The Effect of Dalcroze Eurhythmics on the Melodic Musical Growth of First Grade Students.

Sue E. Crumpler

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THE EFFECT OF DALCROZE EURHYTHMICS ON THE MELODIC MUSICAL GROWTH OF FIRST GRADE STUDENTS

The Louisiana State University and Agricultural and Mechanical Col. Ph.D. 1982

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THE EFFECT OF DALCROZE EURHYTHMICS ON THE MELODIC MUSICAL GROWTH OF FIRST GRADE STUDENTS

A Dissertation
Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in The School of Music

by Sue E. Crumpler
B.M., Samford University, 1975
M.M.E., Louisiana State University, 1979
August 1982

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Ms. Ollie Moore—Classroom Teacher
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Dr. Sara Bidner—Test Reviewer
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ABSTRACT

The primary purpose of the study was to determine the effect of Dalcroze Eurhythmics on the melodic musical growth of first grade students. The secondary purposes of the study were to determine the differences between boys and girls in the ability to discriminate pitch register and melodic contours and to determine the differences created by the interaction of method, sex, and time.

Seventy-six first grade students in four intact classes participated in the study. Two classes, control group, used the melodic units of the 1978 Silver Burdett Music (SBM). Two classes, experimental group, used Silver Burdett Music and Dalcroze Eurhythmic activities (DE). The eight-week study included six weeks of instruction and two weeks for testing.

The investigator-designed Melodic Achievement Test, consisting of two sub-tests, was administered as the pretest and posttest measures for both groups. Sub-test A consisted of twenty-five items of two tones each. The students answered if the second tone was higher than, lower than, or the same as the first tone. Sub-test B consisted of twenty-five items of five tones each. The students answered if the tones were moving higher, lower, or higher and lower. All directions and test items were recorded on cassette tape for administration.

The data were subjected to a Three-Way Analysis of Variance with a repeated measure on time. The results indicated that SBM scored significantly higher than DE on the pretest \( p < .05 \). There was a signi-
ificant difference between pretest and posttest scores for DE \((p < .0001)\) and no difference between pretest and posttest scores for SBM. No significant difference existed between DE and SBM on the posttest. An examination of the means revealed that DE scores increased to meet SBM scores on the posttest. No significant difference existed between boys and girls on the test and between the interaction of method, sex, and time.

From the results of the study, it appears that Eurhythmic activities have a positive influence on melodic discrimination ability of first grade students and should be considered for inclusion in the study of melodic concepts.

Chapters on the related literature and the Dalcroze method are also included.
CHAPTER ONE

INTRODUCTION

Introduction

During the evolution of music education, many musicians and educators have tried to develop the most effective teaching/learning method. One such musician was Emile Jaques-Dalcroze (1865-1950). His method was based upon the child's natural response to the rhythm of music through physical action—a method with its roots in the natural characteristics of the child.

In the last fifty years, music education programs have produced many musicians and artists, performers and creators, and yet, there appears to be a general lack of understanding and support of cultural activities and, more importantly, only a meager means to improve the situation on a larger scale. The situation facing today's music programs is similar to the situation Jaques-Dalcroze faced in the early years of his teaching career. His answer to the situation—teaching the comprehension of all the elements of music (rhythm, melody, harmony, form, mood, dynamics and tempo, and timbre)—can be the means whereby today's situation is corrected.


Statement of the Problem

The use of movement in music education classes has been a source of interest and research for the last twenty years. This interest and research has provided, for example, various studies concerning rhythmic training and the synchronization of responses, movement and its effect on the development of aesthetic concepts, and rhythmic movement and its effect on musical achievement. These studies have used prescribed movement, have measured the motor response, and/or have dealt mainly with the element of rhythm.

It seems appropriate to continue research in musical achievement employing the philosophy of Dalcroze Eurhythmics. The Dalcroze method uses the child’s natural responses to the music through movement and not through prescribed movements. Since Jaques-Dalcroze included all the elements of music, and since most of the research in the past has dealt with the relationship between movement and the element of rhythm, then this study will use Eurhythmics to teach the element of melody. The investigator will seek to determine what difference will be found between test scores of first grade students taught melody by the use of the program outlined in the first grade teacher’s edition of Silver Burdett Music (1978 edition) and those taught melody by the use of Dalcroze Eurhythmics and Silver Burdett Music.


Significance of the Problem

The latest trend in elementary music education is the use of movement as an aid to the teaching/learning process. This trend is indicated by the appearance of numerous articles and reports on the subject in the various music journals, by workshops dealing with movement as an aid to teaching and learning for teachers in different areas of the country, and by the use of movement activities in the standard elementary music series in the United States. The problem with this trend is that in many cases the objectives of using movement are vaguely stated. These objectives, which are incomplete and unspecific, may work toward a development of creativity and freedom with music; yet, they can distract from the actual music since there is no specific direction of instruction.6

A possible solution to this problem lies in the utilization of the method developed by Jaques-Dalcroze. This method purposes to bring the student in contact with music through the opportunities of perceiving and responding to music. The use of the Dalcroze method in the music classroom can focus the objectives of music education toward the development of good musicianship since it is based on the natural instincts of the child.7

These instincts stem from the very beginning of life. The infant's first attempt to communicate is through the use of gestures, whole body movements, and cries. This non-verbal communication is a


result of the primary sensory and perceptual information which comes
to the body. Through growth and maturity the verbal language develops.
There is much experimentation with this language; yet, there is no tam­
pering with movement. "It (body movement) remains an honest statement
of his personality, difficult to distort because the body speaks its
own language." 8

Jaques-Dalcroze also sought to incorporate into the method the
child's natural interest in music. The young child is interested in the
expressive concept of the music—the way the music sounds and feels to
him. There is no interest in analyzing the music in order to perceive
it. Jaques-Dalcroze used interest in music to provide the means to de­
velop the listening skills of the child, thus giving him a simple yet
solid understanding of the music he hears. 9

"In the teaching of music the overwhelming stress has been on
technical proficiency at the expense of artistic expression, a quality
based upon hearing and feeling in depth, and of comprehending organiza­
tion and construction." 10 The use of Dalcroze Eurhythmics should enable
the music teacher to realize the means to bring the child into a per­
sonal contact and understanding of music.

Delimitations

The minimum program outlined in the first grade teacher's edition
of the Silver Burdett Music (1978 edition) series concerning the musical

8Jo Anne Weisbrod, "Shaping a Body Image Through Movement Thera­

9Lisa Parker, "Dalcroze—The Method," Clavier 13 (September

10Spector, p. 19.
element of melody (pp. 10-20; 43-49) was used in this study. The philosophy and musical objectives of Dalcroze Eurhythmics, as described in chapter three, were also used.

Materials, references, and supplementary material were limited to those in the (1) Louisiana State University Troy H. Middleton Library and (2) the personal library of the investigator.

Subjects for the investigation were chosen from first grade students in Highland Elementary School and Walnut Hills Elementary School of Baton Rouge, Louisiana. The investigator conducted two thirty-minute sessions each week for eight weeks (September 28–November 20, 1982) for the four intact classes.

**Definition of Terms**

Standard definitions of experimental research terms will be used unless otherwise indicated in the text. Terms dealing with the Dalcroze method will be defined in the text.

**Method of Research**

A "Pretest-Posttest Control Group Design" project was used to investigate the melodic musical growth of seventy-six first grade students in four intact first grade classes using Dalcroze Eurhythmics and the first grade level of the 1978 edition of Silver Burdett Music. Students in two of the classes served as the contact control group and used only the first grade level of Silver Burdett Music. The experimental group consisted of the two remaining classes and used Dalcroze Eurhythmics and the first grade level of Silver Burdett Music.

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The Melodic Achievement Test, designed by the investigator, was administered as a pretest and posttest. This test consisted of two sub-tests. Sub-test A was designed to measure the students' ability to distinguish between high and low tones (register). Sub-test B was designed to measure the students' ability to distinguish between tones moving higher and lower (melodic contour). The test was administered in a structured environment during the scheduled music sessions. Individual scores were recorded and comparisons were computed along with findings according to sex and time.

The following null hypotheses were assumed and tested at the .05 level of significance:

1. There will be no significant difference between the Dalcroze Eurhythmics group and the Silver Burdett Music group on the pretest scores of the Melodic Achievement Test.
2. There will be no significant difference between the Dalcroze Eurhythmics group and the Silver Burdett Music group on the posttest scores of the Melodic Achievement Test.
3. There will be no significant difference for the Dalcroze Eurhythmics group between the pretest and posttest scores on the Melodic Achievement Test.
4. There will be no significant difference for the Silver Burdett Music group between the pretest and posttest scores on the Melodic Achievement Test.
5. There will be no significant difference between boys and girls on the Melodic Achievement Test.
6. There will be no significant difference among the cells created by the interaction of method, sex, and time on the Melodic Achievement Test.

Development of the Remainder of the Report

The remainder of this report will consist of chapters two through six. Chapter two contains a review of the literature concerning Dalcroze Eurhythmics and movement education in music classes, studies con-
cerning the relationship between movement and musical concepts, and studies of pitch/melodic discrimination. Chapter three contains the biographical data on the life and method of Jaques-Dalcroze. Chapter four is a presentation of the research design and the development of the study. Chapter five is a presentation of the analysis, discussion, and evaluation of the data. The final chapter contains the summary, conclusions, and recommendations drawn from the study. The appendices contain the transcription, answer sheets, and difficulty and discrimination index of the Melodic Achievement Test; the lesson plans for the control and experimental groups; the forms and letters used in the study; and the raw data.
CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Although Jaques-Dalcroze never visited the United States, his method has been a part of music education in many parts of America since 1911. The influence of Eurhythmics on American music education can be seen in the books encouraging the use of movements to teach the musical elements and the research studies investigating the relationship between movement and the musical elements. The following review of the literature will be divided into five categories: (1) books based on the Dalcroze method, (2) books based on movement and music, (3) historical studies concerning movement in music education, (4) research studies concerning movement and music, and (5) research studies concerning the discrimination of pitch register and melodic contour. The literature discussed within each category will be presented in chronological order.

