Music regarding the need for education in music of the general classroom teacher. If this is the path that elementary school music is taking, then careful attention needs to be paid to the training of these elementary teachers in music.

Music is an integral part of the elementary curriculum, therefore, it cannot be isolated to the visit of the music specialist. The responsibility for its inclusion rests primarily upon the classroom teacher. It is essential that elementary teachers become thoroughly trained not only in music fundamentals, but also in the cultural background of music. It is imperative that an active interest in music be

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[5]Nye and Nye, op. cit., pp. 7-8.

[6]Karl D. Ernst, "A Study of Certain Practices in Music Education in School Systems of Cities Over 150,000," Journal of Research in Music Education, V (Spring, 1957), 23-30.

fostered in elementary teachers.

For these reasons, considerable attention has been focused on the nature of the musical training of students preparing to become elementary teachers. One aspect of this training has been the development of the ability to read music. More specifically, there should be additional skill in sight singing and increased emphasis on rhythmic reading.

MUSIC READING AND SIGHT SINGING

Music reading has been one of the greatest problems of pedagogy to confront laymen as well as musicians. What to teach, when to teach, how to teach, and the values of teaching are perennial problems. The purposive functions and goals of music reading are varied. Wheelwright[7] is of the opinion that "The average child needs to learn in the public schools much of the world's great folk and art music. Ability to read music merely serves as a valuable tool toward this goal. No longer must we consider it an end in itself. The process to function must be one of reading to learn worthwhile music."

A similar note is sounded by Swanson[8] who writes, "Unfortunately many teachers become so engrossed in teaching children to 'read notes' that they fail to teach music, which is much more than the notes on the page." Music educators tend to agree that music reading is simply an aid through which a deeper understanding of music may be gained.

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[7]Lorin F. Wheelwright, "Music Reading in the Elementary School," Education, LIX (May, 1939), 534.

[8]Bessie R. Swanson, Music in the Education of Children (Belmont, California: Wadsworth Publishing Co., Inc., 1962), p. 160.

A perusal of materials reveals that a great deal is written concerning the ability to read music with more emphasis on one aspect of this skill than the other. In a like manner, very little is said about sight singing. "In reading notation, two problems will present themselves: duration (rhythm) and pitch. . . The widespread misconception that rhythm is less important than pitch is indeed a mystery."[9] Mathew[10] expresses this view:

> What is the general standard of sight singing today? It would be interesting to know the percentage of singers who
>
> (a) Cannot read at all;
> (b) Can manage the easy bits;
> (c) Sing by ear;
> (d) Shamelessly beggar their neighbor;
> (e) Are reliable sight readers.
>
> If, as is to be feared, the numbers in category (e) are small, how is this stage of things to be altered, so that the standard may be raised to a high level, and non-readers become the exception, not the rule?

He concludes that sight singing should be taught throughout a pupil's career, not just in one or two grades. Murphy[11] points out another aspect:

> Reading is one of the most important means for the development of musical insight. . .it is primarily concerned with the ability to think music, that is, to read it silently. Vocal expression is only the objectification of this mental concept. Hence, ability to "sight sing" can hardly be regarded as the principal goal, but rather as a concomitant learning. . . resulting from the ability to think and to hear music abstractly.

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[9]Parks Grant, Music For Elementary Teachers (New York: Appleton-Century-Crofts, Inc., 1960), p. 89.

[10]A. G. Mathew, "Sight Singing," The Music Teacher and Piano Student, XLI (April, 1962), 177.

[11]Howard A. Murphy, Teaching Musicianship (New York: Coleman-Ross Co., Inc., 1950), p. 152.

APPROACHES TO MUSIC READING AND SIGHT SINGING

The search for ways and devices to teach music reading and sight singing has been in existence for many years. Two of the oldest ways are still being used today, the Latin syllables which evolved from a method devised by Guido d'Arezzo, and an instrumental approach which was first used by Odo of Cluny. Diverse other approaches have been advocated by educators. One that has received a great deal of attention is the keyboard approach.

It is purported that keyboard experiences and the piano keyboard have distinct advantages over other approaches to music reading, among which are the abilities to understand pitch differences, intervallic relationship of tones, and music notation. Correlated with these ideas are studies which have been made pertaining to the concept of motor-visual imagery. An important study in this area was one by Gaston.[12] He concludes:

> ...the findings of this study indicate that motor-visual imagery cannot be severed from the music experience of the individual without damaging his tonal thinking. Futhermore, it seems evident that if there is to be any tonal thinking it must be facilitated by motor-visual imagery.

In the same study Gaston points out the implications for music education:

> (1) Children will not learn to think tonally in an approved fashion, if at all, if they are given no tools for the production of motor-visual imagery. (2) They will need to be provided with opportunity and experience in an environment rich in motor-visual stimulants. (3) They will need to have a chance to integrate the senses by means of a space-frame. (4) This space-frame should match their maturation level in complexity of manipulation. The piano

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[12] E. Thayer Gaston, "Motor-Visual Imagery in Tonal Thinking," Music Educators National Conference, 1947, p. 100.

> keyboard is best for the larger, more mature students, but it is probably too complex for the little child in the beginning grades.[13]

Hargiss[14] contends that "a space frame is necessary in order to perceive tonal relationships, that the piano keyboard furnishes the best space frame, and that sight singing depends not only upon this perception but also upon vocal-motor imagery which is acquired by vocal practice."

Frisch[15] supports this statement regarding keyboard experience by also pointing out: "Keyboard experience . . . means gaining knowledge and enjoyment of music through the use of the keyboard or the classroom piano by 'seeing, hearing, and feeling.'"

Nye and Nye[16] observe that through the use of the piano keyboard many of the problems of music notation could be minimized.

> The reason is that the keyboard constitutes a highly significant audio-visual tool for learning. Children enjoy "picking out tunes" and in doing so on the bells or piano they <u>see</u> and <u>feel</u> and <u>hear</u> the interval relationships of tones. This can lead to a real comprehension of the meaning of the notes on the staff - a comprehension frequently lacking in children whose musical experiences have been confined to a singing approach.

Melody instruments have been a part of the elementary school

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[13] <u>Ibid.</u>, p. 100.

[14] Genevieve Hargiss, "The Acquisition of Sight Singing Ability in Piano Classes" (unpublished Doctoral dissertation, University of Kansas, 1960), p. 48.

[15] Fay Templeton Frisch, "Keyboard Experience and Class Piano Teaching," <u>Music Educators Journal</u>, XL (January, 1954), p. 25.

[16] Nye and Nye, <u>op. cit.</u>, p. 125.

music program for a long time, often being used as the instrumental approach to music reading. Most generally, these instruments were the Song Flute, Flutophone and the Tonette. In recent years there has been a revival of interest in the recorder, not only by school systems, but also by adult groups. "It is an interesting paradox to find that an instrument once discarded as being unsuitable for orchestral work should be revived in classrooms as a positive means of bringing music into the lives of children. Such is the case of the recorder. . . ."[17]

Advocators of the recorder cite reasons for its inclusion in the curriculum. These include the inexpensiveness of a genuine music instrument, the vast amount of music literature which has been written for it, the beautiful tone quality which the instrument is capable of producing, and the possible carry over from school to home, from childhood to adulthood. Weldon[18] cites two other reasons in addition to the ones just mentioned: the instrument is easy to play and the history of the instrument traced back over hundreds of years fascinates boys and girls.

Davis[19] conducted a study with recorders used as an aid in music reading. She makes the following statement as a result of the experiment: "I have found recorder playing to be the most satisfactory approach to good music reading for children in general music classes in

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[17] Don Cowan, "More About Recorders," Music Educators Journal, LII (September-October, 1965), 121.

[18] Richard Weldon, "A Teacher's Recommendation," The Instrumentalist, XII (November, 1957), 34.

[19] Erma Davis, "Come, Some Music! Come, The Recorder," Music Educators Journal, XLVII (June, 1961), 82-83.

the intermediate grades of the public schools." As the students learned the mechanics of the instrument, they learned simultaneously to read notes. Davis comments also that "there has been much satisfaction, interest and improved musical understanding through experience with the recorder."[20]

A third approach to music reading and sight singing is based on the use of syllables, numbers and letters. The use and value of these devices are still the subject of controversy in the elementary music program. Should they be used? Which method is the best? These are only two of the questions which keep arising. This seems quite incongruous when it is remembered that Lowell Mason was using all three methods as early as 1838. Swanson[21] comments that "Some of the controversy about syllables has arisen because of poor methods in using them. Either syllables or numbers. when properly used, can help children establish relationships of the tones of the scale."

In a study which was made to determine the necessary preparation for elementary teachers, Stroessler's[22] data revealed that more attention should be paid to developing skill in reading music with syllables and numbers. A similar study was made of the required musical competencies of elementary teachers in Maryland.[23] Among other

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[20]Ibid., p. 83.

[21]Swanson, op.cit., p. 170.

[22]John H. Stroessler, Music Teaching Competencies of Stanford Elementary Credential Candidates, (research abstracts, Stanford University, 1949), cited by William S. Larson, "Research Studies in Music Education," Music Educators Journal, XXXVI (June-July, 1950), 41.

[23]Jessie L. Fleming, "The Determination of Musical Experiences Designed to Develop the Musical Competencies Required of Elementary School Teachers in Maryland," Journal of Research in Music Education, I (Spring, 1953), 64.

competencies listed are these: to sing songs at sight which are of the same difficulty as folk songs and to sing at sight unison and part songs using numbers, letters, syllables, and words. All three methods, syllables, numbers or letters, are simply musical devices which aid in developing an understanding of tonal relationships of the degrees of the scale.

Integrated classes in music fundamentals for elementary education majors normally include as part of the instruction instrumental experiences and use of syllables/numbers/letters. These were the modes of instruction selected for this study, using three specific factors: the piano, the recorder, and syllables/letters.

PURPOSE OF THE STUDY

At Michigan State University the first music course required of prospective elementary teachers consists of providing these students with the necessary skills and tools to be used in teaching music in elementary school systems. This course is taught as an integrated course combining keyboard, instrumental and singing experiences, theory, and listening into one term. Classes in Music Foundations, Music 145, meet fifty minutes a day, five days a week for one term, a total of fifty hours of instructional time. Four quarter hours credit are given. One aspect of this training is the development of the ability to read music.

The problem was how to increase facility in sight singing and rhythmic reading. It was believed that the piano keyboard, syllables/letters, and recorder could be used as three modes of instruction for teaching sight singing and rhythmic reading. These learning modes, if emphasized, could serve as means for producing growth in sight singing

and rhythmic reading.

The purpose of this study was to determine the extent of the influence of selected factors, i.e., piano keyboard, recorder, and syllables/letters, on growth in sight singing and rhythmic reading abilities. It was also necessary to determine which factor, if any, was best. By emphasizing one skill above all others in the teaching of sight singing and rhythmic reading, it was believed that gains could be made not only in the use of the keyboard, syllables/letters, and recorder, but also in sight singing and rhythmic reading facility. Thus, a prospective elementary teacher could learn to use the keyboard, recorder and syllables/letters and at the same time gain skill in sight singing and rhythmic reading through these approaches.

HYPOTHESIS

This study was to investigate the contention that there was a difference in the effectiveness of modes of instruction as growth regulators in regard to sight singing and rhythmic reading abilities.

DEFINITION OF TERMS

Sight singing is defined as the ability to sing at sight with correct pitch and rhythm.

Rhythmic reading is defined as the ability to correctly clap or tap beats or rhythmic patterns at sight.

The piano keyboard is used as a means of providing a space frame for the perception and understanding of tonal relationships. On the keyboard intervallic relationships are clearly visual.

The recorder, as well as other wind instruments, serves as a means of "feeling" or fingering notes, thereby associating the physical response with vocal imagery.

Syllables/letters are musical devices used as an aid toward the development of understanding the tonal relationship of the degrees of the scale, a vocal response.

Emphasis is defined as 100 minutes per week.

ORDER OF PRESENTATION

The material presented in this study will be in the following order: Chapter II, A Review of the Literature; Chapter III, Method and Procedure; Chapter IV, Presentation and Analysis of the Data; and Chapter V, Summary, Conclusions and Recommendations.

CHAPTER II

REVIEW OF RELATED LITERATURE

A perusal of studies dealing with music reading, sight reading, sight singing and rhythmic reading reveals that there exists an abundance of published materials concerned with music reading and sight reading. There is, however, very little experimental research in the areas of sight singing and rhythmic reading. The nature and scope of the studies presented in this chapter are diverse as are the techniques used in the evaluation processes.

The literature presented is discussed according to four different categories: studies related to sight reading; studies related to sight singing; studies related to rhythmic reading; and studies related to music achievement and background.

STUDIES RELATED TO SIGHT READING

Burnau[1] made a study of the individual traits and abilities of good music sight readers as opposed to poor music sight readers in order to discover if certain abilities tend to aid in the sight reading process. The 54 subjects used in the study ranged in age from 14 to 18 and were in the instrumental music departments of three school systems. The results showed that good music readers tended to excel in verbal

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[1]John M. Burnau, "A Study of the Ability Patterns of a Group of Good Music Sight Readers and a Group of Poor Music Sight Readers" (unpublished Master's thesis, University of Kansas, 1952).

and non-verbal intelligence, musicality, musical achievement and background. However, there was no significant difference in the general musical interest and background of the two groups. Good music readers also excelled in auditory music imagery.