Books Based on the Dalcroze Method

Rhythm, Music and Education (1921),2 by Jaques-Dalcroze, is a collection of lectures and articles presenting his ideas and method. The chapters are printed in chronological order as Jaques-Dalcroze

1. Edith E. Wax, Dalcroze Dimensions (Roslyn, N.Y.: By the Author, 60 Woodland Road, n.d.), p.1.


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developed his ideas from 1897 to 1921. Although his original plan was to rework the articles in an organized manner, Jaques-Dalcroze left them in chronological order to allow educators, pedagogues, and psychologists the opportunity to follow the transformation and development of his thoughts into the final method. In chapters one and two, Jaques-Dalcroze discusses the problems he saw in music schools and the possible reforms. Chapters three through seven contain the basic principles of the Dalcroze method. The initiation into rhythmic perception, the three areas of the method (Eurhythmics, solfege, and improvisation), the use of Eurhythmics with musical composition, the relationship between music and the child, and the use of the method in music education are explained in these chapters. In chapters eight through twelve, Jaques-Dalcroze explains the use of rhythm in the theatre and dance. The final chapter is a summary of the principles of the Dalcroze method. Throughout the book the underlying theme is "that the education of tomorrow must, before all else, teach children to know themselves, to measure their intellectual and physical capacities . . . , and to submit them to exercises enabling them to utilize their powers to attain due balance, and thereby to adapt themselves to the necessities of their individual and collective existence."³

Pennington adapted Rhythm, Music and Education for the general public in her book The Importance of Being Rhythmic (1925). Pennington presents the theories of the Dalcroze method in a general manner without the definite and technical applications outlined by Jaques-Dalcroze. Chapters three, four, five, and seven are taken from Rhythm, Music and

³Ibid., p. ix.
Education while chapters one, two, and six are by Pennington. These new chapters contain the definitions of Eurhythmics, the origin and history of the method, and the use of Eurhythmics by the actor. Pennington has followed the original plan of Jaques-Dalcroze by adapting the articles of his book in a clear and definite plan while reducing the size of the original book to a brief and readable form."}

Eurhythmics, Art and Education (1935), by Jaques-Dalcroze, is a collection of articles dealing with rhythm. The articles, written at various times from 1922 to 1935, are divided into four categories—Eurhythmics, Education, Art, and General. The section dealing with Eurhythmics includes four chapters of the views of Jaques-Dalcroze on the nature and value of rhythmic movement and on techniques of moving. The Education section contains seven chapters. Within these chapters is a discussion of the use of Eurhythmics in music education, the relationship of piano lessons and musicianship, the use of Eurhythmics with the blind, and thoughts on the future of music education. The three chapters in the Art section deal with the principles and philosophies of Jaques-Dalcroze concerning Eurhythmic study for choreographers and dancers, the music compositions for movies, and musical dramas. The seven chapters in the last section, General, deal with the use of the folk-song as the best expression of a country’s natural rhythms, the influences of critics and public opinion, and the balance between education and other activities in life. In Eurhythmics, Art and Education, Jaques-Dalcroze presents his thoughts and suggestions as to how Eurhyth-

\[4\] Jo Pennington, The Importance of Being Rhythmic (New York: G.P. Putnam's Sons, 1925).
mics might be employed in education and the arts.\textsuperscript{5}

Gell's *Music, Movement and the Young Child* (1949) consists of exercises and adaptations of the Dalcroze method which she has used in the pre-school and primary grades. Following the discussion of the nature of rhythmic movement, Gell describes movement activities to teach the various elements of music to young children. Gell also discusses the use of movement without music, movement to speech, movement and rhythms in daily life or the environment, and improvised or rhythmical drama. Finally, Gell presents a lesson plan for three different age levels and suggests musical compositions to accompany various movements. Gell has presented a program of rhythmic movement based on her experience in working with the Dalcroze method.\textsuperscript{6}

The Eclectic Curriculum in American Music Education: Contributions of Dalcroze, Kodaly, and Orff (1972) was written by Landis and Carder to describe the methods of Dalcroze, Kodaly, and Orff and to present ways in which the elements of these methods can be incorporated into the music education curriculum of America. The section concerning the Dalcroze method contains the philosophy of Jaques-Dalcroze in formulating his approach to music education, an explanation of the three categories of the method (Eurhythmics, solfege, and improvisation), suggested use of Eurhythmics in special education, and the history of the method. Following the discussions of all three methods, articles deal-


ing with successful American adaptations of the methods are reprinted. Three of these articles discuss the Dalcroze method.⁷

Rhythm and Movement: Applications of Dalcroze Eurhythmics (1972), by Findlay, is based on the principles of the Dalcroze method and the incorporation of these principles in the elementary music education curriculum. Findlay describes the relationship between Eurhythmics and each element of music. Following the discussion of each element, various Eurhythmic activities to be used in the music classroom are presented. Findlay also presents suggestions in providing accompaniment for the various activities. In Rhythm and Movement, Findlay has compiled Eurhythmic activities that aid in the teaching of the elements of music in the elementary classroom.⁸

Abramson based Rhythm Games of Perception and Cognition (1978) on the principles of Jaques-Dalcroze utilizing three basic game forms—quick response, follow, and interrupted canon—which are discussed in chapter three of this paper. Abramson presents games which stress the concepts of tempo and beat, dynamics, accents, and rests in music. The games for each concept are arranged in an increasing level of difficulty. The basic progression of the games is from moving in place to moving in space and from movement of isolated body parts and/or with external objects to the movement of the entire body. The games are designed to be accompanied by music illustrating the musical concept stressed through


the game. Abramson has compiled a series of games which represent active participation in music for the elementary music classroom.

Books Based on Movement and Music

Driver presents a program of rhythmic movement to teach the concepts of music in the book Music and Movement (1936). Chapter one is a brief discussion of rhythm which serves as an introduction to the philosophy of the book. Driver provides lesson materials that state the general and underlying principles necessary for the correct use of movement in chapters two through four. Chapter two contains activities designed to discover each child's natural rhythm without the influence of music. Chapter three deals with movement to discover specific aspects of music. Chapter four is a discussion of the use of movement with boys, since Driver felt that there was a lack of music and movement experiences in the education of most boys. In chapter five, choreographed designs of the teacher and students are used to demonstrate the form of music. In chapter six, Driver explains the philosophy and needed knowledge and skills required by the teacher in the use of movement as a teaching aid in music. Chapter seven is a presentation of the application of rhythmic movement in the study of the piano. Throughout the book, the movement activities range from spontaneous movement and/or imitative play to rhythmical interpretations of musical concepts through movement.

In Rhythmic Games and Dances: Basic Activities for Elementary Games (1942), Hughes provides activities that use music as a catalyst

---


to the blending of musical knowledge and skill with recreational benefits. The book is divided into two main parts. Part I, "Free Expression," is designed to provide experiences for the student in free expressions, to develop musical feelings, and to allow the student to respond to expressions in music. The games printed in this section are for the various fundamental rhythmic movements (e.g., walking, running, hopping, etc.). Specific recorded and printed music are listed as accompaniment for each movement. In Part II, "Design in Music," games are suggested for the musical concepts of pulsation, phrasing, accents/meter, and note values. Many of the games call for specific movements dictated by the teacher instead of a free response to the musical concepts. The book concludes with the printing of all music that has been suggested for the various activities.\(^{11}\)

Learning Music Through Rhythm (1949), by Hood and Schultz, is designed to give elementary students experience in moving to various rhythmic concepts in music so that the students will be able to perform the rhythms correctly. The movements include free movement and imitation for perception of mood, interpretation and dramatization, and natural rhythms (e.g., walking, running, skipping, etc.) for interpretation of rhythmic concepts and notation. Specific songs and instrumental music are suggested for the various activities. Activities and procedures are given for the following concepts of rhythm: natural rhythms, phrases, long and short note values, rhythmic patterns, rhythmic notation, accents, meter, sight-reading of rhythms, dotted rhythms, compound meters, and changing beat. The book is designed as a rhythmic program

\(^{11}\)Dorothy Rodd Hughes, Rhythm Games and Dances: Basic Activities for Elementary Grades (New York: American Book Company, 1942).
in grades one through six.\textsuperscript{12}

The purpose of The Rhythmic Program for Elementary Schools (1952), by Fielder, is to develop coordination, a sense of rhythm, and the ability to respond to rhythm within the elementary student. The rhythmic experiences presented are undirected experiences (no previous directions or explanations), semidirected experiences (movements or interpretations suggested by teacher or students), and directed experiences (dances and singing games). Piano accompaniments are printed for the fundamental movements, creative rhythms (poems and descriptive/programmatic titles given), singing games (dance steps given), and folk and square dances.\textsuperscript{13}

In Creative Rhythmic Movement for Children (1954), Andrews presents a rhythmic program based on the creativity and movement of the child as a means of expression. Andrews discusses the characteristics of the child in early, middle, and late childhood and the creativity of the child and its expression through movement. Chapter topics include the types of movement, the development of movement in space, rhythmic responses in movement, the use of percussion with movement, and ideas for use in the school music program. All songs and piano accompaniments are provided for the movement experiences.\textsuperscript{14}

Saffran wrote First Book of Creative Rhythms (1963) as a systematic program for the physical responses to music by the child. The program is based on a modified rhythmic approach which uses a combination

\begin{footnotesize}
\begin{enumerate}
\item Marguerite V. Hood and E. J. Schultz, Learning Music Through Rhythm (Boston: Ginn and Company, 1949).
\item Grace Fielder, The Rhythmic Program for Elementary Schools (St. Louis: Mosbey, 1952).
\end{enumerate}
\end{footnotesize}
of formal and informal methods as the foundation for the creative method. The formal method is teacher-directed while the informal method uses verbal accompaniment as directions for movement (e.g., mime, impersonations, dramatizations, and singing games). The creative method allows the students to freely move to the expression of the music without suggestions or taught movements. The free response is based on past experiences of the formal and informal methods. There is one chapter for each of the sixteen basic rhythmic movements (e.g., walking, running, jumping, hopping, galloping, etc.). Within each chapter, there is a description of the movement, motivation suggestions, rhythmic instruments to be used with or in place of the piano, the outline of the basic beat, piano accompaniments, variations of the basic step, and poetry and supplementary music lists.15

Rhythms in Music and Dance for Children (1966), by Monsour, Cohen, and Lindell, is designed for teachers of various backgrounds to teach rhythm lessons using movement and dance with music. Various approaches, materials, and activities are suggested for use with children in grades one through eight. The book is divided into three main parts which promote an understanding of rhythm. Part one, "Dance Movement," is a discussion of fundamental movements (axial and locomotor) and the elements of dance (space, quality, rhythm, and form). Part two, "Sound-Addition of Music to Movement," is concerned with the use of movement with speech and music (silence and sound; self-sounds; words, jingles, and chants; instruments; accompaniments; songs; and recorded compositions). In part three, "The World Around Us," the use of everyday expe-

periences in rhythm through gestures, games, nature, mechanization, and outer-space and a discussion of elements of art as related to elements of music and dance are presented. Grade levels have not been included with the suggestions and activities in the book so that teachers can adapt the activities at will.  

Sheehy bases *Children Discover Music and Dance* (1968) on the principle that "the elements of music are sound and the movement of sound." The relationship of children and sound is discussed in chapters one through three. Chapters four through six contain an examination of the use of singing and instruments in the classroom. Chapter seven, "Dance," is a description of the various types of dance. Chapter eight, "Guiding Movement and Accompaniment," is a description of the use of movement for spontaneous rhythmic interpretation and the principles of using movement with children. Contained in chapters nine through eleven are the sources of music (recordings, television, radio, and concerts), the relationship between the classroom teacher and the music consultant, and thoughts on teaching music and dance.