An interesting experiment was carried out by Kyme[2] comparing the effectiveness of different approaches on the skill of reading music at sight. Experimental groups were taught this skill through the use of shape notes. Three control groups used the traditional methods, i.e., sol-fa syllables for the second verse of a familiar song, numbers, and instrumental training. Results revealed that the experimental groups were superior to the control groups at the .01 level of significance. There was also evidence of compatability of the shape note technique with traditional approaches. This led the investigator to make the following statements: "It appears, therefore, that one can justify the use of this notational system even in those situations where the teacher is committed to one or another 'system' of teaching music reading."[3] "In the light of this evidence, music educators may wish to reappraise the shape note system of teaching sight-singing, a system in use for over 150 years in the Southeastern United States."[4]

Lewis[5] compared two methods of teaching sight reading to grades

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[2]George H. Kyme, "An Experiment in Teaching Children to Read Music With Shape Notes," Journal of Research in Music Education, VIII (Spring, 1960), 3-8.

[3]Ibid., p. 8.

[4]Ibid., p. 8.

[5]Virginia Herron Lewis, "A Comparative Study of Two Methods of Teaching Sight Reading in Fourth, Fifth, and Sixth Grade Music Classes" (unpublished Master's thesis, University of Texas, 1945).

four, five and six--the syllable method and the word method. The syllable method was superior as measured by an individual reading test (which was self-constructed) and in recognition of music themes. In the acquisition of musical information the word method was superior. It was also superior in an increase of interest and discrimination. She concludes that "The study seemed to confirm that the use of syllables improved sight reading efficiency; but concentration in sight reading detracted from acquisition of other desirable attitudes, knowledge and skills."[6]

It was reported by Fisher[7] that perceptual skills could be increased through the use of the tachistoscope by projecting a group of musical symbols to be read at sight. There appeared to be no loss in visual accuracy, on the contrary, visual memory increased. The students in this study were of various musical levels--3 in an elementary group and 6 in an advanced group.

The study of Beck[8] was not done in the area of sight reading, yet it was deemed necessary to include it in this section since it dealt with the use of keyboard experience as an approach to reading notation. The subjects were 35 third grade pupils who were taught through this method. Singing and listening lessons were also given in

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[6]Ibid., p. 92.

[7]Stanley Eugene Fisher, "An Inquiry Into the Technological Methods Applied to Development of Sightreading and/or Sightsinging Techniques" (unpublished Master's thesis, Illinois Wesleyan University, 1951).

[8]Mary Elizabeth Beck, "An Experiment in the Use of the Keyboard Approach to Reading Music Notation in the Third Grade" (unpublished Master's thesis, University of Arizona, 1938).

conjunction with the keyboard approach, however, in an abbreviated form. She concludes that the keyboard approach did prove to be advantageous.

STUDIES RELATED TO SIGHT SINGING

In an experimental study McClure[9] attempted to determine the relative merits of four public school music series in teaching beginning sight singing. A few years later, Kunkle[10] examined methods of teaching sight singing. He contended that three of these methods--Tonic Sol-Fa, Stationary Do and Instrumental--could make contributions to a new system of teaching sight singing. The new system was called the Direct Approach Method. His approach used no syllables and presented only a few notes at a time which centered around a home-tone. This method is quite similar to the instrumental approach. In order for the singer to become as good a reader as the instrumentalist, it is necessary that sufficient and appropriate material be given the singer so as to provide self-motivation. This type of material is included in the thesis.

The Barnes'[11] study investigated the effect of interval drill on sight singing skill. He reported that the experimental group which was subjected to drill performed significantly better than the control group in sight singing intervals and melody. There was also a high correlation between ability to sight sing intervals and ability to sight

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[9] Myrle Hubbard McClure, "A Comparison of Four Methods of Teaching Beginning Sight Singing" (unpublished Master's thesis, University of Cincinnati, 1944).

[10] Robert F. Kunkle, A Direct Approach to Sight Singing (research abstract, Duquesne University, 1946), cited by William S. Larson, "Research Studies in Music Education," Music Educators Journal, XXXVI (June-July, 1950), 41.

[11] James Woodrow Barnes, "An Experimental Study of Interval Drills As It Affects Sight Singing Skill" (unpublished Doctoral dissertation, Indiana University, 1960).

sing melody. He concludes, however, that it appears that sight singing melody ability is much more complex than sight singing interval ability. Furthermore, the ability to sight sing melody seems to be dependent on more factors than were accounted for in his experiment.

The effect of audio-visual aids on teaching sight singing was examined by Hutton.[12] Twenty fourth grade students were placed in an experimental or control group, respectively. Pre- and post-tests were given in sight singing as well as tests measuring word reading ability, intelligence quotient, previous musical experiences, musical ability and desire to perform with a musical instrument. Her contention was that the use of audio-visual aids was important as a means of teaching sight singing. Furthermore, they could supply the lack of background experience. The results showed that even though both groups showed significant increase in sight reading ability it was highly probable that the use of these aids would accelerate the learning process to a significant degree. It was also noted that there was no positive evidence of any correlation between sight reading ability and reading achievement at the fourth grade level.

The research which had the most direct bearing on this study was one conducted by Hargiss.[13] She made a thorough study of the keyboard approach to sight singing. This study was made in order to determine if sight singing could be taught in the piano laboratories simultaneously with keyboard skills without detriment to these skills. The subjects for the study were elementary education majors who were

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[12]Doris Hutton, "A Comparative Study of Two Methods of Teaching Sight-Singing in the Fourth Grade" (unpublished Master's thesis, University of Texas, 1951).

[13]Hargiss, op. cit., p. 130.

required to sing what they played and while they played. Results revealed that both the experimental and the control groups gained on the sight singing test, however, the subjects who sang what they played and while they played made highly significant gains in sight singing.

> It was concluded that understanding of music fundamentals and development of several kinds of imagery, which are provided by instrumental experience, are important and may, of themselves, enable many persons to sing at sight to some extent. However, the addition of vocal practice and its motor imagery enables them to develop the ability much more rapidly and effectively. The act of singing contributes to sight singing ability, not to non-vocal music reading ability nor to musicality.[14]

An investigation was made by Smith[15] into the evidence of auditory imagery in music reading. Three types of students--advanced, intermediate, and inexperienced--were included in the study. He states that "the process of seeing a symbol and creating a sound as a result is not simple; that this process postulates a highly complex group of reactions. These reactions are often directly related, and in some cases, not affected by training or experience."[16] His investigation showed that skill in music reading developed simultaneously with the development of auditory imagery and that a well developed auditory imagery appears to increase proficiency and success in sight reading.

STUDIES RELATED TO RHYTHMIC READING

It has been stated previously that there has been only a limited

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[14] Ibid, p. 138.

[15] Gustavus H. Smith, "Auditory Imagery in Music Reading: An Experimental Study" (unpublished Master's thesis, Stanford University, 1947).

[16] Ibid, p. 5.

amount of research concerned specifically with sight singing. In the area of rhythmic reading there is even less material available for study. One of the few studies in this field was made by Rea.[17] He states that "the main objective of this study was to determine whether or not a specialized type of training in the playing of rhythms would improve a student's sight-reading ability."[18] Twenty-two students of brass instruments, ranging from grades seven to twelve, were placed in experimental and control groups. This study was conducted during a summer training program. The results showed that both groups made a significant gain in the skill of sight reading. The gain for the experimental group was greater than that of the control group, but the range of scores was wider for the control group.

The conclusions drawn from this study were:

1. The gain of the experimental group over the control group was significant.

2. This gain was not due to chance but to the specialized training in the analysis and performance of rhythms. This statement can be made at the 5 per cent level of confidence.[19]

Helwig[20] contends that rhythmic understanding is a definite problem of musical organizations, that an organization of this type will fail to gain true insight into the music performed. He advocates that the director extract from scores to be performed any rhythmic problems, number these problems, and notate the proper counting above the pattern.

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[17] Ralph C. Rea, "Rhythm," The Instrumentalist, VII (November-December, 1952), 6,18.

[18] Ibid., p. 6.

[19] Ibid., p. 18.

[20] Herman Helwig, "Rhythmic Approach to Sight Reading, "The Instrumentalist, IX (February, 1955), 6-7.

These should then be rehearsed by all members before proceeding to sight read from the beginning of the score. "The sight reading results are definitely improved, and the students find a better understanding of rhythmic problems."[21]

STUDIES RELATED TO MUSIC ACHIEVEMENT AND BACKGROUND

Eagan[22] investigated the influence of the music background of college music students on their college achievement in music. The study was conducted over an eight-year period and was based on questionnaires and observations. The following conclusions were made:

> (1) The majority of the two hundred students took private music lessons outside of school time while they were enrolled in high school. (2) The more instruments the student studied privately during high school, the better his grades were in college instrumental study. (3) The study of only one instrument privately contributed nothing to college achievement in instrumental study. (4) The more pianos available in high school for practice purposes, the better the student did in college instrumental study. (5) College grades in vocal study were higher for those who had some singing experience in high school. (6) Private vocal lessons during high school contributed immensely toward achieving better grades in college vocal study, while more than one year of high school singing experience contributed little. (7) The time spent beyond one year of high school music theory study contributed little toward the achievement of high grades in college music theory. (8) The time spent beyond one-half year of high school music history and appreciation contributed nothing toward the achievement of high grades in college courses in like subjects. (9) The number of music teachers employed in the high school contributed proportionately to student success in college music. (10) Special music buildings, rooms, and practice rooms did not contribute much toward the student's achievement in college music. (11) A piano in the home, or a piano background, was not indispensable for success in college music. (12) Music literature in the home or home recordings did not contribute

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[21] Ibid., p. 7.

[22] Thomas E. Eagan, Relationship of Music Achievement and the Home and High School Music Background of College Music Majors (research abstract, Stanford University, 1947), cited by William S. Larson, "Research Studies in Music Education," Music Educators Journal, XXXVI (June-July, 1950), 42.

much toward success in college music. (13) Home radios contributed a great deal toward success in college music. (14) Children of musical parents did better in college music than did children of unmusical parents. (15) Pupils coming from homes with singing parents achieved higher grades in college music than did those students coming from homes where parents were instrumentally trained. (16) Musical background could be achieved privately and outside of high school. (17) The students with the highest general intelligence ratings received the highest grades in college music.

Dean[23], studying factors which influence ability to predict success or failure in sight singing, states that intelligence is not a very important element. Moreover, prior music training is only of slightly greater value.

These two studies appear to contradict each other--one contending the musical training does help, the other, that it helps only in a small measure; one, that intelligence is of importance, the other that intelligence is not. Perhaps these differences can be explained by two facts: Eagan's study involved college music majors, Dean's, persons in teacher education; Eagan contends that intelligence is a definite factor on high grades in college music, Dean, that intelligence is not very important in predicting success in sight singing.

SUMMARY

A review of research related to sight reading indicates that several different approaches have been tried: syllable and word methods, keyboard training, shape notes, tachistoscope drill, and isolation of various traits. Each was found to have some bearing on the ability to sight read. Studies related to sight singing varied from the use of

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[23]Charles D. Dean, "Predicting Sight Singing Ability in Teacher Education," Journal of Educational Psychology, XXXVIII (November, 1937), 601-608.

interval drill, audio-visual aids, a direct approach, auditory imagery, to a keyboard approach. All writers agreed on the importance of increasing the ability to sight sing, but not on the most effective approach. There were only very few materials dealing with the significance of rhythmic reading, however, the investigators in this area contended that the most important method was through the use of specialized training. Music achievement and background were shown to have some relationship, though varying greatly, to either higher grades in music or success in sight singing.

CHAPTER III

METHOD AND PROCEDURE

This chapter is concerned with discussions of basic procedures that were used in conducting the study. The content consists of descriptions of the following: population and setting for the research, teaching personnel, identification of the groups, experimental design, and organization and analysis of the data.

POPULATION AND SETTING FOR THE RESEARCH

The study was conducted in the Music Department of Michigan State University during the academic year 1965-66. It involved nine sections of students enrolled in Music Foundations, Music 145. This course is the first of two required music courses for students preparing to become elementary teachers. It was an integrated course which included the development of understanding and knowledge of music fundamentals, ear training, music reading, instrumental experiences, rhythm and tone problems. The classes met fifty minutes a day, five days a week for one term, a total of 50 hours instructional time. Four quarter hours credit was given.

Keyboard experience was conducted in special laboratories. Each laboratory was equipped with twelve pianos, thus providing more extensive equipment for piano experiences.

Subjects who were enrolled in the sections using the recorder as the primary mode of instruction were required to purchase individual

recorders. Individual practice rooms were available for both piano and recorder practice.

TEACHING PERSONNEL

Three teachers were chosen to each teach three sections of Music Foundations. A different factor was used for each of the sections taught by a given teacher, i.e., recorder for one section, syllables/letters for another section, and piano keyboard for the third section. These teachers were selected on the basis of their experience, adaptability, similarity of classroom atmosphere, and interest in the study. The teachers represented a variety of teaching experiences.

Teacher X had the least number of years of experience. She had taught 9 years and was most competent with factor one--piano keyboard. Teacher Y had the most amount of experience with 37 years. She was expecially proficient in the use of syllables--factor two. Teacher Z had 12 years of experience and was the most competent of the three teachers in the use of factor three--recorder. Thus, each teacher's strength lay in a different mode of instruction. This was of prime importance in the study for it prevented the teacher factor from being an overriding consideration.

This design was chosen for two reasons. First, it was believed that maximum instruction and learning would result in the section taught by the mode of instruction which was that teacher's primary interest and strength. Possibly, therefore, Teacher X, whose strength was the piano keyboard, could be expected to teach one of the three sections to be taught by her with greater efficiency than the other two. In order to offset this, Teacher Y was chosen for her strength in another mode of instruction, syllables/letters. In the same manner, Teacher Z was

selected for his proficiency in the use of the recorder. Therefore, each of the three teachers taught one section out of the nine in his particular strength.

Second, by requiring each teacher to use a different factor, i.e., piano keyboard, syllables/letters, recorder, for each of the three sections taught by that teacher, it was believed that this would counteract the possible effect of one teacher teaching at greater maximum effort than the other two. The danger would then be that all students in a particular group, for an example, piano keyboard, would have the distinct advantage of a better teacher. This group might tend to perform better in sight singing and rhythmic reading, thus causing more significant growth than with the other two modes of instruction.

TABLE I. TEACHER AND FACTOR DESIGN

	Fall Term 1965	Winter Term 1966	Spring Term 1966
Teacher X	Piano Keyboard Section 1	Syllables/Letters Section 6	------
	Recorder Section 2	------	------
Teacher Y	Piano Keyboard Section 3	Syllables/Letters Section 7	------
	Recorder Section 4	------	------
Teacher Z	Recorder Section 5	------	Piano Keyboard Section 8
	------	------	Syllables/ Letters Section 9

IDENTIFICATION OF THE GROUPS

The nine sections of Music Foundations which were used in the study were divided into three groups. Each group was composed of three sections of Music Foundations classes and employed one factor as the primary mode of instruction in sight singing and rhythmic reading. The subjects were assigned to a specific group on a random basis. These subjects were primarily freshmen and sophomores.

Their inclusion as a member of a group was only on the basis of being enrolled in that particular section. All sections were already intact as university classes. The group designated as Group I was composed of 106 subjects. The emphasized factor in this group was the piano keyboard. Group II consisted of 117 subjects. The factor, in this case, was syllables/letters. The last group, Group III, was composed of 125 subjects and the primary mode of instruction for sight singing and rhythmic reading was the recorder.

The same teaching material was used for all three groups, i.e., nine sections. Due to practical existing conditions, all three factors were presented in each section. It was felt that this realistic approach must be taken in the study since these were university classes. It was recognized that in order to have a truly scientific experimental design it would have been necessary to confine each section to the use of only one factor, however, to have done so would have prevented giving the prospective elementary teacher the skills necessary in an actual teaching situation. No attempt was made to dictate what was taught in the classes. However, it was requisite that the prescribed mode of instruction be used for sight singing and rhythmic reading, that emphasis

be placed on skill in these two areas, and reference made to the space frame of the piano keyboard, the tonal relationships of syllables/letters and the fingering or "feeling" of intervals on the recorder, respectively.

In order to counteract the employment of all three factors in the classes, emphasis was placed on only one factor. Emphasis is defined in this study as 100 minutes a week.

EXPERIMENTAL DESIGN

Pre-Test

Every student in the nine sections was given a pre-test in sight singing and a pre-test in rhythmic reading at the beginning of the term. The same test was used for both sight singing and rhythmic reading, however, the student was only required to concentrate on one skill at a time. The investigator discovered a dearth of satisfactory sight singing tests. This was due to a number of factors, however, the most important one for this study was that no one test provided a means of screening diverse levels of sight singing or rhythmic reading proficiency levels. The test that was used in this study was an adaptation, in part, by the investigator, of a test devised by Dr. Peter Wilhousky. This test was constructed so that succeeding measures increased in tonal and rhythmic complexity. A student was given one point for each pitch sung correctly and one point for each note that was clapped correctly.

Each test was conducted individually by the investigator in a sight singing booth. All sight singing tests were tape recorded. Prior to administering the pre-tests, the investigator was introduced to the sections and the subjects were informed about the study which was being

conducted. Nevertheless, before the pre-tests were given, an attempt was made to establish rapport between the subject and the investigator. After these preliminaries, the following instructions were given: "You will be given two tests, the first one is a rhythmic reading test and the second is a sight singing test. You will receive one point for every note that you clap correctly on the rhythmic reading test and one point for every pitch that you sing correctly on the sight singing test. Go through the entire test."

After the student had completed the rhythmic reading test he was given these additional instructions: "When the tape recorder is turned on, say your last name and sing the same test on 'la'. This is the starting pitch."

Pitches were given on a pitch pipe and an attempt was made to have the student match his beginning note with the note sounded on the pitch pipe before starting the test.

Subjects were numbered in the order of appearance. This number was then placed on an individual data card which provided space for all information concerning that subject. These numbers, in addition to the subject's name, were used to insure the correct score being assigned to the right person. All tests were scored by the investigator.

Musical Background Questionnaire

A questionnaire was devised in order to secure some information relative to the musical background and musical interests of the subjects. A numerical representation of this background was assigned in order to compute this information. It was recognized that this representation was not a precise measure because there was not a method of equating the quality or content of all of the experience of each subject. However,

it was felt that since the same scale was employed for all subjects, some degree of uniformity had been achieved.

Kwalwasser-Ruch Test of Musical Accomplishment

The Kwalwasser-Ruch Test of Musical Accomplishment was used as standardized measurement for all sections. The test is designed to measure achievement in music for elementary and high school grades. It includes materials that are expected to be measured in the course of music instruction in the first twelve grades. The areas tested are knowledge of musical symbols and terms, recognition of syllable names, detection of pitch errors in a familiar melody, detection of time signatures, knowledge of key signatures, knowledge of note values, knowledge of rest values, and recognition of familiar melodies from notation.

This test was administered to each section in the sixth week of class instruction. Not only was the Kwalwasser-Ruch Test of Music Accomplishment used to measure achievement, it was also used to compare the musical intelligence of each section. This was important since the sections were intact groups and no attempt had been made to equate each section.

The instructions and lengths of time for the standardized test were put on tape and were then played for each section. Thus, each section received precisely the same instructions. These tests were scored by the investigator in accordance with the manual which accompanied the tests.

Post-Tests

At the end of each term, the same tests that had been administered

at the beginning of the term in rhythmic reading and sight singing were once again given and scored by the investigator.

The subjects were again given the same instructions as before. The sight singing test was tape recorded once more. Scores were then placed on the subject's individual data card.

BASIC QUESTIONS

In order to ascertain the effect of the three factors, i.e., piano keyboard, syllables/letters, recorder, on growth in sight singing and rhythmic reading, it was necessary to define the following questions:

1. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by rhythmic reading mean gain?

2. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder as measured by sight singing mean gain?

3. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by total mean gain?

4. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by sight singing mean gain when musical training is the independent variable?

5. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by rhythmic reading mean gain when musical training is the independent variable?

6. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by total mean gain when musical training is the independent variable?

7. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by sight singing mean gain when the Kwalwasser-Ruch Test of Musical Accomplishment is the independent variable?

8. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by rhythmic reading mean gain when the Kwalwasser-Ruch Test of

Musical Accomplishment is the independent variable?

9. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by total mean gain when the Kwalwasser-Ruch Test of Musical Accomplishment is the independent variable?

10. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by rhythmic reading mean gain when sight singing mean gain is the independent variable?

11. Is there statistically significant difference in the use of the three factors: piano keyboard, syllables/letters, recorder, as measured by sight singing mean gain when rhythmic reading mean gain is the independent variable?

ORGANIZATION AND ANALYSIS OF THE DATA

Scores from the administration of pre-and post-test rhythmic reading and sight singing tests, the group and section to which the subject belonged, the numerical representation of musical training and background, and the score from the standardized music achievement test were recorded on 4x6 cards.

These data were organized on IBM key punch cards in the following order:

1. Group Number and Section
2. Musical Training Score
3. Kwalwasser-Ruch Test of Musical Accomplishment Score
4. Pre-Rhythmic Reading Score
5. Pre-Sight Singing Score
6. Post-Rhythmic Reading Score
7. Post-Sight Singing Score

A Counterbalance Design was chosen for this study. This provided the controls for the treatment, groups, and teachers. The Michigan State University Computer Center provided all statistical

computations. Data were analyzed to test the hypothesis. A one-way analysis of variance technique was used for this purpose. This was considered an appropriate statistical test to control for possible effects of independent factors which might influence the outcome of the criterion variables. The .05 level of significance was accepted as the standard for the significance of F statistics.

In order to obtain the desired information in regard to growth in sight singing and rhythmic reading, additional variables had to be created. These variables were rhythmic reading gain scores, sight singing gain scores and total gain scores.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

The purpose of the study was to determine the extent of the influence of selected factors, i.e., piano keyboard, syllables/letters, and recorder, on growth in rhythmic reading and sight singing.

The purpose of this chapter is to present the results of the study and analysis of the data obtained in the pursuit of the investigation. The data presented herein form the basis for answering the specific questions posited in Chapter III. Throughout this chapter, the groups representing the piano keyboard, syllables/letters, and the recorder will be designated as Group I, Group II, and Group III, respectively.

ANALYSIS OF DATA RELATIVE TO RHYTHMIC READING, SIGHT SINGING, AND TOTAL GAIN FOR THREE GROUPS

The three sections which composed each of the three groups were selected for inclusion on a random basis. It was of prime importance for the study, however, to determine if there was any statistically significant difference between the groups. Table 2 shows the mean scores for musical training and the Kwalwasser-Ruch Test of Musical Accomplishment.

The results reveal that only .62 separates the highest mean score (Group I) and the lowest (Group III) in terms of musical training.

TABLE 2. MEAN SCORES OF MUSICAL TRAINING AND KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT FOR THREE GROUPS

	Musical Training	Standard Deviation	Kwalwasser-Ruch Test	Standard Deviation
Group I (PK)	8.24	9.06	173.33	11.57
Group II (S/L)	7.74	8.18	175.32	9.48
Group III (R)	7.62	8.41	174.65	10.05

A difference of 1.99 on the Kwalwasser-Ruch Test is seen between the highest mean score (Group II) and the lowest (Group I). There was no statistically significant difference between the groups.

Table 3 shows the rhythmic reading pre-test means, post-test means, mean gains, and an analysis of variance for the three groups involved in the study. Group I - piano keyboard, Group II - syllables/letters, and Group III - recorder.

TABLE 3. RHYTHMIC READING PRE-TEST MEANS, POST-TEST MEANS, AND MEAN GAINS FOR THREE GROUPS

						Analysis of Variance	
Group	Freq.	Pre-Mean	Post-Mean	Mean Gain	Std. Dev.	F Statistic	Sig. of F Statistic
Group I	106	17.00	27.96	10.96	9.70		
Group II	117	19.53	30.65	11.12	9.54		
Group III	125	19.73	25.62	5.89	9.72		
						11.43	0.00**

*Significant at the .05 level
**Significant at the .01 level

Group II with a rhythmic reading mean gain of 11.12 exceeded the mean gains for Groups I and III. The approximate probability of the F statistic was 0.00. This significance is interpreted as less than .005 or the 1/2 per cent level of significance, thus showing that the results were highly significant.

The results of Table 4 show the sight singing pre-test means, post-test means and mean gains for the three groups. Of these groups, the one showing the highest sight singing mean and the highest sight singing mean gain was Group II with a mean gain of 3.08. On the basis of the test of significance, it was shown, however, that there was no statistically significant difference in the groups. The approximate probability of the F statistic was 0.63.

TABLE 4. SIGHT SINGING PRE-TEST MEANS, POST-TEST MEANS, AND MEAN GAINS FOR THREE GROUPS

						Analysis of Variance	
Group	Freq.	Pre-Mean	Post-Mean	Mean Gain	Std. Dev.	F Statistic	Sig. of F Statistic
Group I	106	4.63	7.41	2.78	5.29		
Group II	117	7.14	10.22	3.08	5.72		
Group III	125	6.51	8.89	2.38	5.82		
						.47	.63

*Significant at the .05 level
**Significant at the .01 level

Even though rhythmic reading gains and sight singing gains were computed separately for each group, it was deemed advisable to find out which group had the highest total mean gain. Total mean gain is defined as the combined mean gains for sight singing and rhythmic reading. It is possible for one mode of instruction to exceed another in either sight singing or rhythmic reading but not necessarily in total gain. Table 5 shows the total mean gain for each group.

TABLE 5. TOTAL MEAN GAINS FOR THREE GROUPS

				Analysis of Variance	
Group	Freq.	Mean Gain	Std. Dev.	F Statistic	Sig. of F Statistic
Group I	106	13.74	11.68		
Group II	117	14.20	11.88		
Group III	125	8.27	11.76		
				9.47	0.00**

*Significant at the .05 level
**Significant at the .01 level

Table 5 reveals that once again Group II incurred the highest mean and mean gain. The probable significance of the F statistic was 0.00, or less than .005. This indicated that there was a highly significant difference among the three groups with respect to total gain.

Table 6 presents a composite picture of all means for the three groups involved in the study.

TABLE 6. COMPOSITE OF MEANS FOR THREE GROUPS

Group	Pre-RR	Pre-SS	Post-RR	Post-SS	Gain RR	Gain SS	Total Gain
Group I	17.00	4.63	27.96	7.41	10.96	2.78	13.74
Group II	19.53	7.14	30.65	10.22	11.12	3.08	14.20
Group III	19.73	6.51	25.62	8.89	5.89	2.38	8.27

ANALYSIS OF DATA RELATIVE TO RHYTHMIC READING, SIGHT SINGING, AND TOTAL GAINS FOR THREE GROUPS, INDEPENDENT VARIABLE: MUSICAL TRAINING

In addition to trying to determine the influence of the piano keyboard, syllables/letters, and recorder on growth in rhythmic reading and sight singing, other pertinent information was derived by ascertaining the influence of musical training on rhythmic reading gain, sight singing gain and total gain.

A score was assigned each member of the study on the basis of the number of years training. This training included not only formal academic study such as general music classes and applied lessons, but also participation in music groups such as church choirs and marching bands. What would be the extent of the influence, if any, of this involvement in music on rhythmic reading gain, sight singing gain and total gain for the three groups?