*Movement Education: Its Evolution and a Modern Approach* (1969), by Brown and Sommer, is primarily a physical education resource book which can be helpful to music, dance, and drama teachers. Part one of the book is the history of natural movement. Discussed in part two are the basic concepts of natural movement and rhythm and the techniques and

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18Ibid.
objectives of teaching movement education. Part three contains activities and exercises with both descriptions and illustrations. The activities stress the improvisation of movement corresponding to the sounds which are heard. The musical concepts which are included in the activities are crescendo/decrescendo, tremolo, tone color, and rhythmic pattern. Improvised accompaniments are recommended so that the accompaniment will conform to the flow of the natural movements. The purpose of the method suggested is to improve the students' movements through a variety of experiences that employ both inner and outer movement stimuli.

Movement, Sound, and Reading Readiness (no date), by Prince, encourages the use of movement and sound in learning music skills and reading skills. The basic philosophy of the book is that the development of musicianship is through the refining of sensitivities of the student and through the development of movement skills. Nine exercises are given along with the music and reading concepts and procedures for each activity. The exercises described are speech patterns, pitch play, mirror movement, auditory discrimination, matching phrases, question and answer, and question and answer with accompaniment and voice.

Historical Studies Concerning Movement in Music Education

In order to determine the extent to which rhythm was taught through movement in American elementary music curricula from 1900 to

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20 Lucya Prince, Movement, Sound and Reading Readiness (Oak Park, Il.: Illinois Montessori Society, n.d.).

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1940, Gay (1966) has examined music textbook series, books written for music educators, music periodicals and yearbooks of music associations, and random selections of courses of study from that time period. His study has revealed a gradual development in the use of movement activities in the music classroom. From 1900 to 1920, most music educators used little or no rhythmic movement in the music classroom. Many of these educators believed that the rhythmic sense was inate and not susceptible to training. In the 1920s, some music educators believed rhythmic movement activities were useful as a means to teaching rhythm; yet, actual use of the method was relatively small. The 1930s showed a wide acceptance of rhythmic movement activities in the elementary music classroom. The possible influences on the use of movement were (1) physical education methods of teaching dance and related rhythmic activities, (2) singing games and simple movement activities in kindergarten classes, and (3) Dalcroze Eurhythmics. Thus, a slow but gradual development can be seen in the use of rhythmic movement activities in American music education from 1900 to 1940.21

Becknell (1970) has compiled a history of the development of Dalcroze Eurhythmics in the United States. He found that the method was introduced to America in 1911 by students of Jaques-Dalcroze. These students taught private classes in many cities throughout America. At the college level, Eurhythmics was first initiated in 1913 at the University of Pittsburgh through the department of drama. It was not until 1921 that Eurhythmic courses in music education were mentioned. By that time, the music education department had been transferred to Carnegie

21 Albert Ira Gay, "Rhythmic Movement in Music Education In the Elementary School, 1900 to 1940" (Ph.D. dissertation, The University of Michigan, 1966).
in 1966. In 1967, permission was received from the Institute Jaques-Dalcroze in Geneva, Switzerland, to grant the elementary certification of the Dalcroze method. (Carnegie-Mellon University received permission later that same year.) The Eurhythmics program has been under the direction of Elsa Findlay since 1956.24

Becknell has examined in detail only the three preceding schools. He has included a discussion on the adaptation and use of the Dalcroze principles in the public schools and music series in America. Becknell has also included various comments from dancers, educators, musicians, and others acquainted with the Dalcroze method. Finally, a chronological list of numerous colleges and universities which have offered Eurhythmic courses and aided in the development of the growth of Eurhythmics in the United State is presented.25

**Studies Concerning Movement and Music**

Six of the eight studies to be discussed in this section investigate the use of movement to teach various aspects of music at the elementary level. The remaining two studies investigate the indicators of student responses to music through movement and the development of motor music skills.

Jersild and Bienstock (1934) studied the development of the ability of ninety-four children ages two through six to sing and keep time to the music and the influence of various factors on this development. The factors included form, tempo, meter, complexity of music patterns, type of response (clap or walk), age, intelligence, sex, and the effect

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of maturation and practice. The movement of the subjects was recorded on film and reviewed frame by frame to determine the accuracy of response to the beat of the music. The results showed an increase in the children's scores according to the increase of age. There was no significant difference between the three meters, between sexes, or between those children who practiced keeping time to music and those who did not practice. The intelligence factor results were inconclusive since IQ's were not reported for each subject. However, the correlation was high for the available IQs. Children who had a high ability in singing were more likely to be above average in keeping time. Simplified musical patterns did not significantly improve the accuracy of performance when compared to the more complex patterns. Higher scores were obtained when the subjects responded to faster tempi while lower scores were obtained at slower tempi. Finally, there was no significant difference between the use of the hand (clap) or foot (walk) to respond to the musical beat.

Christianson (1938) investigated the bodily rhythmic movements of seventy-two children ages two through six in relation to rhythm in music. A five-point scale was used to rate each subject through observation. The scale measured synchronization of movement, social-emotional responses, spontaneous dance patterns, use of rhythm in dramatic expression, and verbal requests and comments. The results of the study were:

1. Scores on the observation scale increased with age
2. There was no significant differences in dance responses

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according to sex even though the girls scored higher

3. There was no relationship between the factors of bodily rhythmic response and intelligence quotients

4. Rhythmic responses correlated with physiological development in motor coordination

Groves (1965) studied the effect of rhythmic training on the ability of children to synchronize body movements with rhythmic stimuli. The effect of the factors of home musical backgrounds, motor ability, sex, and personal social adjustments were also included in the study. The predictors used as control factors were scholastic achievement, intelligence, kindergarten experience, socio-economic status, age, grade, and initial rhythmic ability. Subjects in the study included 131 students in the first, second, and third grades. Those subjects in the experimental group received two thirty-minute lessons each week for twenty-four weeks. Additional rhythmic experiences were provided by the classroom teacher. Instruction was divided into four-week periods with each period devoted to one of the six basic rhythm patterns. During the last week of each period, the rhythmic patterns that had been introduced were combined. The patterns were introduced with a dramatic situation. The subjects then responded to the patterns played on rhythm instruments played at various tempi and to music which contained the patterns. Results were obtained from the analysis and correlation of the scores on the rhythmic-synchronization ability test, the home musical background questionnaire, the Brace Scale of Motor Ability, the Warner's Index of Status Characteristics, the Stanford Achievement Test, the California Short Form Test of Mental Maturity, and the California Test of Person-

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ality. There was no significant difference found between children who had rhythmic training and those who had no training in the ability to synchronize body movements to rhythmic stimuli. Motor ability was a significant factor in the ability to synchronize body movements with rhythm. The home musical background and personal adjustments were not significant factors. Although boys tended to score higher than girls, there was not a significant difference according to sex. Age and grade level were significant factors in the study and seemed to contribute more to the criterion variable of synchronization than any other variable in the study.28

Rowen (1967) sought to develop a music education program for the primary grades which would develop aesthetic concepts through body movement, exploration, and expression. The elements of the structure, stated in terms of aestheticians, used in the program were theme (substance, mood), quality of sensory perception (tone color, texture, pitch), pattern (shape, design, form), rhythm, and dominance (centrality, accent, dynamic sequence). The program was implemented as a case study with a second grade class of twenty-two students. Class sessions met twice a week for one hour during a sixteen-week period. All sessions were recorded and transcribed for review. The classroom teacher and a dance teacher served as observer-recorders. The observer-recorders kept an observation sheet listing the aspects of aesthetic response for each subject. The observation sheet included the following items: (1) degree of involvement, (2) intensity and scope of sensory perception, (3) powers of observation, (4) recognition of aesthetic components in various modes of expression, (5) originality and imagination, _______________

28Groves.
and (6) miscellaneous (later became agility of movement). Each session was focused toward one of the five elements of the program. During the sessions, the children would respond first through movement then through art work. For example, the students responded through movement to the rhythms played on a drum, played their own rhythms, and recorded their rhythms on paper. Following the response to rhythm patterns in music, the students studied art works containing strong rhythmic patterns and then created their own art works containing rhythmic qualities. The following results were drawn from the observation-recorders, tape recordings, and art works and writings of the subjects:

1. Children responded with high degree of involvement to all sessions and, in most instances, developed greater ability to concentrate and respond

2. The strongest response area was rhythm in music, and the ability to sense rhythm was observed to develop in some of the children

3. Most of the subjects demonstrated a strong feeling for the quality of sound

4. Response to color, texture, line, and shape was less noticeable for the class as a whole—girls responded more than boys

5. The development of a coordinating theme into a story or sequence by the class heightened interest and motivation of the subjects

6. Although aware of dominance and pattern when demonstrated through various modes of expression (dynamics), children were not able to incorporate structural aspects in their own improvisations

7. Children had opportunities to develop greater powers of observation and greater originality of expression through the various channels of communication

8. Classroom teacher reported a carry-over of various concepts and an improved self-concept in the curriculum areas

9. Individuality in behavioral and style responses were seen throughout the study—children with high verbal skills expressed aesthetic concepts through language and dramatic improvisations, children with greater rhythmic capacities

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demonstrated a rhythmic dimension in all activities of movement, playing instruments, art, and writing.

10. High degree of correlation was found between the evaluations of the investigator and the observer-recorders.

From these ten results, Rowen formulated the following conclusions and/or recommendations:

1. A program using movement to develop aesthetic concepts has positive effects on primary grade children and is feasible to implement.

2. More time should be spent in exploration of the elements of rhythm and quality of sensory perception since the children in this study were most responsive to these two concepts.

3. The method of evaluation of the children's aesthetic responses appears to be valid and needs further study.

4. More attention should be given to the development of individual responses of the children within a class.

5. A long-term longitudinal study should be implemented using valid measures and evaluations of aesthetic response and the interrelationships of the aesthetic concepts.

6. The relationship of the program to the other arts and programs in the primary grades should be investigated.

Woskowiak (1973) developed and evaluated programmed music reading games for first grade students based on the principles of Dalcroze, Orff, and Kodaly. Twenty-four first grade students participated in the six-week study. The subjects worked with nineteen games of twenty-five minutes each. The prerecorded games utilized music reading material of two- and four-measure melodies and rhythms performed on resonator bells, drums, rhythm sticks, and tambourines. An investigator constructed reading skills test included items similar to those in the games and was used as the posttest measure. The test required the students to perform five four-measure melodies on the bells. All subjects met the eighty...
percent criterion on the test. The mean percentage correct was 91.4 which passed the group criterion of ninety percent. All subjects met the individual error rate criterion of no more than twenty percent for any individual game or for the entire program. The mean error rate was 9.38 percent for the total program which was less than the established criterion. The relationship between test score and IQ was significant; however, no relationship was found between test score and age. The results indicated that first grade students can acquire rhythmic and melodic reading skills.30

Douglas (1977) sought to determine if children who received an Eurhythmic-type instruction attained higher musical achievement than children who received traditional music instruction without rhythmic movement. Fifty-four students in two fourth grade classes were randomly assigned to groups of high, average, or low ability based on the scores on Gordon's Musical Aptitude Profile. The classes received sixty-minute music lessons, including recorder instruction, for a period of twenty-eight weeks. Twenty minutes of each class period for the experimental group was devoted to Eurhythmic instruction. Pretest-posttest measures were the Physical Response to Rhythm in Music test (PRR) for performing rhythms, the Iowa Test of Musical Literacy (ITML) for achievement of instructional objectives, the investigator-designed "Rhythmic Sight-Reading Test" (RSRT), and the investigator-designed "Recorder Performance Test" (RPT). Data analysis revealed a significant difference between the two treatments on the PRR in favor of the Eurhythmics group. However, Douglas warned of possible teacher difference effect on the scores

and that the students taught to respond with physical movement would more likely do better on a test of that competency than those trained under other objectives. No significant difference between treatments was found on the RPT, RSRT, or the ITML. There was a significant main effect according to ability levels on the RPT and RSRT. The greatest mean difference on the RPT was found at the average ability level in favor of the experimental group. Students in the average and low levels had a large mean difference score in favor of the experimental group on the RSRT. No significant difference was revealed through the interaction of the four tests.  