An analysis of variance was run to ascertain this influence on Group I, Group II and Group III. In each case, musical training was the independent variable with the dependent variable in Table 7 rhythmic reading gain. The results and the probable significance of the F statistic is also shown.

TABLE 7. ANALYSIS OF VARIANCE OF RHYTHMIC READING GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: MUSICAL TRAINING

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	27	2639.61	97.76	1.05	0.41
Within Groups	78	7230.24	92.69		
Total	105	9869.85			

GROUP II

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	2536.65	105.69	1.21	0.25
Within Groups	92	8031.67	87.30		
Total	116	10568.32			

GROUP III

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	1331.92	55.50	0.53	0.96
Within Groups	100	10388.51	103.88		
Total	124	11720.43			

*Significant at the .05 level
**Significant at the .01 level

There was no statistically significant difference because the probable significance for each of the three groups was 0.41, 0.25 and 0.96, respectively. The conclusion, then, was that training does not affect the outcome of rhythmic reading gain.

The same procedure was used to discover if training exerted any influence on sight singing gain. Table 8 shows the results of this analysis.

In each case, the results were highly significant: Group I at the .02 level, Group II at the .01 level, and Group III at the .03 level. It is interesting to note that up to this point, the only consistent significance for the three groups was the influence of musical training on sight singing gain.

Conclusions were drawn regarding the influence of training on rhythmic reading gain and sight singing gain for each of the three groups, however, it was still necessary to determine the effect of training on the total gain for the groups. Table 9 shows these results.

The level of significance did not meet the required criterion of .05. Group I showed significance only at the .16 level, Group II at the .15 level and Group III at the .51 level. This confirmed the fact that training did not exert significant influence over the total gain in rhythmic reading and sight singing.

TABLE 8. ANALYSIS OF VARIANCE OF SIGHT SINGING GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: MUSICAL TRAINING

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	27	1141.43	42.27	1.84	0.02**
Within Groups	78	1795.13	23.01		
Total	105	2936.57			

GROUP II

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	1267.07	52.79	1.92	0.01**
Within Groups	92	2531.23	27.51		
Total	116	3798.30			

GROUP III

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	1230.25	51.26	1.73	0.03**
Within Groups	100	2967.08	29.67		
Total	124	4197.33			

*Significant at the .05 level
**Significant at the .01 level

TABLE 9. ANALYSIS OF VARIANCE OF TOTAL GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: MUSICAL TRAINING

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	27	4541.15	168.19	1.34	0.16
Within Groups	78	9791.45	125.53		
Total	105	14332.60			

GROUP II

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	4305.77	179.41	1.37	0.15
Within Groups	92	12068.71	131.18		
Total	116	16374.48			

GROUP III

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	3237.93	134.91	0.97	0.51
Within Groups	100	13900.36	139.00		
Total	124	17138.29			

*Significant at the .05 level
**Significant at the .01 level

ANALYSIS OF DATA RELATIVE TO RHYTHMIC READING, SIGHT SINGING AND TOTAL GAINS FOR THREE GROUPS, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

The Kwalwasser-Ruch Test of Musical Accomplishment is a standardized test that was used to help equate the groups used in the study and to help discover the effect and/or correlation between scores made on rhythmic reading and sight singing. The scores ranged from 84 to 239 in the three groups with the highest possible score being 240. The Kwalwasser-Ruch mean score for Group I was 173.33, for Group II - 175.32, and for Group III - 174.65. Rhythmic reading gain was the dependent variable in this set of analyses with the Kwalwasser-Ruch scores as the independent variable.

The results of the analyses showed that none of the groups produced an F statistic of significance. Since Group I's F statistic level of 0.96, Group II's of 0.85, and Group III's of 0.50 all exceeded the required significance ratio at the .05 level, there was no statistically significant difference in the groups.

Table 11 shows the results of the influence of the Kwalwasser-Ruch Test of Musical Accomplishment scores on sight singing gain for each of the three groups. The analysis of variance revealed that the significance of the F statistics was not of sufficient magnitude: Group I - 0.99, Group II - 0.85, and Group III - 0.50.

Even though it could be concluded from the previous results that the effect of Kwalwasser-Ruch scores on total gain would be negligible, the score had to be computed. The results were as expected: Group I was significant at the .96 level, Group II at the .63 level, and Group III at the .65 level.

TABLE 10. ANALYSIS OF VARIANCE OF RHYTHMIC READING GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	76	6041.68	79.49	0.60	0.96
Within Groups	29	3828.17	132.00		
Total	105	9869.85			

GROUP II

Source of Variance	Degrees Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	80	6631.57	82.89	0.76	0.85
Within Groups	36	3936.75	109.35		

GROUP III

Source of Variance	Degrees Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	79	7477.06	94.65	1.00	0.50
Within Groups	45	4243.37	94.30		
Total	124	11720.43			

*Significant at the .05 level
**Significant at the .01 level

TABLE 11. ANALYSIS OF VARIANCE OF SIGHT SINGING GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	76	1672.73	22.01	0.50	0.99
Within Groups	29	1263.83	43.58		
Total	105	2936.56			

GROUP II

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	80	2570.89	32.14	0.94	0.60
Within Groups	36	1227.42	34.09		
Total	116	3798.31			

GROUP III

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	79	2395.11	30.32	0.76	0.86
Within Groups	45	1802.22	40.05		
Total	124	4197.33			

*Significant at the .05 level
**Significant at the .01 level

TABLE 12. ANALYSIS OF VARIANCE OF TOTAL GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	76	8799.27	115.78	0.61	0.96
Within Groups	29	5533.33	190.80		
Total	105	14332.60			

GROUP II

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	80	11000.31	137.50	0.92	0.63
Within Groups	36	5374.17	149.28		
Total	116	16374.48			

GROUP III

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	79	10548.84	133.53	0.91	0.65
Within Groups	45	6589.45	146.43		
Total	124	17138.29			

*Significant at the .05 level
**Significant at the .01 level

The results as shown in Table 12 show quite clearly that there is no relationship between the Kwalwasser-Ruch Test of Musical Accomplishment and the total gain in rhythmic reading and sight singing.

ANALYSIS OF DATA RELATIVE TO RHYTHMIC READING GAIN, INDEPENDENT VARIABLE: SIGHT SINGING GAIN

Table 13 shows the results of the effect of sight singing gain on rhythmic reading gain.

For Groups I and II, sight singing gain did not have any significant effect on rhythmic reading gain. The approximate significance probability for the F statistic for each of these two groups was 0.47 and 0.64 respectively. However, Group III showed highly significant results with the approximate significance probability for the F statistic of 0.00, or less than .005. Thus, sight singing gain did exert considerable influence over the rhythmic reading gain of this group.

ANALYSIS OF DATA RELATIVE TO SIGHT SINGING GAIN, INDEPENDENT VARIABLE: RHYTHMIC READING GAIN

Table 14 shows the results of the data concerning the influence of rhythmic reading gain on sight singing gain for the three groups. The analysis of variance shows that there was no significant difference in growth in sight singing for two groups, Groups II and III, when rhythmic reading gain was the independent variable. Their levels of significance were .34 and .28, respectively. The results of the analysis show that the probable significance of the F statistic for Group I was highly significant at the .01 level.

TABLE 13. ANALYSIS OF VARIANCE OF RHYTHMIC GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: SIGHT SINGING GAIN

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	2272.28	94.68	1.01	0.47
Within Groups	81	7597.57	93.80		
Total	105	9869.85			

GROUP II

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	24	1951.18	81.30	0.87	0.64
Within Groups	92	8617.14	93.66		
Total	116	10568.32			

GROUP III

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	25	4170.55	166.82	2.19	0.00**
Within Groups	99	7549.88	76.26		
Total	124	11720.43			

*Significant at the .05 level
**Significant at the .01 level

TABLE 14. ANALYSIS OF VARIANCE OF SIGHT SINGING GAIN FOR THREE GROUPS, INDEPENDENT VARIABLE: RHYTHMIC READING GAIN

GROUP I

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	30	1329.67	44.32	2.07	0.01**
Within Groups	75	1606.90	21.42		
Total	105	2936.57			

GROUP II

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	37	1298.40	35.09	1.11	0.34
Within Groups	79	2499.91	31.64		
Total	116	3798.31			

GROUP III

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	31	1174.53	37.89	1.16	0.28
Within Groups	93	3022.80	32.50		
Total	124	4197.33			

*Significant at the .05 level
**Significant at the .01 level

ANALYSIS OF DATA RELATIVE TO OVERALL RHYTHMIC READING GAIN, SIGHT SINGING GAIN, AND TOTAL GAIN, INDEPENDENT VARIABLE: OVERALL MUSICAL TRAINING

An analysis of variance was computed for each of the three groups with respect to the influence of musical training on rhythmic reading gain, sight singing gain and total gain. It was also deemed advisable to compute the overall gain picture for each of the preceding factors.

A look at the complete picture of the results reveals that the overall rhythmic reading mean score for the 348 subjects was 9.19. The numerical representation for numbers of years training ranged from 0 years to 42 years, with the greatest frequency of 51 persons for 0 years. The score of 42 was the result of one student having taken private lessons concurrently on three instruments for 7-10 years and having been involved in numerous music organizations, vocal and instrumental, in junior and senior high school.

Table 15 shows a statistical summary of the influence of overall training on overall rhythmic reading gain. The figures revealed that there was no significance. The probable significance of the F statistic was 0.62.

TABLE 15. ANALYSIS OF VARIANCE OF OVERALL RHYTHMIC READING GAIN, INDEPENDENT VARIABLE: OVERALL MUSICAL TRAINING

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	34	3072.89	90.38	0.91	0.62
Within Groups	313	31217.21	99.73		
Total	347	34290.10			

*Significant at the .05 level
**Significant at the .01 level

TABLE 16. ANALYSIS OF VARIANCE OF OVERALL SIGHT SINGING GAIN, INDEPENDENT VARIABLE: OVERALL MUSICAL TRAINING

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	34	1448.72	42.61	1.40	0.07
Within Groups	313	9513.42	30.39		
Total	347	10962.14			

*Significant at the .05 level
**Significant at the .01 level

The overall sight singing mean gain in the study was 2.73. In investigating the overall effect of training on overall sight singing gain the F statistic was revealed to be of insufficient magnitude to warrant the assumption of statistically significant difference. It is interesting to note, however, that when these same data were computed by group as opposed to an overall analysis, the F statistics then were shown to have a probable significance of .02, .01, and .03 for the three groups. Nevertheless, the overall probable significance of the F statistic for overall training on overall sight singing was .07.

Table 17 presents data concerned with the effect of training on the total gain. The mean total gain for the entire study was 11.92. The F statistic did not reveal any significance in the influence of training on total gain. The approximate significance probability of the F statistic was 0.46.

TABLE 17. ANALYSIS OF VARIANCE OF OVERALL TOTAL GAIN, INDEPENDENT VARIABLE: OVERALL MUSICAL TRAINING

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	34	4992.84	146.85	1.01	0.46
Within Groups	313	45479.22	145.30		
Total	347	50472.06			

*Significant at the .05 level
**Significant at the .01 level

ANALYSIS OF DATA RELATIVE TO OVERALL RHYTHMIC READING GAIN, SIGHT SINGING GAIN, AND TOTAL GAIN, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

The following tables present data which show that the overall Kwalwasser-Ruch Test of Musical Accomplishment does not exert any significant influence on overall rhythmic reading gain. Table 18 reveals that the Kwalwasser-Ruch Test of Musical Accomplishment did not exert any significant influence on overall rhythmic reading gain. The probable significance of the F statistic was at the .53 level.

It is shown in Table 19 that the Kwalwasser-Ruch Test of Musical Accomplishment had even less influence on overall sight singing gain than it did on overall rhythmic reading gain. The probable significance in this case was 0.89.

It was to be expected that with the overall total gain as the dependent variable and the Kwalwasser-Ruch as independent variable, the results as shown in Table 20 would be of negligible significance. This was confirmed by the F statistic which showed a probable significance of 0.56.

TABLE 18. ANALYSIS OF VARIANCE OF OVERALL RHYTHMIC READING GAIN, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	126	12323.45	97.80	0.98	0.53
Within Groups	221	21966.65	99.40		
Total	347	34290.10			

*Significant at the .05 level
**Significant at the .01 level

TABLE 19. ANALYSIS OF VARIANCE OF OVERALL SIGHT SINGING GAIN, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F statistic
Between Groups	126	3496.53	27.75	0.82	0.89
Within Groups	221	7465.62	33.78		
Total	347	10962.15			

*Significant at the .05 level
**Significant at the .01 level

TABLE 20. ANALYSIS OF VARIANCE OF OVERALL TOTAL GAIN, INDEPENDENT VARIABLE: KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	126	18031.61	143.11	0.97	0.56
Within Groups	221	32440.45	146.79		
Total	347	50472.06			

*Significant at the .05 level
**Significant at the .01 level

SUMMARY

The primary purpose of this chapter has been to make statistical comparisons of data obtained related to the influence of the piano keyboard, syllables/letters, and recorder on growth in rhythmic reading and sight singing. The eleven questions which were posed were tested in the analysis of the data using a one-way analysis of variance.

With respect to sight singing mean gain, for the three groups, there was no statistically significant difference.

In regards to rhythmic reading mean gain, there was a highly significant statistical difference in the three groups.

With respect to total gain for the three groups, the results were highly significant.

In terms of rhythmic reading gain for the three groups with musical training as the independent variable, there was no statistically significant difference.

In regard to sight singing mean gain when musical training was the independent variable, there was statistically significant difference for each of the three groups. This was true in each case at less than the .05 level of significance.

With respect to total gain for the three groups when musical training was the independent variable, there was no statistically significant difference.