Flohr and Brown (1978) investigated the influence of peer imitation on the expressive movement to music. The study consisted of two experiments identical in nature except for the age of the subjects. Experiment I utilized fifty-one kindergarten children ranging in age five years four months to six years three months (mean age of five years eight months), and Experiment II utilized twenty-eight preschool children ranging in age from three years eight months to four years ten months (mean age of four years two months). The procedures for each experiment were the same. While seated in a circle, the children were asked to show how the music moved with their hands, arms, and head. The children responded to four one-minute excerpts labeled fast familiar, fast unfamiliar, slow familiar, and slow unfamiliar. The children responded to the music under two conditions—blindfolded and nonblindfolded. The order of music excerpts and conditions was randomly assigned. Movement responses of the children were videotaped for identification of movement categories. Two observers independently recorded fourteen cat-

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31 Douglas.
categories of movement. Expressive movement scores for each subject were computed for each music excerpt. The results for both experiments revealed a significant difference between the blindfolded and nonblindfolded conditions. The mean scores for each condition indicated that imitation occurred more often during the nonblindfolded condition. A significant difference existed between familiar and unfamiliar music excerpts for the kindergarten children. These children appeared to be imitating less with familiar music than with unfamiliar music. Data from the preschool subjects did not reveal a significant difference between the familiar and unfamiliar music excerpts. There was no significant difference found between fast and slow music and no significant interaction between the variables for either age group. The results indicated that peer imitation does significantly influence the expressive movement of children in music.32

Cheek (1979) sought to determine the effect of psychomotor experiences on the ability of fourth grade students to discriminate pitch, intervals, meter, and major/minor modes; to perceive tonal centers; and to read music. The influence of the psychomotor experiences on self-concept was also investigated. Fifty-seven subjects in two classes participated in three thirty-minute lessons each week for fifteen weeks. Subjects were grouped according to high, middle, and low ability groups. The lessons were based on a comprehensive music curriculum including singing, playing recorder and percussion instruments, and creating and analyzing music. All objectives, materials, and teaching styles were the same for each group except for the inclusion of systematic psycho-

motor experiences (creative movement, body rhythms, and hand gestures) for the experimental group. Pretest measures included the Musical Aptitude Profile (MAP), Comprehensive Test of Basic Skills, Piers-Harris Children's Self-Concept Scale, and "Response to Rhythm in Music Test." Posttest measures included the Music Achievement Test I and II (MAT), "Response to Rhythm in Music Test," and Piers-Harris Children's Self-Concept Scale. An analysis of the data revealed that children in the experimental group scored significantly higher on the factors of meter discrimination, music reading skills, rhythm response, and self-concept. There was no significant difference revealed for the discrimination of pitch, intervals, and major/minor mode. Significant difference was found between the low groups but not between the middle and high ability groups.33

Immell (1979) sought to determine if rate, duration, and magnitude of face and body movements were indicators of response to music and to determine the aspects of face and body movements which were the best predictors of effective response. Movements of the face, head, shoulder/arm, hand/finger, leg/foot, and postural shifts were measured according to rate, duration, and magnitude. Seventy junior high students were videotaped as they listened to six musical examples. The students rated each example for affective response immediately after hearing it. The videotape was analyzed to determine the aspects which best predicted the affective response. The rate of leg/foot movement appeared to be the best predictor of affective response. The second best predictor was

33Helen Yvonne Cheek, "The Effects of Psychomotor Experiences on the Perception of Selected Musical Elements and The Formation of Self-Concept in Fourth-Grade General Music Students" (Ph.D. dissertation, the University of Michigan, 1979).
the rate of hand/fingers movement for four of the six examples and the
duration of hand/fingers movement for two of the examples. Finally, the
absence of facial movement was a better indicator of affective response
than the presence of facial movement.  

Gilbert (1980) investigated the development of motor music skill
in children ages three through six years and examined the variations in
the development according to age, sex, race, community size, and pre­
vious musical experiences. The Motoric Music Skills Test (MMST) was
administered individually to 808 children from seven mid-western towns.
The MMST measured motor pattern coordination, eye-hand coordination,
speed of movement, movement ranges, and compound factors. General in­
formation concerning each child's age, sex, race, community, and pre­
vious musical experience was obtained from the parents. Each child's
test performance was videotaped for review and analysis by independent
judges. Mean performance scores increased with each age level. The
motor pattern coordination items appeared to be mastered at the earliest
ages while items in eye-hand coordination, speed, range, and compound
factors appeared to improve with age. Community size and previous music
experience had no significant effect on the scores on the MMST. There
was a significant difference revealed for the sex main effect on the
motor pattern coordination, eye-hand coordination, and compound factors.
Girls performed better than boys on these three significant sub-tests,
but boys scored higher than girls on the nonsignificant sub-tests.
There was no significant main effect for race or for the interaction of

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34Roger Allan Immell II, "Rate, Duration, and Magnitude of Face
and Body Movements as Indicators of Response to Music" (Ph.D. disserta­
tion, West Virginia University, 1979).
age, sex, and race. These results provide a basis for developmental research investigating the various motor music skills.\(^{35}\)

**Studies Concerning the Discrimination of Pitch and Melodic Contour**

The research studies discussed in this section are concerned with the ability of young children to discriminate between pitches and/or to discriminate the direction of melodic contour. The criterion for selection of the studies is based on the response and age of the subjects. Only those studies which required spoken, written, or manipulative responses are reviewed. The studies reviewed are also limited to those concerned with subjects of preschool and elementary age children.

Williams, Sievers, and Hattwick (1932) investigated the ability of twenty-four students (ages four and five) to discriminate between high and low pitches produced by a piano. Prior to testing, each child received a five minute session which included instructions, demonstration of register on the piano, singing high and low tones, and playing scales or leaps on the piano. The expression "moving upstairs and downstairs" was substituted for the terms "high" and "low." The test consisted of a visual-auditory section and an auditory section. The visual-auditory section required the subjects to demonstrate pitch direction ("moving upstairs and downstairs") four times on the piano. The auditory section required the students to identify the direction of pitches. The students heard the following sequence of pitches: (1) step progression (C D E F G), (2) arpeggio (C E G), (3) minor third (E G), (4) major second (G A), and (5) minor second (G G#). The test concluded with...

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with the subjects demonstrating "up and down" direction four times on the piano. On the beginning visual-auditory section, all students demonstrated the proper direction on all attempts. A majority of students responded correctly on all sequences of the auditory section. The percentage responding correctly on the sequences was ninety percent on the scale, seventy-two percent on the arpeggio, fifty-two percent on the minor third, fifty-two percent on the major second, and fifty-four percent on the minor second. The percentages for the scale and arpeggio were significant above chance success for the group. Percentages for the minor third, major second, and minor second were not significant above chance for the group. On the repeat of the visual-auditory section (using terms "up and down" instead of "upstairs and downstairs"), eighty-seven percent of the subjects responded correctly four consecutive times. Williams, Sievers, and Hattwick concluded that preschool children could discriminate pitch direction and that longer series of tones covering a large pitch area was easier to discriminate than the shorter series covering a small pitch area.36

Hattwick and Williams (1935) used a recording of the first four intervals on the subtest "Pitch" of the Seashore Measures of Musical Talent to investigate the terminology of "higher-lower" and "going up-going down." Subjects for the study included 1202 students in grades two through five. Each class was divided into two comparable groups to test the terminology effectiveness. No significant differences were found between the terminologies at any grade level. The study was repeated using bells to produce the intervals instead of the recording in

order to control the pace of the items. The "going up-going down" terminology was shown to be more effective than the "higher-lower" terminology when the pace was controlled.\textsuperscript{37}

Hattwick and Williams (1935) also investigated three types of answer-sheets for pitch discrimination tests. The first method used letters—students wrote the letter "H" if the second pitch was higher than the first or an "L" if the second pitch was lower. In the second method, "Crosses," students placed an "x" in the box under the letters "H" or "L" for the second pitch. In the third method, "Circle and Roads," subjects placed the pencil point in a circle, listened to the two tones, and then drew a line up ("up road") or down ("down road") for the second pitch. There was no significant difference between any of the three methods. However, more interest was evident for the circle and road method in grades two through four while the fifth graders appeared to prefer the letter method.\textsuperscript{38}

The final phase of the investigation of Hattwick and Williams involved the administration of individual visual and auditory tests to 126 subjects in kindergarten through second grade (ages five through eight). The study investigated the ability of the children to discriminate between two pitches a minor third apart. Two bells were placed on a ladder to allow the child to watch and listen as the sounds moved "up the stairs" and "down the stairs." A trial test of ten items was given to each child as they observed the bells. All of the children demonstrated understanding of the concept on the visual-auditory test. A


\textsuperscript{38}Ibid.
twenty-five item auditory test was given to each child. After hearing the two pitches, the subject told the investigator the direction of the pitches. The criterion for conceptualization of the terminology was a score of ninety percent correct responses. Twenty-three percent of the five-year-old subjects, twenty-four percent of the six-year-old subjects, eighty percent of the seven-year-old subjects, and sixty-five percent of the eight-year-old subjects met the criterion. Approximately half of the children understood the terminology of "going up-going down" and used it correctly in pitch discrimination.\textsuperscript{39}

Yendovitskaya (1958) investigated the discrimination of pitch by young children (ages three to seven). The subjects were trained to use arm movements within a well-defined space. Spatial square units were used to correspond to each number of cycles per second; thus, the size of the arm movements corresponded to the size of the pitch intervals. For any change in the interval, movements were changed the relative amount. Eighty complex sound stimuli of equal and differing pitches were presented with a gradual reduction of interval size. Through the training, the younger preschool students began to differentiate between the pitch pairs without the aid of the arm movements. The differential threshold ranged from 9 to 25 Hz for the five- and six-year-old group and from 8 to 20 Hz for the six- to seven-year-old group. The children had some difficulty in stating the differences between pitches and the direction of the difference.\textsuperscript{40}

\textsuperscript{39}Ibid.