In terms of rhythmic reading gain when the Kwalwasser-Ruch Test of Musical Accomplishment was used as the independent variable, there was no statistically significant difference.

The comparison of the three groups in sight singing gain when the Kwalwasser-Ruch Test of Musical Accomplishment was the independent variable revealed no statistically significant difference.

In regard to total gain when the independent variable was the Kwalwasser-Ruch Test of Musical Accomplishment, there was no statistically significant difference in the three groups.

With respect to rhythmic gain when sight singing gain was the independent variable, there was no significant difference for Groups I and II. However, the results for Group III were highly significant.

In terms of sight singing gain when rhythmic reading gain was the independent variable, Group I was highly significant. Groups II and III were not significant.

In regard to the overall rhythmic reading gain when overall musical training was the independent variable, there was no statistically significant difference.

With respect to overall sight singing gain when overall musical

training gain was the independent variable, there was no statistically significant difference.

In terms of overall total gain when the independent variable was overall musical training, there was no statistically significant difference.

In regard to overall rhythmic reading gain when the Kwalwasser-Ruch Test of Musical Accomplishment was held as the independent variable, there was no statistically significant difference.

In terms of overall sight singing gain when the Kwalwasser-Ruch Test of Musical Accomplishment was the independent variable, there was no statistically significant difference.

With respect to overall total gain when the Kwalwasser-Ruch Test of Musical Accomplishment was the independent variable, there was no statistically significant difference.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this experimental study was to determine the extent of the influence, if any, of the piano keyboard, syllables/letters, and recorder on growth in sight singing and rhythmic reading. It was believed that the piano keyboard, syllables/letters, and recorder could be used as three modes of instruction for teaching sight singing and rhythmic reading. It was believed that these learning modes, if emphasized, could serve as means for producing growth in sight singing and rhythmic reading. This was to be part of the work in the course Music Foundations at Michigan State University. The course was one of two required music courses for students planning to become elementary teachers. The study was to investigate the contention that there was a difference in the effectiveness of modes of instruction as growth regulators in regard to sight singing and rhythmic reading abilities.

A review of the literature revealed that numerous studies had been made with regard to music reading and sight singing, but relatively few had been made with respect to sight singing and rhythmic reading. There was evidence, however, to support the contention that sight singing could be taught through the use of the piano keyboard, syllables/letters, and recorder. Nevertheless, no study had been conducted that would reveal which approach yielded the most influence on sight singing and rhythmic reading.

Three hundred forty-eight students enrolled in nine sections of Music Foundations were involved in the study. Three teachers taught three sections each of this class employing for each section a different mode of instruction, i.e., piano keyboard, syllables/letters, recorder. Thus, Teacher X taught one section emphasizing the use of the piano keyboard, one section emphasizing syllables/letters, and a third section emphasizing the use of the recorder. Teachers Y and Z used the same procedure. These three modes of instruction were used in each case as an approach to sight singing and rhythmic reading.

Each student in the nine sections was given the following tests: pre-test sight singing, pre-test rhythmic reading, post-test sight singing, post-test rhythmic reading, and the Kwalwasser-Ruch Test of Musical Accomplishment. A questionnaire was formulated in order to obtain some information about musical background and interest. A numerical representation of this information was included as one of the scores for each student.

The nine sections were subsequently arranged into three groups composed of three sections. Each group consisted of students in sections which had used the same approach to rhythmic reading and sight singing. All instruments were scored and the resulting data were tabulated by the investigator.

A Counterbalance Design was chosen for this study. This provided the controls for the treatment, groups, and teachers. A one-way analysis of variance design was selected as an appropriate statistical procedure to test the hypothesis posited. The .05 level of significance was adopted as the criterion for the significance of F statistics.

The necessary statistical computations were done through the

Michigan State University Computer Center.

FINDINGS

In order to ascertain the effect of the three factors, i.e., piano keyboard, syllables/letters, recorder, on growth in sight singing and rhythmic reading, it was necessary to obtain information on the following points: (1) rhythmic reading mean gain, sight singing mean gain and total gain for the three groups, (2) rhythmic reading mean gain, sight singing mean gain and total mean gain when musical training was the independent variable, (3) rhythmic reading mean gain, sight singing mean gain and total mean gain when the Kwalwasser-Ruch Test of Musical Accomplishment was the independent variable, (4) rhythmic reading mean gain when sight singing mean gain was the independent variable, and (5) sight singing mean gain when rhythmic reading mean gain was the independent variable.

Groups I, II and III were found to have been equal with regard to musical training. The mean scores for each group were: 8.24, 7.74 and 7.62. The Kwalwasser-Ruch Test of Musical Accomplishment scores were: 173.33, 175.32 and 174.65. Thus, the results showed that the three groups were basically equal. The pre-test rhythmic reading mean scores were as follows: Group I - 17.00, Group II - 19.53 and Group III - 19.73. The pre-test sight singing mean scores for the groups were: 4.63, 7.14 and 6.51.

1. Groups I and II with rhythmic reading mean gains of 10.96 and 11.12, respectively, exhibited larger mean gains than did Group III with a rhythmic reading mean gain of 5.89. The difference in mean gains was statistically significant at the 0.00 level of confidence. This is a high level of significance, denoting that these gains would probably occur less than .005 times in 100 times. The .05 level is considered to be significant

(less than five in 100 times), thus showing that these results were highly significant.

Group II once again showed the highest mean gain of the three groups, this time in regard to sight singing. The sight singing mean gains for the groups were: Group I = 2.78, Group II = 3.08 and Group III = 2.38. There was not any significant difference between the groups in sight singing gain. The difference in mean gain performance was not statistically significant at the .05 level of confidence.

There was a possibility that one or more of the groups might have shown significant growth in either rhythmic reading or sight singing but not necessarily in total gain, therefore, it was deemed advisable to compute the total gain for each group. Group II evidenced the highest total gain of the groups. The obtained probable significance of the F statistic of 0.00 indicated that there was a highly significant difference among the groups with respect to total gain.

2. A score was assigned each subject on the basis of the number of years musical training. Would the amount of musical training effect any influence on rhythmic reading gain, sight singing gain or total gain? With respect to rhythmic reading gain, the answer was negative. Each of the three groups produced F statistics whose probable significance far exceeded the required level of .05.

The extent of the influence of musical training on sight singing mean gains was significant at the .07 level of confidence. This did not meet the required level of .05, however, it was interesting to note that when the effect of musical training on sight singing was computed separately for each group, the probability of the F statistics was .02, .01 and .03, respectively. All three were highly significant in the case. Nevertheless, the significance for the groups combined

was not of sufficient magnitude.

The results of total gains when musical training was held constant revealed that musical training did not exert any statistical significance on total gain for the three groups.

3. The probable significance of the F statistics when the Kwalwasser-Ruch Test of Musical Accomplishment was the independent variable with rhythmic reading mean gains, sight singing mean gains or total mean gains as dependent variables revealed that there was no statistically significant difference.

4. Sight singing mean gain was used as the independent variable with rhythmic reading mean gain as the dependent variable. The results showed that Groups I and II did not produce F statistics of significance, however, Group III evidenced high significance at the 0.00 level. Sight singing gain did not influence rhythmic reading gain for Groups I and II, but for III, the results were highly significant.

5. When rhythmic reading mean gain was the independent variable with sight singing gain as the dependent variable, Group I - piano keyboard produced highly significant results with probable significance at the .01 level. However, Group II - syllables/letters and Group III - recorder, did not show any statistically significant results. Thus, rhythmic reading gain exerted influence on sight singing gain for only the group emphasizing the piano keyboard.

CONCLUSIONS

To the extent that the measures used were accurate and valid, the following conclusions may be drawn from the study:

1. Of the three modes of instruction used in the study - piano keyboard, syllables/letters, recorder, the emphasis placed on syllables/

letters as a growth regulator in developing sight singing and rhythmic reading skills resulted in this approach exceeding both the piano keyboard and recorder in effectiveness as regards rhythmic reading gain and total gain. However, even though syllables/letters produced the greatest increase in sight singing skill, this increase was not of significant proportion.

2. The only relationship found to exist as regards musical training is with the growth of each group in sight singing. It appears that there is no relationship between the amount of musical training and growth in rhythmic reading and total gain.

3. The Kwalwasser-Ruch Test of Musical Accomplishment scores do not correlate with any of the areas tested: rhythmic reading gain, sight singing gain or total gain.

RECOMMENDATIONS

The results of this study show conclusively that growth in sight singing skill and rhythmic reading skill can be achieved through the use of the piano keyboard, syllables/letters, and recorder as modes of instruction. The three growth regulators were most effective in the acquisition of rhythmic reading skill. Of the three factors, the greatest gains were made through the use of syllables/letters. The second highest gains were made through the use of the piano keyboard.

1. More attention should be devoted to the development of skills on rhythmic reading and sight singing on all levels of music education. These skills can be acquired concomitantly with other areas of music which are normally included in the curriculum. More

specifically, it appears that the most effective mode of instruction in terms of growth in syllables/letters.

2. Because of existing circumstances it was impossible to isolate each factor taught in the groups. Emphasis was placed, however, on the prescribed mode of instruction. Follow-up studies in which only one factor is taught may produce interesting results.

3. Similar studies should also be conducted on elementary and secondary levels to discover the implications of this study on lower levels of education.

4. The study should be enlarged to encompass varied geographical locations. The nature and extent of elementary and secondary music education may have a direct bearing on the study.

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APPENDIX A

TABLE 21. ANALYSIS OF VARIANCE OF RHYTHMIC READING GAIN FOR THREE GROUPS

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	2	2131.49	1065.75	11.43	0.00**
Within Groups	345	32158.61	93.21		
Total	347	34290.10			

*Significant at the .05 level
**Significant at the .01 level

TABLE 22. ANALYSIS OF VARIANCE OF SIGHT SINGING GAIN FOR THREE GROUPS

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	2	29.94	14.97	0.47	0.63
Within Groups	345	10932.20	31.69		
Total	347	10962.14			

*Significant at the .05 level
**Significant at the .01 level

TABLE 23. ANALYSIS OF VARIANCE OF TOTAL GAIN FOR THREE GROUPS

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F Statistic	Sig. of F Statistic
Between Groups	2	2626.69	1313.34	9.47	0.00**
Within Groups	345	47845.37	138.68		
Total	347	50472.06			

*Significant at the .05 level
**Significant at the .01 level

APPENDIX B

TABLE 24

RAW DATA

Group and Section	No.	Musical Training	Kwalwasser-Ruch	Pre-RR	Pre-SS	Post-RR	Post-SS
IA	1	13	183	11	13	18	14
IA	2	01	147	12	01	19	06
IA	3	01	127	02	01	18	00
IA	4	18	204	30	07	36	08
IA	5	06	189	11	03	36	14
IA	6	06	217	36	03	53	13
IA	7	00	115	12	02	18	07
IA	8	00	160	11	02	24	01
IA	9	14	214	36	06	36	07
IA	10	03	136	10	02	18	01
IA	11	02	084	12	02	12	03
IA	12	10	110	11	06	19	08
IA	13	07	210	25	01	45	07
IA	14	02	200	24	07	19	07
IA	15	05	149	19	06	19	07
IA	16	22	228	53	24	53	16
IA	17	11	188	45	06	53	09
IA	18	04	141	18	01	25	03
IA	19	11	178	36	06	36	13
IA	20	01	170	11	01	18	10
IA	21	00	100	18	00	25	00
IA	22	02	187	25	07	36	03
IB	23	06	137	17	06	24	07
IB	24	08	189	30	02	36	06
IB	25	02	151	11	01	18	01
IB	26	03	176	04	07	17	12
IB	27	09	197	24	05	24	06
IB	28	00	135	03	00	18	00
IB	29	07	151	04	01	24	01
IB	30	19	223	45	02	49	07
IB	31	01	182	19	01	19	02
IB	32	22	208	49	03	49	04
IB	33	17	218	35	15	25	17
IB	34	07	159	24	04	48	03
IB	35	10	171	19	13	24	10
IB	36	16	208	10	12	49	13
IB	37	00	123	11	03	11	01
IB	38	21	227	23	13	45	32
IB	39	38	168	10	01	25	08
IB	40	02	120	19	02	25	02
IB	41	08	227	08	12	17	15

TABLE 24 (continued)

IB	42	06	102	10	01	35	01
IB	43	00	108	11	02	17	03
IB	44	03	114	11	00	18	01
IB	45	22	237	36	15	40	22
IB	46	12	191	19	12	19	06
IB	47	08	198	04	01	17	05
IB	48	15	193	17	25	29	17
IB	49	03	140	11	01	17	12
IB	50	00	156	10	01	10	02
IB	51	00	156	18	01	18	01
IB	52	10	186	40	04	36	07
IB	53	22	230	29	06	53	02
IB	54	04	151	09	00	09	01
IB	55	06	169	19	07	19	02
IB	56	02	163	10	03	18	04
IB	57	11	208	04	01	35	08
IB	58	06	195	19	00	19	01
IB	59	21	181	24	13	19	14
IB	60	08	191	11	03	17	08
IB	61	13	218	53	03	53	05
IB	62	04	155	11	01	35	01
IB	63	12	197	19	12	35	07
IC	64	28	165	10	02	22	05
IC	65	00	127	11	00	28	06
IC	66	01	149	08	00	14	01
IC	67	05	175	13	02	11	01
IC	68	03	228	10	01	38	04
IC	69	07	203	08	02	23	02
IC	70	03	196	11	03	44	14
IC	71	01	128	00	00	08	01
IC	72	02	182	04	03	26	13
IC	73	03	127	00	04	22	06
IC	74	05	140	28	05	31	06
IC	75	06	168	13	02	33	07
IC	76	04	191	11	05	22	12
IC	77	21	184	09	06	26	11
IC	78	01	150	16	01	20	03
IC	79	07	124	08	01	14	02
IC	80	00	112	01	03	15	02
IC	81	01	193	08	06	21	20
IC	82	37	232	34	24	46	39
IC	83	28	178	18	05	32	04
IC	84	11	192	20	08	35	03
IC	85	00	114	02	00	14	00
IC	86	11	237	10	16	48	16
IC	87	07	207	26	00	39	01
IC	88	01	171	15	01	26	03
IC	89	00	161	08	02	19	09
IC	90	00	163	00	01	22	14
IC	91	16	230	48	04	50	27
IC	92	08	173	18	07	33	12

TABLE 24 (continued)

IC	93	10	177	15	06	44	07
IC	94	01	143	02	04	33	04
IC	95	01	229	12	03	26	06
IC	96	23	194	28	12	40	10
IC	97	03	119	08	01	22	06
IC	98	09	202	20	02	25	12
IC	99	35	222	39	03	43	20
IC	100	01	206	16	03	34	15
IC	101	23	207	24	02	39	08
IC	102	03	156	03	00	31	05
IC	103	24	209	13	04	28	01
IC	104	01	147	11	06	19	05
IC	105	01	158	07	03	25	03
IC	106	00	158	08	06	22	05
2D	107	04	156	11	01	31	13
2D	108	00	164	11	03	23	06
2D	109	00	112	10	02	13	03
2D	110	10	201	19	05	42	12
2D	111	04	177	10	06	30	02
2D	112	08	209	45	16	49	27
2D	113	03	136	04	01	19	02
2D	114	06	162	18	08	39	13
2D	115	09	179	29	10	48	07
2D	116	05	161	11	08	43	13
2D	117	10	212	52	18	51	29
2D	118	02	164	11	03	22	06
2D	119	00	136	10	03	38	03
2D	120	35	188	45	19	51	13
2D	121	00	124	10	03	04	03
2D	122	00	186	10	11	19	08
2D	123	14	153	24	03	15	03
2D	124	08	165	10	04	29	13
2D	125	11	207	19	23	24	15
2D	126	12	170	36	12	39	16
2D	127	20	228	25	44	33	25
2D	128	07	191	19	03	31	06
2D	129	09	147	18	06	19	07
2D	130	06	196	12	10	29	11
2D	131	00	144	10	02	12	06
2D	132	04	217	36	12	40	17
2D	133	00	142	10	06	25	25
2D	134	00	136	10	02	19	07
2D	135	02	157	11	02	19	04
2D	136	07	143	31	01	20	03
2D	137	15	195	25	21	35	33
2D	138	16	186	35	08	31	20
2D	139	24	211	45	41	51	31
2D	140	04	094	09	01	09	01
2D	141	02	136	10	00	18	03
2D	142	00	090	08	04	17	03
2E	143	09	205	11	19	28	09

TABLE 24 (continued)

2E	144	15	227	23	12	47	19
2E	145	04	128	09	01	16	03
2E	146	13	208	11	02	30	19
2E	147	02	124	09	03	09	04
2E	148	11	227	30	47	42	51
2E	149	05	134	09	03	24	05
2E	150	05	222	17	06	34	14
2E	151	24	220	18	13	35	19
2E	152	01	156	09	04	13	05
2E	153	01	171	09	01	19	04
2E	154	01	172	10	02	25	08
2E	155	16	230	19	12	51	24
2E	156	10	212	35	04	48	10
2E	157	16	237	36	16	34	16
2E	158	03	113	16	01	16	06
2E	159	04	190	10	02	29	09
2E	160	00	183	10	01	31	06
2E	161	13	217	23	02	43	21
2E	162	08	205	11	14	23	30
2E	163	06	160	10	06	23	15
2E	164	01	162	09	04	16	03
2E	165	00	157	10	02	27	06
2E	166	04	191	10	05	21	09
2E	167	13	135	10	01	28	01
2E	168	01	125	09	10	28	21
2E	169	01	140	04	02	11	02
2E	170	00	163	10	00	23	02
2E	171	19	161	17	05	30	12
2E	172	04	185	17	00	32	04
2E	173	01	143	10	04	28	04
2E	174	00	143	18	01	15	03
2E	175	00	143	10	01	21	05
2E	176	09	158	36	04	49	09
2E	177	00	138	17	03	25	05
2E	178	05	173	10	02	49	09
2E	179	12	176	10	06	09	12
2E	180	01	224	11	37	41	38
2E	181	06	202	11	12	41	12
2E	182	07	131	17	02	30	07
2E	183	09	188	10	02	22	15
2F	184	04	137	22	04	45	13
2F	185	13	234	28	14	41	10
2F	186	04	146	07	01	16	01
2F	187	02	151	07	01	10	01
2F	188	02	213	45	15	45	13
2F	189	00	169	12	03	20	07
2F	190	19	175	20	03	41	07
2F	191	15	172	46	10	42	07
2F	192	33	196	15	06	40	06
2F	193	08	202	33	01	32	09
2F	194	14	176	31	03	22	06

TABLE 24 (continued)

2F	195	04	148	07	00	19	01
2F	196	00	163	35	05	45	14
2F	197	05	167	09	04	33	05
2F	198	27	234	52	14	53	19
2F	199	00	181	08	01	34	01
2F	200	08	203	38	07	45	09
2F	201	06	179	21	02	37	07
2F	202	00	166	07	03	22	02
2F	203	17	192	18	02	33	01
2F	204	02	113	00	00	07	06
2F	205	04	226	39	08	46	07
2F	206	33	210	41	11	47	12
2F	207	06	204	33	15	45	12
2F	208	04	206	40	08	45	05
2F	209	05	214	45	08	45	10
2F	210	07	169	19	09	24	06
2F	211	09	202	17	02	42	04
2F	212	12	154	24	03	41	13
2F	213	10	197	15	09	29	06
2F	214	05	194	36	09	38	12
2F	215	08	215	36	14	41	19
2F	216	17	233	34	04	41	15
2F	217	03	146	07	05	32	06
2F	218	00	124	02	02	26	01
2F	219	06	197	22	01	35	02
2F	220	03	154	08	04	08	06
2F	221	24	214	42	07	49	15
2F	222	09	181	23	07	18	08
2F	223	41	201	41	14	49	06
3G	224	05	145	18	04	24	03
3G	225	00	137	11	00	25	02
3G	226	00	117	05	00	11	02
3G	227	01	165	10	06	17	08
3G	228	08	143	04	12	10	03
3G	229	02	123	10	05	18	02
3G	230	01	170	09	00	24	08
3G	231	01	091	10	02	18	01
3G	232	00	122	08	02	08	03
3G	233	00	141	11	12	36	09
3G	234	05	152	09	06	09	03
3G	235	02	143	04	02	11	02
3G	236	11	208	25	12	36	15
3G	237	04	198	19	00	11	12
3G	238	00	123	10	00	10	00
3G	239	12	182	23	00	36	24
3G	240	06	148	16	00	16	01
3G	241	08	154	30	03	25	02
3G	242	03	144	02	02	10	02
3G	243	04	190	11	07	34	12
3G	244	00	141	09	01	09	01
3G	245	02	149	20	01	18	01

TABLE 24 (continued)

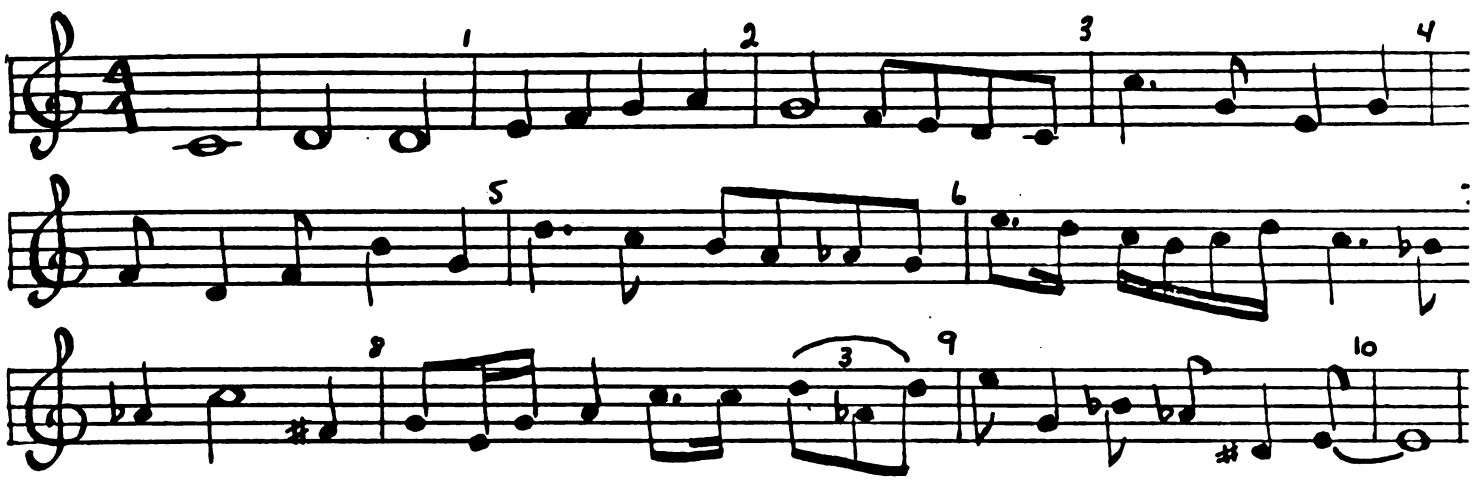
3G	246	05	148	10	03	10	07
3G	247	03	159	10	01	35	12
3G	248	03	157	18	13	24	07
3G	249	04	147	17	03	17	12
3G	250	02	131	16	01	11	05
3G	251	13	185	19	22	25	19
3G	252	17	234	25	09	53	15
3G	253	17	223	52	31	53	21
3G	254	00	128	10	07	35	04
3G	255	13	215	45	03	45	03
3G	256	11	203	25	02	26	14
3G	257	03	136	10	00	24	06
3G	258	06	193	11	15	34	16
3G	259	16	209	24	01	24	03
3G	260	03	132	33	07	25	03
3G	261	07	196	11	02	34	08
3G	262	03	179	21	02	19	03
3G	263	04	178	19	08	34	13
3H	264	08	195	25	18	35	14
3H	265	07	128	11	06	24	06
3H	266	03	233	19	13	39	37
3H	267	00	174	18	01	25	01
3H	268	10	191	40	05	45	10
3H	269	02	142	05	02	19	01
3H	270	00	171	07	01	17	01
3H	271	30	228	36	02	53	13
3H	272	04	185	19	12	25	12
3H	273	04	188	18	01	29	07
3H	274	10	216	45	07	53	19
3H	275	06	141	10	07	19	19
3H	276	04	196	10	11	25	09
3H	277	15	189	11	02	29	02
3H	278	11	233	53	13	53	13
3H	279	16	188	09	12	09	11
3H	280	03	163	10	01	19	05
3H	281	20	239	53	51	53	51
3H	282	04	209	19	02	35	18
3H	283	24	235	30	20	36	21
3H	284	00	160	15	01	15	01
3H	285	09	189	15	12	15	13
3H	286	10	208	52	06	52	14
3H	287	24	221	16	19	16	13
3H	288	21	232	53	13	53	13
3H	289	20	233	25	06	45	06
3H	290	24	228	53	07	53	13
3H	291	07	189	25	04	33	06
3H	292	02	190	18	06	25	19
3H	293	24	196	45	06	53	08
3H	294	01	142	15	12	15	23
3H	295	00	131	00	00	10	05
3H	296	05	212	11	01	22	05
3H	297	07	204	18	01	25	07

TABLE 24 (continued)

3H	298	10	137	10	04	17	03
3H	299	17	164	31	06	31	06
3H	300	16	224	36	18	53	27
3H	301	03	165	09	00	09	00
3H	302	05	167	22	05	22	07
3H	303	00	121	09	05	09	06
3H	304	22	230	19	13	25	17
3I	305	00	106	10	06	10	02
3I	306	07	209	48	07	25	25
3I	307	20	178	16	13	16	07
3I	308	02	157	15	07	15	05
3I	309	01	188	19	05	18	01
3I	310	07	175	17	03	17	06
3I	311	04	176	09	12	09	19
3I	312	08	182	31	02	31	06
3I	313	02	156	05	04	23	03
3I	314	14	206	23	12	23	17
3I	315	21	190	24	12	25	13
3I	316	03	141	18	00	18	00
3I	317	13	171	40	01	25	05
3I	318	13	183	18	04	24	06
3I	319	00	138	18	00	18	01
3I	320	05	147	40	07	19	02
3I	321	04	176	20	03	19	07
3I	322	02	130	05	02	17	02
3I	323	13	190	10	02	17	09
3I	324	01	193	11	06	37	12
3I	325	04	125	02	07	18	06
3I	326	12	200	36	07	53	15
3I	327	02	149	11	06	17	03
3I	328	15	199	17	03	23	12
3I	329	29	222	36	04	25	13
3I	330	02	140	16	07	16	08
3I	331	04	180	17	02	35	06
3I	332	01	172	24	06	24	08
3I	333	08	196	18	04	18	03
3I	334	42	229	53	16	53	26
3I	335	00	141	02	10	10	07
3I	336	00	097	10	02	10	01
3I	337	00	142	16	10	16	01
3I	338	05	205	11	03	53	05
3I	339	07	161	25	13	38	13
3I	340	05	180	40	13	36	12
3I	341	14	187	10	07	18	09
3I	342	02	162	09	02	09	05
3I	343	11	191	40	06	45	08
3I	344	15	157	22	01	11	05
3I	345	03	208	24	06	26	07
3I	346	14	215	23	05	23	10
3I	347	01	191	02	22	25	10
3I	348	04	164	10	05	10	01

APPENDIX C

SIGHT SINGING AND RHYTHMIC READING TEST



APPENDIX D

Name_____

Class Level_____

College Music Courses Prior to Music 145_____

_____

Number of Persons in High School Graduating Class_____

Number of Music Teachers Employed in High School

Vocal _____ Instrumental _____

Check any of the following which apply to you. If the study occurred while in elementary school, place an E under class level, J for junior high school, S for senior high school and C for college.