Jeffrey (1958) investigated the transfer of two pretraining tasks to the test situation of pressing left-right buttons for low-high tones. The effect of training with wide intervals on the response to small intervals was also investigated. The twenty-one subjects (five years six months) were divided into three groups. Group I received no pretraining task. Group II matched pitches vocally during pretraining. Group III matched pitches at the piano (two tones were marked with red tape) during pretraining. Following the pretraining, all three groups were trained on the button pressing response. The apparatus for the test utilized two tape recorders and response buttons. One recorder contained music for incentive and reinforcement while the other recorder presented the tones for discrimination. Subjects used earphones to listen to both the music and the tones. The buttons were placed fourteen inches apart on a small board. The left button corresponded to the low tones and the right button corresponded to the high tones. The buttons were programmed to allow the music to continue to play if the correct response was given within three seconds of hearing the stimuli and to terminate the music if an incorrect response was given (music resumed with the next correct response). Two series of piano tones were recorded loud enough to cause no confusion with the music. Series A contained the two tones \( \text{c} \) and \( \text{g}^3 \) (128 and 1152 cps) recorded at ten second intervals. Series B used the pitches \( \text{c}^1 \) and \( \text{g}^1 \) (256 and 384 cps) and was recorded in the same manner as Series A. All training was done with Series A. When the subject met the criterion of ten successive correct responses out of seventy-two trials, then Series B was tested. Only one of the seven subjects met the criterion on Series A for Group I (no pretraining). In Group II, six of the seven subjects learned to differen-
tiate the pitches through singing and five subjects met criterion on Series A. In Group III, all subjects learned to differentiate pitches at the piano and met criterion on Series A. None of the subjects in Group I met criterion on Series B. One subject in Group II and one subject in Group III met criterion on Series B. Group III subjects (piano) responded to the test situation with the least number of trials required. An analysis of the performances on the test revealed significant differences between Groups I and II (p < .05) and Groups I and III (p < .01) and no difference between Groups II and III. Transfer from training on larger intervals to discrimination of smaller intervals was not supported since only two of the twenty-one subjects met criterion on Series B.41

Repina (1961) trained forty subjects ages three through seven to differentiate piano pitches through the relationship of visual objects and register. High tones were associated with small animal sounds, and low tones were related to large animal sounds. Through the training, the subjects learned to discriminate pitches without relying on the visual-external supports. For the ten older students (ages six through seven) there were five with a threshold of a minor third to a perfect fourth, and one with a threshold greater than a sixth.42


Petzold (1963) investigated the development of auditory perception of musical sounds, primarily melody, by students in grades one through six. The effect of the factors of sex, age, and musical backgrounds was also examined. Approximately 600 students were randomly selected to participate in the study. Four tests were designed to provide data on the perception of short tonal patterns and more complete musical ideas. The "45-Item Test" provided information on perception of tonal patterns. The items of melodic contour were ascending and descending scale patterns, ascending and descending chord patterns, disjunct patterns, and conjunct and disjunct combinations of scale and chord patterns. The "20-Item Test" provided data concerning the consistency of subject responses to short tonal configurations. Each item of the test was presented three times. The "Rhythm Test" utilized the tonal patterns of the "45-Item Test" but rewritten to include rhythmic configuration. The "Phrase Test" was designed to measure the perception of larger, more complete musical ideas. One major and one minor phrase was presented a total of ten times. After each presentation, the subject sang as much of the phrase as possible. The "45-Item Test" was administered to all of the subjects. The students were randomly assigned by grade level to sub-groups. Each sub-group was randomly assigned one of the three remaining tests. An analysis of the data from the four tests revealed the following results:

1. There was no significant difference between the girls and boys

2. The effect of age (grade level) was significant when three-year intervals were used; however, one- and two-year intervals revealed small percentages of significant comparisons

3. Musical background had a significant effect on auditory perception on the "45-Item Test"
4. The proportion of students earning higher scores on the "45-Item Test" increased with each grade level, and the proportion of students earning lower scores decreased with each grade level.

5. There was no significant difference between the means of the "Rhythm Test" and the "45-Item Test" indicating that rhythm does not necessarily influence the perception of melody.

6. Subjects at all grade levels were able to make consistent responses on the "20-Item Test".

7. Age and musical experiences appeared to influence the overall achievement scores on the "Phrase Test" but not the rate of learning of the musical items on the test (More older students demonstrated the ability to learn the phrases than the younger children).

8. Except for the "Phrase Test," the correlations between the sub-tests and the "45-Item Test" were high—an indication that auditory perception of short tonal patterns precede that of larger musical ideas.

The results of the study indicated that elementary school music programs should include a wide variety of activities which foster auditory perception of musical sounds through intellectual thought rather than imitation.43

Duell and Anderson (1967) investigated the pitch discrimination ability of 168 subjects in grades one through three. The subjects judged recorded pairs of pure tones as either the same or different. The intervals of major sixth, perfect fourth, minor third, minor second, two-thirds of a half-step, and one-third of a half-step were presented four times each above and below the standard pitch of comparison. The unison was presented sixteen times. The data revealed that the percentage of correct responses increased with the size of the interval. The correct percentage for each interval was 96 percent for the major sixth.

94 percent for the perfect fourth, 86 percent for the minor third, 68 percent for the minor second, 45 percent for two-thirds of a half-step, and one-third of a half-step. The percentages for correct responses improved at each grade level. The differences among intervals and among grades were significant at the .01 level of confidence. When the comparison tone was lower than the standard tone, the intervals were slightly easier to discriminate by the students.\textsuperscript{44}

Soderquist and Moore (1970) investigated the effect of training on frequency discrimination of primary school students. The investigators sought to determine the difference limens (DL), the smallest pitch difference a subject can discriminate accurately, before and after training and as a function of age for fifty-four students in the age groups of five-, seven- and nine-years-old. Pretraining was given to the eighteen five-year-old students using an autoharp and frequency oscillators. Each subject was told that the short strings on the autoharp were high and the long strings were low. The subject then listened to two strings played in succession and answered if the second pitch "went up" or "went down." After listening and responding to twenty-five pairs of tones with immediate feedback provided, the subject listened to the oscillator produced tones. A standard tone of 300 cps was followed by a comparison tone of either 400 or 200 cps. The subject was required to state the direction of the second pitch. There was no pretraining for the seven- and nine-year-old subjects. The testing measure consisted of three sessions of one hundred comparison trials each. The range of

stimuli for the five-year-old group was 200 to 400 cps in 10 cps steps, 250 to 350 cps in 5 cps steps for the seven-year-old groups, and 280 to 320 cps in 2 cps steps for the nine-year-old group. The standard tone of comparison was 300 cps for all three groups. The subjects indicated the direction of frequencies by holding up the appropriate answer card.

Following the pretest, subjects were randomly divided into control and experimental groups. Six training sessions were given to the experimental groups using the same method of the test procedure. The ranges of the comparison tones were respectively 300 to 400 cps in 10 cps steps, 325 to 375 cps in 5 cps steps, and 340 to 360 cps in 2 cps steps for the five-, seven-, and nine-year-old groups. The standard tone of comparison was 350 cps. Each child received immediate verbal feedback after the response. Following the training sessions, all subjects were retested with the same procedures and stimuli as used in the pretest.

An analysis of the data revealed that the age factor had a significant effect on discrimination ability. However, the two oldest groups did not differ significantly but were both significantly different from the youngest group. Although both groups at each age level did show decreases in DL on the posttest, a significant difference was found to exist between the control and experimental groups. There was no significant difference for the decrease of DLs for each group receiving training even though the decrease did suggest a trend. A follow-up eleven months later of the seven-year-old group revealed a significant retention of training effects and a decrease in DL for both experimental and control groups.45

Zwissler (1971) studied the pitch discrimination ability of first grade students identified as accurate and inaccurate singers. The study also sought to determine if the larynx assists in the skill of pitch discrimination even though no conscious vocal response is made and if large intervals are easier to discriminate than small intervals. Fifty accurate singers and fifty inaccurate singers were identified and selected to participate in the study. The three tonal ranges used in the test were 130.81 cps to 261.63 cps \((c^1-c^1)\), 261.63 cps to 523.25 cps \((c^1-c^2)\), and 523.25 cps to 1046.50 cps \((c^2-c^3)\). These ranges represented the normal singing range octave and the octaves above and below that range. The subjects indicated the direction of tonal pairs produced on an electric organ and tape-recorded for individual administration of the test. Four scores were given to each subject for the correct responses over the three octaves and for each octave range. An analysis of the data revealed the following results:

1. Measured over the three octaves, there was a significant difference between accurate and inaccurate singers in the ability to discriminate pitches

2. Although the accurate singers scored better in all three ranges, there was no significant interaction between singing accuracy and range—an indication that kinesthetic sensations of the larynx did not give the accurate singers an advantage within the normal singing range

3. There was a significant difference between scores at each octave regardless of singing ability—discrimination ability within the normal range was easier than within the higher and lower octaves

4. There was no evidence to indicate that the subjects discriminate pitch difference of large intervals easier than small intervals

5. Since four of the inaccurate singers scored above 75 percent, there was an indication that a factor other than poor pitch perception was the cause of inaccurate singing ability
The results indicated that a strong relationship existed between the inability to sing accurately and poor pitch perception. Zwissler suggested the teaching of pitch discrimination skills at the kindergarten and primary grade levels to aid in the development of accuracy in singing.46

Hair (1975) investigated the ability of 144 first grade students to discriminate tonal direction through verbal and nonverbal tasks. The verbal tasks included a group test requiring a written response to indicate differences of ascending and descending tonal patterns and an oral response test requiring a description of the patterns heard and played. The nonverbal task was a performance test requiring the subjects to match ascending and descending tonal patterns by playing resonator bells. The effect of sex, race, and ability was also investigated. The group written test consisted of eight pairs of tonal patterns (two sample items and six test items) of two, three, and four notes. The written test was given at the beginning and at the end of the study. The performance test consisted of the same patterns in the written test with ascending and descending order randomized. The subject was given only the bells needed for each pattern and was instructed to play the bells to determine their sounds before hearing the pattern. On the oral test, the subject answered questions concerning the direction of the patterns. Verbal, gestural, and combinations of verbal and gestural responses were recorded for analysis. An analysis of the data revealed

the following thirteen results:

1. Subjects scored significantly higher on the performance test than on either of the verbal tests ($p < .001$).

2. Subjects scored significantly higher on the written test than on the oral test ($p < .001$).

3. Subjects scored significantly higher on written test one than on written test two ($p < .01$).

4. White subjects scored significantly higher than black subjects on the written and performance tests ($p < .001$) but not on the spoken test.

5. There was no significant difference between the sexes on any of the tests.

6. There was a significant difference between ability groups on written and performance tests ($p < .001$) but not on the spoken test.

7. Subjects scored significantly higher on descending patterns than on ascending patterns ($p < .05$).

8. Subjects scored significantly higher on descending two- and three-tone patterns than on ascending two- and three-tone patterns (no difference between ascending and descending four-tone patterns).