Music Study

		Class Level	Number of Months
Private Piano	_____	_____	_____
Private Voice	_____	_____	_____
Private Instrumental (specify instrument)	_____	_____	_____
Class Piano	_____	_____	_____
Class Voice	_____	_____	_____
Class Instrumental (specify instrument)	_____	_____	_____

Music Courses in Junior-Senior High School

		Class Level	Number of Semesters
Music Literature	_____	_____	_____
Music Theory	_____	_____	_____
General Music	_____	_____	_____
Music Appreciation	_____	_____	_____
Other (specify)	_____	_____	_____

Performance Experience

Junior-Senior High School		Number of years
School Chorus	_____	_____
Band	_____	_____
Orchestra	_____	_____
Small Ensemble	_____	_____
Stage Band	_____	_____
Church Choir	_____	_____
Church Instrumental	_____	_____
Other (specify)	_____	_____

College		
University Chorus	_____	_____
University Orchestra	_____	_____
State Singers	_____	_____

Women's Glee Club	_____	_____
Men's Glee Club	_____	_____
Marching Band	_____	_____
Informal Groups	_____	_____
Other (specify)	_____	_____

Recreational Instruments

		Number of Years
Guitar	_____	_____
Ukelele	_____	_____
Banjo	_____	_____
Accordian	_____	_____
Other (specify)	_____	_____

Check any of the following items which are in your home.

Piano	_____	Record Player	_____
Organ	_____	Television	_____
Radio	_____		

Do any members of your family play a musical instrument? _____ If yes, specify the member and instrument. _____

Do any members of your family participate in any musical activities? _____ Specify.

Does your family attend musical events, i. e., concerts, recitals, etc.?

Never _____ Seldom _____ Frequently _____ Extensively_____

List the musical events, i. e., concerts, jazz festivals, etc., you have attended since entering Michigan State University. Exclude dances.

Check the types of music you most prefer.

Classical	_____	Show Tunes	_____
Jazz	_____	Rhythm and Blues	_____
Ballads	_____	Light Classics	_____
Folk Music	_____	Other (specify)	_____
Sacred	_____		

APPENDIX E

KWALWASSER-RUCH TEST OF MUSICAL ACCOMPLISHMENT

For Grades IV-XII

By JACOB KWALWASSER, Ph. D.
Professor of Music Education
Syracuse University, Syracuse, N.Y.

And G. M. RUCH, PH. D.
Professor of Education
University of California, Berkeley

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly.

Name..... Date .....
(First name, initial and last name)

Age last birthday.....years. Birthday.....
(Month and day)

Grade.. .....Teacher .....

School.....City .....

How many years have you studied music in school?.....

How long have you studied music outside of school?.....
(state your answer in half-hour lessons)

Do not write below this line.

TEST	NAME OF TEST	SCORE
1	Knowledge of Musical Symbols and Terms	
2	Recognition of Syllable Names	
3	Detection of Pitch Errors in a Familiar Melody	
4	Detection of Time Errors in a Familiar Melody	
5	Recognition of Pitch Names	
6	Knowledge of Time Signatures	
7	Knowledge of Key Signatures	
8	Knowledge of Note Values	
9	Knowledge of Rest Values	
10	Recognition of Familiar Melodies from Notation	
TOTAL		

Do Not Turn Over The Page Until The Signal is Given!

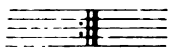
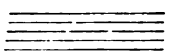
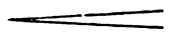
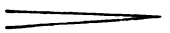
Published by the Extension Division, University of Iowa, Iowa City, Iowa.

TEST 1. KNOWLEDGE OF MUSICAL SYMBOLS AND TERMS

DIRECTIONS: Below are twenty-five questions about music. Five answers are given to each question. Read each question and then draw a line under the right answer. The sample is already marked as it should be.

SAMPLE: is called a sharp natural flat **note** rest

Begin here.

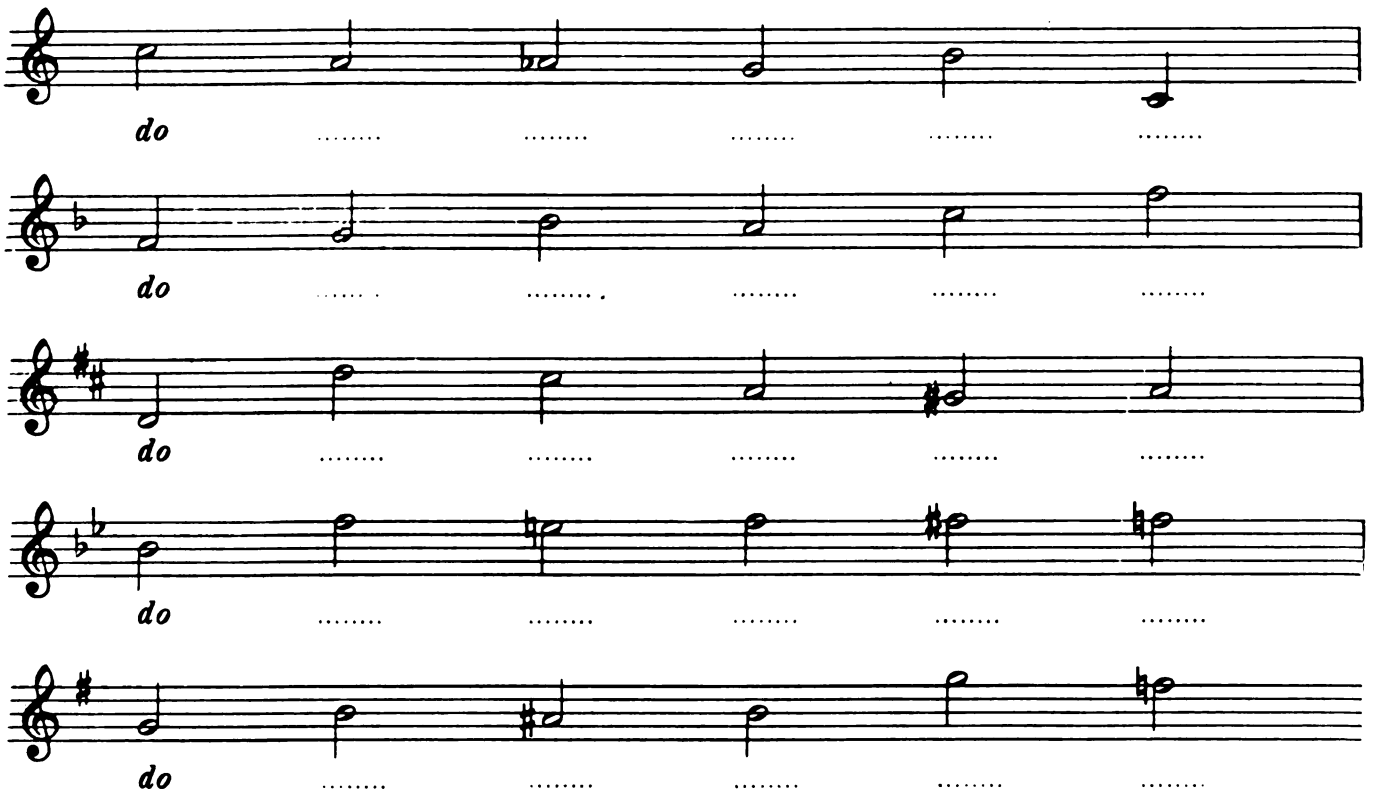
1	The first tone of the scale is	mi re do fa sol	1
2		is called a rest natural sharp note flat	2
3	The fifth tone of a scale is	do fa mi sol re	3
4		is a flat note natural rest sharp	4
5		is a sharp flat natural note rest	5
6		is a slur hold rest double-sharp repeat-bar	6
7		is called a sharp flat natural note rest	7
8	*p*	means soft loud slow fast smooth	8
9		is called a bar staff measure accent clef	9
10		is a sharp flat natural note rest	10
11		is a clef staff measure accent phrase	11
12		is called a clef staff measure accent bar	12
13		is a clef measure staff phrase accent	13
14		the curved line is a slur tie hold accent rest	14
15		is a rest slur hold double-sharp repeat	15
16		the curved line is a slur hold rest tie accent	16
17		means higher lower louder repeat pause	17
18		means higher lower louder softer pause	18
19	*Allegro*	means lively slow repeat accent sweetly	19
20	*f*	means fast loud slow soft smooth	20
21	*cresc.*	means softer louder slower faster smooth	21
22	*dim.*	means smoother louder softer faster slower	22
23	*Lento*	means repeat accent sweetly slow lively	23
24	*Legato*	means soft quick separated connected loud	24
25	*Staccato*	means quick soft separated connected loud	25

Test 1. Number right=Score....

TEST 2. RECOGNITION OF SYLLABLE NAMES

DIRECTIONS: Below are five lines of notes. The first syllable in each line is "Do"; so the name do has been written below it. You are to write the syllable names on the lines under the other notes.

Begin here.

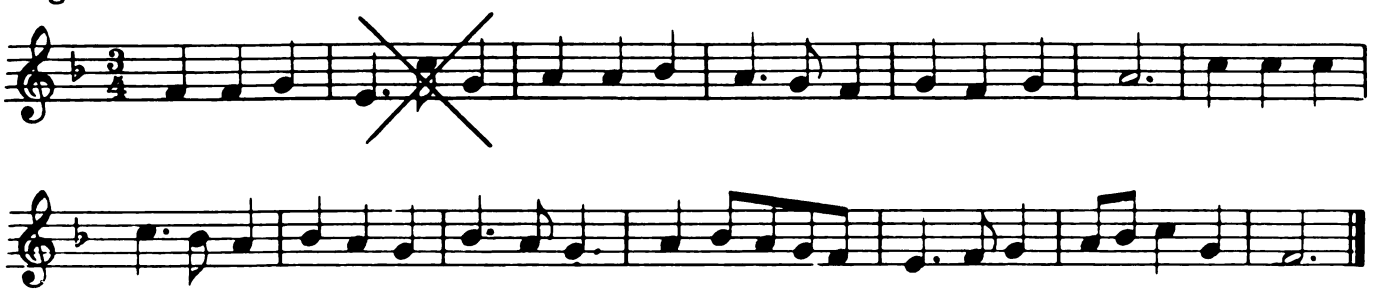


Test 2. Number right = *Score*.....

TEST 3. DETECTION OF PITCH ERRORS IN A FAMILIAR MELODY

DIRECTIONS: The song "America" is written below. One measure has been crossed out because the melody is wrong. Five other measures are wrong. Hum over the melody to yourself and cross out all five wrong measures.

Begin here:

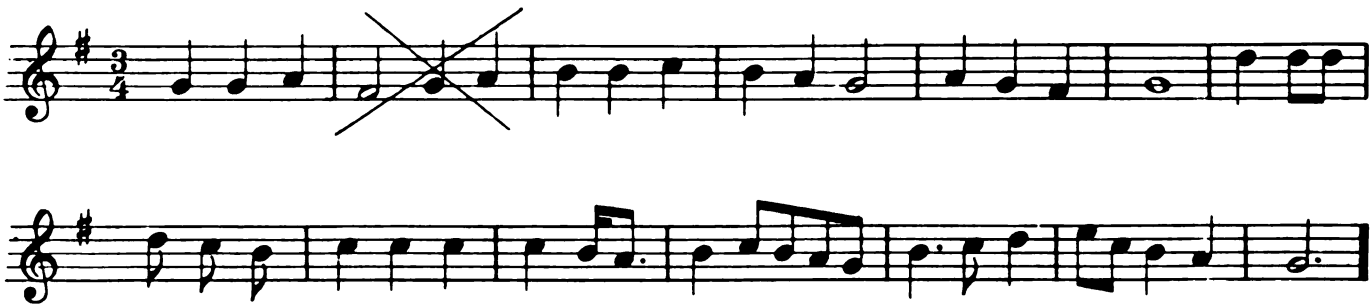


Test 3. Number right..... ×5 = *Score*.....

TEST 4. RECOGNITION OF TIME ERRORS IN A FAMILIAR MELODY.

DIRECTIONS: The song "America" is written below. One of the measures has been crossed out because it has the wrong number of beats. Five other measures are wrong. Hum over the song and cross out all five wrong measures.