9. Subjects scored significantly higher on three-tone patterns than two- and four-tone patterns on written test, but there was no difference between patterns on performance test (significant difference between two- and four-tone patterns between the two tests but not for the three-tone patterns).

10. 33 percent of subjects gave no directional response on the two examples of the spoken test while 66 percent gave a directional response (includes incorrect responses).

11. Of responses given on spoken test, 6 percent were the terms "up and down" and 2 percent were the terms "high and low".

12. Of responses given on spoken test, 35 percent were verbal, 39 percent gestural, and 26 percent both verbal and gestural.

13. The responses to the two examples of the spoken test included 56 percent incorrect on both, 22 percent correct on one, and 22 percent correct on both (percentage correct on both included 8 percent verbal, 10 percent gestural, and 5 percent verbal and gestural).
The results indicated that even though many children could perceive differences in tonal patterns and could match the tonal direction, they could not verbalize the concept in traditional musical terminology.\textsuperscript{47} Van Zee (1976) examined the ability of kindergarten students to aurally discriminate differences in pitch, melodic contour, duration of tones, and rhythm patterns; to verbally describe these differences; and to demonstrate the understanding of the terms used to describe these musical concepts through performance on a keyboard instrument. The effect of socioeconomic background, sex, and chronological age on the verbal, descriptive, and performance responses was also investigated. Two tests were designed and individually administered to eighty subjects (forty boys and forty girls). Test A consisted of two sections. Test A-1 assessed the ability of the students to discriminate differences in terms of "same" or "different" on paired items of the four concepts. Test A-2 required the subjects to verbally describe the second sound when it was different from the first sound. Test B assessed the subject's understanding of the terms used in Test A-2 through performance on a Magnus electronic organ. All test items were taped for presentation to the subjects. An analysis of the raw data revealed a greater number of correct responses on Test A-1 and Test B. On Test A-2, the incorrect responses exceeded the correct answers. The data indicated that many of the children could discriminate differences in the items and demonstrate their understanding of the concepts through performance but could not describe the differences. The pitch items on Test A-1


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appeared to be the least difficult for the subjects. The smallest intervals were the most difficult pitch items for the students. Of the melodic contour items, the most difficult was the tonic chord pattern, and the least difficult was the pairing of repeated tones with a pattern ascending and descending by step. Duration items containing eighth-note patterns were easier to discriminate than those containing half-note patterns. The unevenness created by the rhythmic patterns of dotted quarters to eighth-notes or half-notes to quarter-notes did not appear to have an effect on the difficulty of the items. There was no significant effect on the test scores by the factor of age. There was a significant interaction of response required with sex and socioeconomic background. There was no common characteristic vocabulary used by the students in Test A-2. The children had the most difficulty in verbalizing responses on the duration and rhythm items. The children who had experienced rhythmic activities in the music classroom tended to give the largest number of verbal responses. Many of the students used hand and/or body movements along with or in place of verbal responses. The following conclusions were drawn from the results of the study:

1. Kindergarten students appear to be more efficient in demonstrating their understanding of duration and rhythm patterns than in describing the concept

2. Kindergarten students are susceptible to training in musical discrimination

3. Physical movement and kinesthetic approaches are an important aspect of developing musical understanding

4. Sex and socioeconomic background appear to be significant factors on the ability of kindergarten students to perceive and express understanding of properties of musical sounds

5. Musical terminology commonly used with kindergarten music classes are not necessarily a part of the student's vocabulary
6. The ability of kindergarten students to verbalize the properties of musical sound does not necessarily develop with the ability to perceive and understand the concepts.

Olson (1976) investigated the ability of first grade students to transfer information concerning melodic contours from aural to visual sensory modes (AV) and from visual to aural sensory modes (VA). The transfer of information within the aural sensory mode (AA) and between the intersensory modes was also examined. The study also investigated the possible order of difficulty among the three tasks (AV, VA, and AA) and whether task difficulty varied according to the placement of a task within the sequence. Seventy-two first grade students participated in the study. The musical stimuli consisted of short melodic phrases perceived aurally and contour line graphs perceived visually. The test consisted of three matching tasks involving both sensory modes—initial visual stimulus matched with aural stimulus (VA), initial aural stimulus matched with visual stimulus (AV), and initial aural stimulus matched with another aural stimulus (AA). The stimuli were presented in pairs requiring a same-different response from the subjects. An analysis of the data revealed the following results:

1. Significant differences were found among the three tasks means (p < .001)

2. Means indicated a task order (from easiest to hardest) of AA, VA, and AV; however, only the AA mean was significantly different from the means of VA and AV (p < .01)

3. The comparisons of first and last positions of each task in the test sequence revealed means of last position were higher for AV and VA tasks, but not significantly higher

4. Mean of AA task was higher in first position of test sequence, but the mean was not significantly different

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from the mean in last position

5. The means of each task in all three positions showed no significant difference by position

From these results, the following conclusions were drawn:

1. First grade students do not appear to have any more difficulty in perceiving and transferring from aural to visual sensory modes than from visual to aural sensory modes

2. First grade students appear to be able to transfer perceptions about melodic contour within intrasensory modes to a degree significantly better than between intersensory modes

3. The sequence of inter- and intrasensory tasks used in the study does not appear to be a significant factor on the perception and transfer of melodic contours by first grade students49

Scott (1977) sought to determine if preschool children (ages three through five) have formed or are capable of forming pitch concepts and if the measurement factors of presentation strategies and stimulus salience would affect the ability to demonstrate understanding of the concepts. The subjects classified dissimilar pitch stimuli on the basis of pitch, register, melodic contour, or interval size through the use of a nonverbal manipulative device which released the pitch stimuli on cassette recorders. To ensure a focus on the pitch concepts, timbre, dynamics, and duration were controlled. The test items were produced by a xylophone and modified sine wave which had been labeled as high and low preference in a pilot study. Children were grouped according to age (three to four and four to five) and randomly assigned to a high or low preference timbre. Thirty subjects were tested on pitch register and melodic contour, and twelve subjects were tested on interval size.

Seventeen and sixteen percent of the subjects met criterion on melodic contour and interval size respectively. There was no significant difference found between the timbral preferences. Age was the major difference for all three concepts with the older children showing greater evidence of conceptual understanding than the younger children. In the older group, ten of the sixteen subjects met criterion on register, four of the sixteen met criterion on contour, and two of the nine subjects met criterion on interval size. In the younger group, one of the fourteen subjects met criterion on register, one of the fourteen met criterion on contour, and none of the three subjects met criterion on interval size. The results of the study indicated that preschool children can and do develop pitch concepts.50

Lenz (1978) studied the ability of three- and four-year-old children to make aural discriminations of pitch, melodic patterns, rhythmic patterns, and modality. The effects of age, sex, and musical background on this ability were also investigated. The music discrimination test consisted of ten tasks requiring singing and playing performance and same-different responses. A singing test of six items was designed to evaluate the students' abilities to match pitch and rhythm. Twenty-seven subjects participated in the study. Positive correlations were found to exist between the singing test, music discrimination test, and background data. Age correlated negatively with child data ratings and the singing test and positively with the discrimination test. From the tasks on the musical discrimination test, there was more proficiency on the song containing minor chords and ending with a descending pitch pat-

tern, less proficiency on the song with ascending intervals, more proficiency in identifying low pitch than high pitch, and more proficiency in identifying the up-down patterns than either up or down patterns. There was no significant difference in the abilities to discriminate rhythmic or melodic, long or short, and ascending or descending patterns. From the home and musical backgrounds of the subjects, the following results were found to exist: (1) eldest in family scored higher than younger children in family, (2) children whose parents had musical backgrounds scored higher than children whose parents did not have musical backgrounds, and (3) children who attended concerts and listened to predominately classical music scored higher than those who did not attend concerts and listen to predominately classical music.\(^5\)

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CHAPTER THREE

THE LIFE AND METHOD OF JAQUES-DALCROZE

Introduction

Emile Jaques-Dalcroze has been remembered throughout the world as a music educator, pedagog, and composer. His career was spent in the composing of music that would reflect his ideals of good musicianship and in the development of a method that would become an integral part of musical training throughout the world. Although the method never became universally accepted, various communities in Switzerland, England, and the United States did adopt the method while other areas of the world incorporated various aspects of the method in the music education programs.¹

The process of developing this method and the basic principles of the method will be discussed in this chapter. The first section of the chapter will include the biographical information of Jaques-Dalcroze and his development, utilization, and propagation of the method. An examination of the objectives and components of the method will be presented in the second section of the chapter.

The Development of the Method

Emile Jaques-Dalcroze was born of Swiss parents in Vienna on July 6, 1865. The family moved to Geneva in 1873 where Jaques-Dalcroze attended the university and conservatory. After graduation from the

¹Spector, p. 21.
conservatory, he traveled to Vienna to study with Anton Bruckner (1824-1896) and Robert Fuchs (1847-1927). He later studied orchestration with Leos Delibes (1836-1891)\textsuperscript{2} and music pedagogy and piano with Mathis Lussy (1828-1910).\textsuperscript{3}

The musician's family name was Jaques. However, there was another musician with the same name. Therefore, to distinguish himself from this other composer, he added Dalcroze to his name. There are several accounts given as possible sources of the name. These accounts include his mother's maiden name, the name of the city the family was from,\textsuperscript{4} and a derivation of the name of his friend, Raymond Valcroze.\textsuperscript{5} The name was later legalized. Today, he is referred to as Jaques-Dalcroze, Dalcroze, and Monsieur Jaques.

The year 1892 marks the beginning of a career in music education for Jaques-Dalcroze. At that time he became professor of harmony at the Geneva Conservatory. His teaching responsibilities included solfege, harmony, and composition.\textsuperscript{6} It was during this time that Jaques-Dalcroze began to question the methods used in teaching music. He maintained that students could master the program without any involvement or ever "hearing" the music. The harmony assignments were completed strictly with the rules in mind and without any reference to hearing, feeling,
or understanding the musical concepts involved.⁷

From Mathis Lussy, Dalcroze had learned "that everything in music can be related to fundamental physiological laws; how each nuance, each accent has its raison-d'être; and how, finally, a melodic phrase, with its expressive and rhythmic interpretation, forms [sic] an organic entity and how intimately it is related to its harmonization."⁸ Therefore, Dalcroze searched for the basis of musical art. He reasoned that music is based in human feelings and that feelings are felt in the body. His conclusion was that the human body should be trained in order to teach music more effectively.⁹

Back in his classroom, Dalcroze began his experimentation with the students. He began by having the students walk to measures of two, three, and four beats. Next he had them move to accents and rhythmic patterns. Succeeding lessons added more complicated rhythms along with varying tempi, moods, and dynamics. His aim was to develop easy physical responses to the music instead of a labored activity of mental calculations.¹⁰

The new approach to music education disturbed the administration of the conservatory. When Dalcroze petitioned for the program to be added to the curriculum, the conservatory officials refused. At that time, Dalcroze resigned his position and established a private studio.¹¹

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⁸Aronoff, Music and Young Children, p. 166, quoting Rhythm, Music, and Education, p. 54.

⁹Fowler, pp. MA9-10.

¹⁰Spector, p. 20.

¹¹Caldwell, p. 12.
From 1905 to 1910, interest in Dalcroze's new music method grew continuously. Dalcroze gave demonstrations for the public featuring groups of his students in Europe and Russia. In these demonstrations, the students would respond with movements to the rhythms Dalcroze played at the piano. The students sang complicated melodic and harmonic exercises at sight and identified keys, chords, and melodic/harmonic problems. A student at a piano would echo what Dalcroze improvised at another piano. The finale was always a success with the audience. Dalcroze would play a Bach fugue while his students outlined the contrapuntal lines through their movements. These demonstrations received great praise from the audiences, not only for the performances, but also for the musical value of the training.

With so much praise being offered for his method, Dalcroze was encouraged to publish the method. Therefore, in 1906, he published Dalcroze Method for the Development of Rhythmic Instinct, Auditory Sense and Tonal Feeling. The method consisted of eight volumes with five parts: Rhythmic Moving (2 vols.); Staff Study; Scales and Keys, Phrasing and Nuances (3 vols.); Intervals and Chords; Improvisation and Accompaniment at the Piano. There were two supplements to the publication: "Respiration and Muscular Innervation" and "84 Rhythmic Marches, for medium voice with piano accompaniment." Throughout the volumes, Dalcroze included all three areas of instruction: body movement (rhythmique), ear training (solfege), and improvisation at the piano. The published method was well received by the music educators in various

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12 Ibid.
13 Spector, p. 20.
countries as evidenced by the opening of Dalcroze schools in Hamburg, London, and Vienna.\textsuperscript{14}

With the success of his method, Dalcroze dreamed of a model city in the hills of Dresden, Germany, for the establishment of a school. In 1910 his dreams became reality in the small town of Hellerau outside Dresden. With the help of German businessmen, he built a city "with the utmost in advanced social planning in view."\textsuperscript{15} There were large dormitories surrounding smaller houses for five to six students of varying ages. The seemingly limitless facilities included a Greek temple in the center of the grounds and a performance hall which held 700 people. The performance hall was unique in its modern design, for it contained removable seats, an orchestra pit which was covered for stage extension, and movable steps and platforms on the stage. Students from all over the world came to study at Hellerau. Many celebrities came to view the school and the operas and extravagant festivals performed there. The school was another successful adventure for Dalcroze.\textsuperscript{16}

In the summer of 1914, Dalcroze traveled to Geneva to direct the production of one of his operas, \textit{La Fête de juin}. During this time World War I began. While in Switzerland, he joined other Swiss intellectuals in the signing of a document protesting the bombing of the Cathedral of Reims and the burning of the Louvain Library by the German army. Animosity developed against Dalcroze in Germany and prevented his return to Hellerau. The school was closed during the war.\textsuperscript{17}

\begin{itemize}
\item\textsuperscript{14} Ibid., pp. 20-21.
\item\textsuperscript{15} Ibid., p. 21.
\item\textsuperscript{16} Caldwell, p. 12; Spector, p. 21.
\item\textsuperscript{17} Spector, p. 21.
\end{itemize}
The next year, 1915, Dalcroze founded the Institute Jaques-Dalcroze in Geneva. Except for two years of teaching in Paris, Dalcroze continued his work at the institute for the remainder of his life. Although his life ended July 1, 1950, the Dalcroze Institute has continued. A certificate is earned when competency is demonstrated in musical proficiency and control of body movement. The purpose of the Institute is "to train teachers to continue to develop his Dalcroze techniques and to expand the use of the system."

Because of World War I, there was a decline of the use of the Dalcroze method in Germany and other European countries. Without proper supervision, people tended to develop the area of the method they were best in and to ignore the other two areas of the method. Thus, the influence of Dalcroze's work spread to many different fields of art and medicine. Students of the method were employed to train opera ballets in Paris, Moscow, and London; to work as theatre directors; and to coordinate other artistic enterprises. The basic ideas of his instruction were used in the development of the modern dance movement (Marie Wigman, Rudolf Laban, Hanya Holm). Adolph Appia used the creative ideas of the method to aid in the revolution of theatre techniques. Hospitals and mental institutions incorporated the rhythmic exercises for therapeutic sessions with patients. Therefore, the method of Dalcroze has influenced not only music education but also the work in dance, theatre, and mental/physical therapy.

Besides the respect Dalcroze earned for this work in music educa-

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18Caldwell, p. 12.
19Spector, p. 21.
20Ibid.
tion, he was also well-known for his musical compositions. The music is "of marked originality and fecundity of invention . . . and imbued with the spirit of Swiss folk music." His works include eight operas, several choral works, three string quartets, two violin concertos, orchestral suites, pianoforte compositions, and a series of volumes of chansons. His compositions were written for both pedagogic purposes and performance.

The career of Dalcroze reflected his concern that music education would move away from the innate character of the theoretical approach and move toward the personal character of the aesthetic and physical approach. His aim was to develop a method of musical training that, through the internalization of the musical elements, would foster "good musicianship."

The Examination of the Method

Presented on the following pages is a description of the Dalcroze method. The discussion will present the definitions of specific terms used by Dalcroze, the objectives of the method, the components of the method, the purposes and sources of movement, and the building of a sequential program. Through this investigation of the method, the basic philosophies of Dalcroze and his followers will become apparent.

Throughout the writings of Dalcroze, there appear several terms which are common to music yet which have a different meaning when applied to the Dalcroze method. When used by Dalcroze, the term "sound"


22The New Grove Dictionary of Music and Musicians, s.v. "Jaques-Dalcroze, Emile."
means a combination of all the elements of music except rhythm. This would include pitch, timbre, dynamics, and silence. Therefore, "sound" does not refer to just the actual tones but to all of the nuances involved in producing the tones.

According to Dalcroze, "rhythm is the basis of all art." It is the tonality of movement in the music, not just the beats, accents, and subdivisions. It is the balance of time (how fast or slow), space (durations), and energy (intensity of sound). Through this balance, all of the elements of music (including rhythm) are organized and controlled. Dalcroze explained the concept of rhythm: "A person of rhythmic propensities always presents a certain harmony, an effect of perfect corporal balance; and physical grace can only be acquired or developed in children in corresponding degree to their instinct for rhythm." Thus, rhythm is movement.

The term "eurhythmics" has been applied to the use of rhythmic movement. The term first appeared in 1624 to describe well-proportioned architecture. Later, medical science employed the term to describe a well-regulated pulse. With the emphasis of balance in rhythm, the term was used to describe the body movement in the Dalcroze method. Later, Dalcroze himself incorporated the term in his own writings.

"Good Musicianship" is another term used throughout the works of

23Landis and Carder, p. 13.
26Aronoff, Music and Young Children, p. 34.
27Jaques-Dalcroze, Rhythm, Music and Education, p. 41.
28Spector, p. 21.
Dalcroze. This idea was always the constant aim of Dalcroze for his students. He explained the concept of good musicianship as "a rapid communication between the ear that perceives, the brain that analyzes and makes judgments and the human body which actually creates the sound." It is the total employment of the body in the production of music.

Throughout the study of the Dalcroze method, there are several basic objectives which represent the primary goals of Dalcroze. The approach to these objectives is both cognitive and affective as the students experience the music before they analyze and notate it. As the students move to demonstrate the various nuances in the music they feel and hear, they build a repertoire of aural and kinesthetic images which are used in the formation of musical concepts. Thus, the approach to the following objectives is a "synthesis of theoretical knowledge and skills and application of them. Sensory and intellectual experiences are fused."

By using rhythmic movements, Dalcroze purposed to teach all of the elements of music. The immediate response to the nuances of music gradually led to the internalization of the musical concepts and, finally, to the comprehension of a musical idea.

Movement to the various musical exercises develops a sensitivity within the student to the music. As each nuance—dynamics, accents, tempi—is heard, felt, and expressed, the student incorporates it into

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29 Fowler, p. MA10.
30 Aronoff, Music and Young Children, pp. 168-170.
31 Landis and Carder, p. 9.
32 Ibid., p. 13.
his musical understanding. According to Dalcroze, "to be a sensitive musician, it is necessary to appreciate the nuance not only of pitch, but of the dynamic energy and the varying rapidity of the movements. These nuances must be appreciated not only by the ear but also by the muscular sense." Thus, the objective is not only toward accurate performance, but also toward an understanding of the component parts of music to provide a sensitive expression of interpretation.

Along with the two musical objectives of accuracy and understanding is the objective to develop the total self of the student—the whole child. This total self incorporates the brain, the body, and the soul. This objective is met through the development of the four aspects of the total self: attention, concentration, social integration, and attention to nuances. Attention develops as the student learns to maintain the inner clock (the beat of the music felt naturally instead of counting the beat numbers) at a continuous rate under any type of pressure or distraction. Concentration is encouraged as the student works against the distractions presented to him (i.e., maintains a silent steady beat while listening to rhythmic patterns of different meter). Social integration is the ability to respond independently yet as a part of a group of students. Attention to nuances is developed through the identification of what feelings respond when there is a change in the music. Through these four areas and movement, the objective to develop the total self is achieved.

Besides these musical objectives, there are several non-musical objectives which are part of the Dalcroze method. These objectives are

34Landis and Carder, p. 9.

35Abramson, Demonstration Conference, April 10, 1980.
mentioned here because of their relationship to musicality. Since the student is forced to rely on the ear instead of the eyes and reading ability (i.e., responds to one sound while listening to another), there is the development of memory. The coordination of the whole body is developed through the use of large and small muscles. The student develops body awareness as the "consciousness of shifting weight and stress in the body, awareness of positionings, and the ability to conserve energy in performance of tasks ..." become natural responses. Creativity is encouraged because the activities contribute to the student's personality by strengthening his imaginative responses. Since each student has unique movements and styles of moving, the method creates individuality. These five non-musical objectives are all achieved through the use of the Dalcroze method.

The musical and non-musical objectives are always constant but are approached by a flexible method. If the objectives are carried to the "logical extreme, the body will become a musical instrument. The student will hear, analyze, internalize, and become one with the music." The study of rhythm awakens the feeling for bodily rhythms and the aural perceptions of rhythm. The feeling for bodily rhythms is developed by training the muscular system and nervous system to perceive

37 Judith Willour, "Beginning with Delight," cited by Landis and Carder, p. 120.
38 Landis and Carder, p. 16.
39 Willour, p. 122.
40 Landis and Carder, p. 16.
and express the nuances of music. The aural perception of rhythm is developed through a system of aural training. In both cases, there results the ability to spontaneously analyze and execute rhythms through vocal and physical expressions. The final result in the study of Eurhythemics is the ability to read and create rhythmic patterns.\footnote{Jaques-Dalcroze, \textit{Rhythm, Music and Education}, p. 64}

The study of solfege awakens the "sense of pitch and tone-relations and faculty of distinguishing tone-qualities."\footnote{Ibid., p. 65.} The student learns to hear and mentally reproduce any melody in any key and all types of harmony. Also, the pupil learns to read and vocally improvise music while learning to write music.\footnote{Ibid.}

The study of piano improvisation works to combine rhythm and solfege. Through this aspect of the method, the internalized concepts become externalized through the sense of touch. The student learns to interpret the feelings of melody, harmony, and rhythm at the piano.\footnote{Ibid.}

The three areas of instruction are employed continuously in the various activities of the method. All three areas are considered equally important and are used as an integrated strength in the development of musicality.