Begin here:

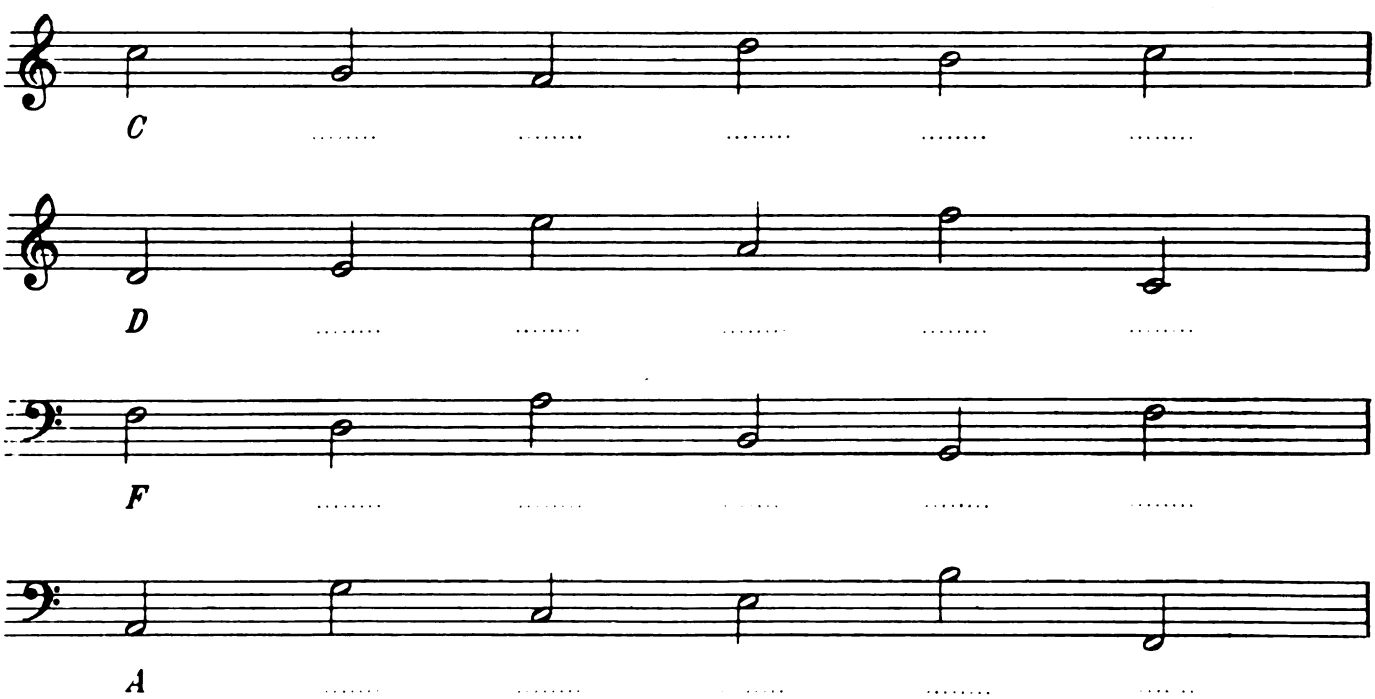


Test 4. Number right.....× 3 = Score.....

TEST 5. RECOGNITION OF PITCH NAMES.

DIRECTIONS: Below are four lines of notes. The first note in each line is already marked as it should be. You are to write the pitch or letter names on the lines under the other notes.

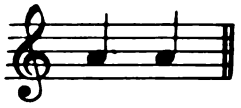
Begin here:



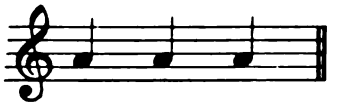
Test 5. Number right = Score .....

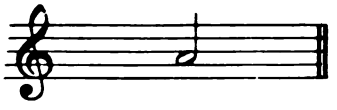
TEST 6. KNOWLEDGE OF TIME SIGNATURES

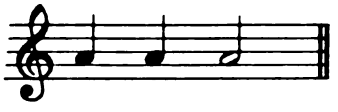
DIRECTIONS: Below are ten full measures. At the right of each are five time signatures. You are to draw a line under the correct time signature for each measure. The sample is marked as it should be.

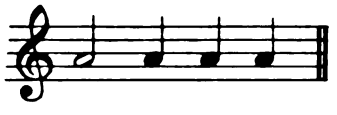
SAMPLE.  The time signature is $\underline{\frac{2}{4}}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{6}{8}$ $\frac{3}{8}$

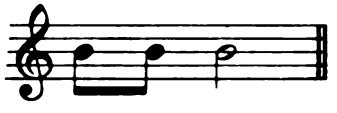
Begin here:

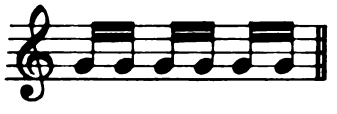
1  The time signature is $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{3}{8}$ $\frac{9}{8}$ 1

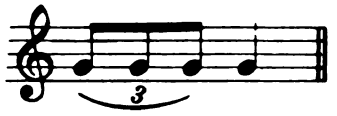
2  The time signature is $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{6}{8}$ $\frac{9}{8}$ 2

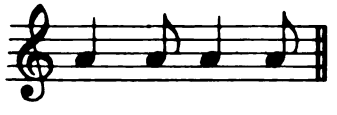
3  The time signature is $\frac{3}{4}$ $\frac{4}{4}$ $\frac{6}{8}$ $\frac{9}{8}$ $\frac{3}{8}$ 3

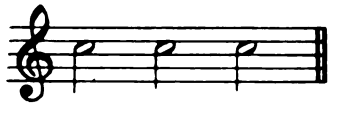
4  The time signature is $\frac{6}{8}$ $\frac{4}{4}$ $\frac{5}{4}$ $\frac{3}{8}$ $\frac{2}{4}$ 4

5  The time signature is $\frac{2}{4}$ $\frac{5}{4}$ $\frac{4}{4}$ $\frac{3}{8}$ $\frac{3}{4}$ 5

6  The time signature is $\frac{3}{8}$ $\frac{2}{4}$ $\frac{4}{4}$ $\frac{3}{4}$ $\frac{6}{8}$ 6

7  The time signature is $\frac{5}{4}$ $\frac{4}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{6}{8}$ 7

8  The time signature is $\frac{3}{8}$ $\frac{9}{8}$ $\frac{2}{4}$ $\frac{6}{8}$ $\frac{4}{4}$ 8

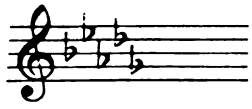
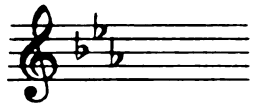
9  The time signature is $\frac{2}{4}$ $\frac{3}{2}$ $\frac{4}{4}$ $\frac{6}{8}$ $\frac{3}{8}$ 9

10  The time signature is $\frac{2}{4}$ $\frac{6}{8}$ $\frac{9}{2}$ $\frac{3}{4}$ $\frac{4}{4}$ 10

Test 6. Number right.....×2 = *Score* .....

TEST 7. KNOWLEDGE OF KEY SIGNATURES

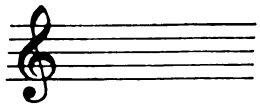
DIRECTIONS: At the left below is a column of ten major key signatures. At the right is a column of five minor key signatures. You are to write the names of the keys on the lines at the right of each signature.
Notice that there are two columns, one for major keys and one for minor.

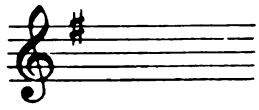
SAMPLES:  D flat  C minor

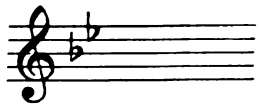
---

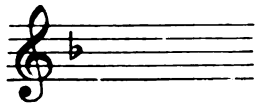
Begin here.

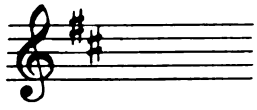
MAJOR KEY SIGNATURES

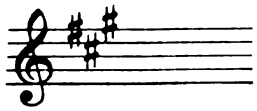
1  1

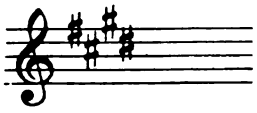
2  2

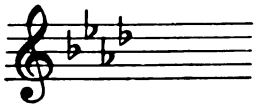
3  3

4  4

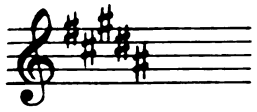
5  5

6  6

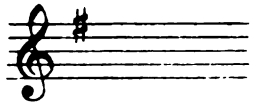
7  7

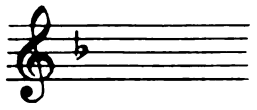
8  8

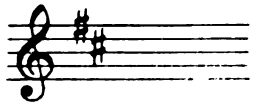
9  9

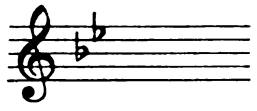
10  10

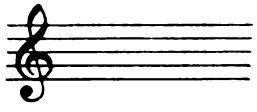
MINOR KEY SIGNATURES

11  11

12  12

13  13

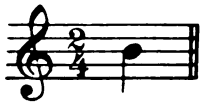
14  14

15  15

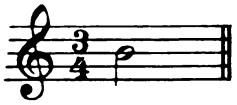
Test 7. Number right.....×2 = *Score*.....

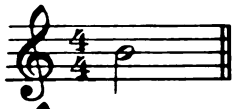
TEST 8. KNOWLEDGE OF NOTE VALUES

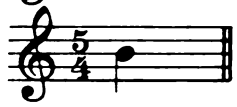
DIRECTIONS: In the measures below a note has been left out of each. You are to draw a line under the note needed to complete the measure. The sample is already marked as it should be.

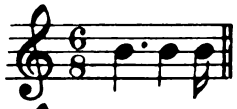
SAMPLE:  The note needed is 

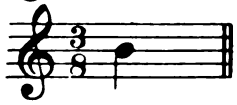
Begin here.

1  The note needed is  1

2  The note needed is  2

3  The note needed is  3

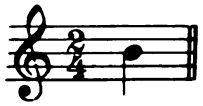
4  The note needed is  4

5  The note needed is  5

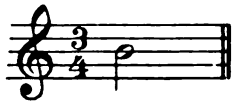
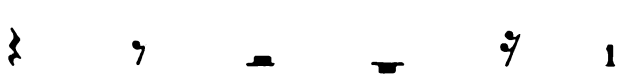
Test 8 Number right.....×3= *Score*.....

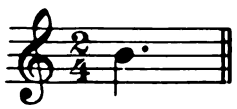
TEST 9. KNOWLEDGE OF REST VALUES

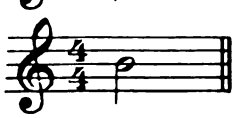
DIRECTIONS: The five measures below are incomplete and need a rest to complete them. You are to draw a line under the rest needed to complete the measure. The sample is already marked as it should be.

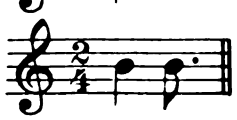
SAMPLE:  The rest needed is 

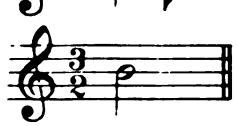
Begin here.

1  The rest needed is  1

2  The rest needed is  2

3  The rest needed is  3

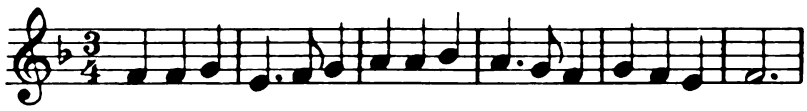
4  The rest needed is  4

5  The rest needed is  5

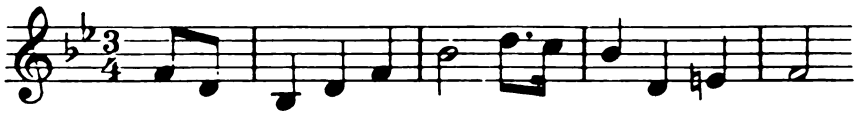
Test 9 Number right..... ×3= *Score*.....

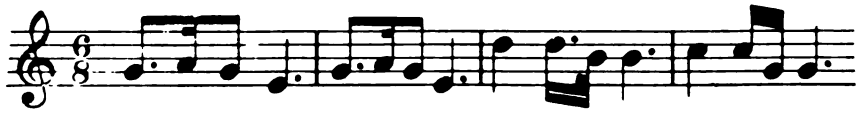
TEST 10. RECOGNITION OF FAMILIAR MELODIES FROM NOTATION

DIRECTIONS: **Below are phrases from ten songs that you know. Hum each line to yourself and then write the name of the song or the words of the phrase on the line at the right.**
The sample is already marked as it should be.

SAMPLE.  *America or My Country 'tis of Thee*

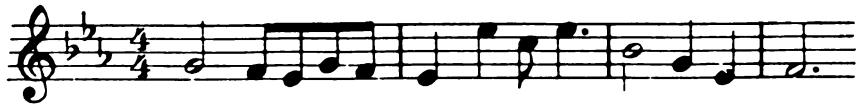
Begin here.

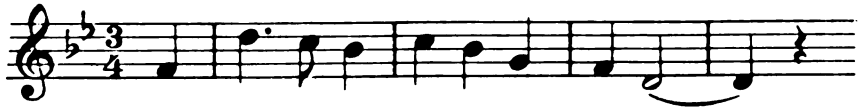
1  1

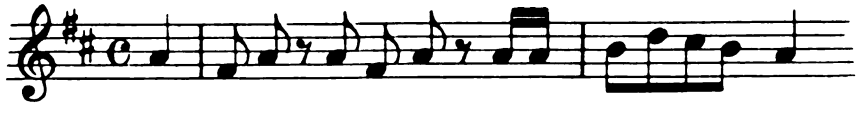
2  2

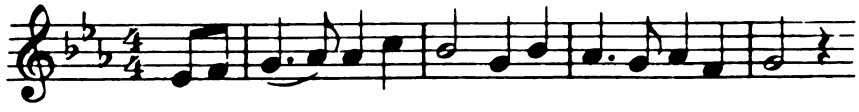
3  3

4  4

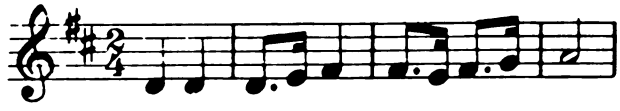
5  5

6  6

7  7

8  8

9  9

10  10

Test 10 Number right.....X5 Soore.....