Since the three areas depend on kinesthetic activities, it is important to understand the sources of movement and the objectives of movement. As discussed in chapter one, movement is a natural instinct of a child. There are three sources found within the child. The heartbeat is a regular sense of time which is used by many as the reason...
for the use of movement. However, the heartbeat is an involuntary ac-
tion which cannot help with the execution and perception of rhythmic
concepts other than the steady beat. Breathing represents a regular
division of time which provides a model of measures, since to some degree
it is subject to the will of the student. Therefore, if the person
wills it, he can operate the breathing system in various ways to divide
the time and add accents with muscular tension. The third source within
the body is the regular gait, which is the best model. Since it is com-
pletely controlled with conscious muscles, the walk can be divided into
equal portions and various rhythmic patterns. These three sources
within the body can be used as an aid in the awareness of rhythm.

Besides these movement sources within the body, there are also
sources found around the student. The student's natural world repre-
sents the source of observable movement which the child can imitate or
incorporate into his own movement. Through work and play, movements
can be observed which correspond to various rhythmic patterns in music.
Finally, movements can imitate people, animals, and anything man-made
or machine-made that moves. These body motions are areas which can be
observed and employed by the student.

Dalcroze listed seven goals achieved through the use of move-
ment. These objectives were:

1. To strengthen the power of concentration
2. To accustom the body to hold itself at high pressure in
   readiness to execute orders from the brain
3. To connect the conscious with the sub-conscious

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Jaques-Dalcroze, Rhythm, Music and Education, p. 38.

Edith Wax, "Music, Movement, and Keyboard Improvisation,"
4. To augment the sub-conscious faculties with the fruits of a special culture designed for that purpose
5. To create more numerous habitual motions and new reflexes
6. To obtain the maximum effect by a minimum of effort
7. To purify the spirit, strengthen the will power and install order and clarity in the organism

Besides these seven objectives for the use of movement, others have been identified. By learning to express what is known and/or felt through movement, the student is better able to understand and interpret the musical literature which is studied. Any physical response that reflects total and sincere involvement can lead to further discovery. Finally, movement can indicate the evidence of comprehension, for the students "are not performing for others, but are internalizing musical concepts through physical experience." From all of these objectives is derived a thorough and sequential method based on body movement.

The sequence of the method in meeting these objectives and/or concepts is of great concern to the Dalcroze teacher. The method is based on the principle that experience should come before conceptual understanding. The students "should not be taught rules until they have had experience of the facts which have given rise to them." Through these experiences the students develop a consciousness of rhythm which is the ability to "place" a succession and combination of parts of time in the proper order of speed and strength. This ability is acquired

48 Wax, p. 16.
49 Aronoff, "Games Teachers Play," p. 31.
50 Landis and Carder, p. 17.
51 Jaques-Dalcroze, *Rhythm, Music and Education*, p. 64.
from the contractions and relaxations of specific muscles in varying degrees of strength and speed. As the student responds to what he hears in the music, he develops a consciousness of sound—the ability to recognize or recall, without aid of the voice or an instrument, sounds or combinations of sounds. The consciousness of rhythm comes from repeated movement experiences with the whole body; while the consciousness of sound comes from experiences with the ear perceiving rhythms. Therefore, the execution must precede the perception and criticism.52

The building of the program consists of six steps. First, there must be an opportunity for free movement without any music. This free movement allows the student to become aware of his body, the space around him, and the freedom to express thoughts and feelings. Next, the student hears the music. As the student becomes aware of the various aspects in the music, he adds his own movements. Through this step, the music becomes the teacher since it "tells" the student how to move and respond.53 It should be pointed out that improvised music by the teacher is best for this step since the music is created as the student listens and allows for no anticipation of responses.54 After the student has moved with music and discovered the nuances of the music, the terms for the concepts and the written symbols are introduced. The student learns the notational system and gradually learns to read the music. Finally, the student learns to write and improvise music.55 Upon the completion of these six steps, the student should thoroughly understand

52Ibid., pp. 36-38.
54Landis and Carder, pp. 15-16.
the concepts which have been presented.

A variety of means is used to present the musical concepts. For the younger child (up to age seven or eight), the presentation is taught mainly through "play" with accessories such as percussion instruments, bells, hoops, and balls. Through their uninhibited movements, the children enactment what they feel and hear in the music. For the older students (over age eight), the lessons are intended to develop the musicianship with more emphasis on work with scales, chords, keys, rests, meter, accents, etc., through the use of free movement, singing, clapping, conducting, and playing instruments. However, with all age groups there are specific exercises or games that are employed.

The games used in the classroom can be divided into four classifications. There are the follow games in which the student moves to the music heard using the basic beat to demonstrate dynamics, tempi, and agogic changes. The quick response games are prearranged movements to specific stimuli in the music or verbal commands. These games work toward a smooth musical flow in the responses. With the interrupted canon games, the teacher improvises a measure of music followed by a measure of rest. During the rests, the student moves to express the music heard. The strict canon game is the fourth game classification. In this game, the teacher improvises the music without the measure of rests. The students enter at the announced interval of time responding to the music they have heard while listening to the next section of the music. These four game categories challenge the students to respond sensitively to the music. The games are not an introduction to the


57 Aronoff, Music and Young Children, pp. 167-168.
concepts, but are a guided discovery of the musical experiences and are used to improve specific skills.\textsuperscript{58} Through the use of these games, the students master the musical elements. "Mastery means ease in expression and control under the most difficult rhythmic circumstances, such as tempo and dynamics or when the music behaves like an orchestra and gives the students no help at all."\textsuperscript{59} Because of the nature of the game categories, this mastery can be achieved through joyous and satisfying experiences.

Study in the Dalcroze method discloses that the method is based on an organized, sequential form of instruction. The method is an integration of the instructional areas of Eurhythmics, solfege, and improvisation which incorporate the interaction of thought, feeling, and action.\textsuperscript{60} The musical result of good musicianship is a function of the movement experiences which seek to employ the cognitive, affective, and psychomotor domains.

The method devised by Dalcroze speaks to the natural instincts found in the child. Through his experiments with movement and music, the child realizes the concepts which are the basis of music education. Dalcroze summarized the method as:

1. Rhythm is movement
2. Rhythm is essentially physical
3. Every movement involves time and space
4. Muscle consciousness is the result of physical exercises

\textsuperscript{58}Aronoff, "Games Teachers Play," p. 32.

\textsuperscript{59}Elsa Findlay, "Dalcroze," \textit{The Instrumentalist} 20 (October 1965):53.

\textsuperscript{60}Aronoff, "Games Teachers Play," p. 30.
5. The perfecting of physical resources results in clarity of perception

6. The perfecting of movement in time assures consciousness of musical rhythm

7. The perfecting of movement in space assures consciousness of plastic movement

8. The perfecting of movement in time and space can only be accomplished by exercises in rhythmic movement

Through the method the elements of music are isolated, experienced, studied, and mastered. Therefore, the Dalcroze method brings the student into contact with the music on a personal level. Given the opportunities to perceive and respond to music, the student should understand the concepts of music and develop good musicianship.

CHAPTER FOUR

DEVELOPMENT OF THE STUDY

Introduction

The purpose of the study was to determine the effect of Dalcroze Eurhythmics on the melodic musical growth of first grade students. The investigator also sought to determine whether there was a significant difference between sexes in the ability to identify aurally the components of the melodic concepts of register (high and low) and melodic contour (tones moving higher and lower). Finally, the investigator sought to determine whether any significant difference existed among the cells created by an interaction of method, sex, and time.

Preliminary Considerations

Prior to the beginning of the study, the investigator contacted Dr. Donald Hoover, Director of Research, and Mr. Jack Story, Supervisor of Music, of the East Baton Rouge Parish School Board. Their approval was secured to conduct the study in the parish school system. The letters indicating this approval can be found in appendix C.

University approval was granted by Dr. Corbelita J. Astraquillo, chairman of the LSU School of Music Committee on the Use of Humans and Animals as Research Subjects. Appendix C contains the University Committee's letter of approval.

A letter to obtain permission for students to participate in the study was sent to the parents/guardians of each student in the classes
assigned to the study. The letter explained the purpose and nature of the study and the testing procedures. The letter guaranteed the anonymity of each student and assured the parental right of removal of their child from the study at any time. The letter and permission form can be seen in appendix C.

The Main Study

Subjects

Highland Elementary School and Walnut Hills Elementary School of Baton Rouge, Louisiana, were designated for use by Mr. Jack Story, Supervisor of Music for the East Baton Rouge Parish School Board. Two intact first grade classes were chosen from each school to participate in the study. Of the seventy-six subjects, there were forty-six males and thirty females.

Variables

This study utilized three independent variables and one dependent variable. The independent variables were the teaching method, sex, and time. The dependent variable was an experimenter-constructed test. The effects of the teaching method, sex, and time were measured by the Melodic Achievement Test (MAT).

Design

A "Pretest-Posttest Control Group Design"\(^1\) was utilized to investigate the melodic musical growth of the seventy-six first grade students in four intact classes. The students in two of the classes served as the contact control group using the first grade level of the 1978

\(^{1}\)Campbell and Stanley, p. 13.
edition of *Silver Burdett Music* (SBM). The students in the remaining
two classes served as the experimental group using the first grade level
of the 1978 edition of *Silver Burdett Music* and Dalcroze Eurhythmics
(DE). The MAT was administered to both groups as the pretest and the
posttest measures. The design is shown in figure 1.

\[
\begin{array}{ccc}
0_{\text{MAT}} & x_{\text{SBM}} & 0_{\text{MAT}} \\
0_{\text{MAT}} & x_{\text{DE}} & 0_{\text{MAT}} \\
\end{array}
\]

Fig. 1. Pretest-Posttest Control Group
Design showing teaching method and tests.

**Internal and External Validity**

The factors of internal validity are those occurrences which could have produced a change in the results of this study because of extraneous or uncontrolled factors. History can be a potential threat to internal validity, especially if the various treatments are discussed among the subjects between sessions. However, first grade students are musically naive and unlikely to compare class procedures. Maturation may have been an internal validity threat because total randomization was not feasible. However, both groups may have manifested maturation effects equally. Testing can present a threat to internal validity when students have a chance to learn from actual testing experiences. The effect of the pretest on the posttest was assumed to be negligible because the six weeks between the testing situations decreased the possibility of learning transfer. Instrumentation was controlled through the use of a pre-recorded cassette tape of the MAT. The order of the test items was controlled through random assignment of placement. The use of intact classes, selection, could be a possible threat to internal
validity because total randomization was not feasible. However, methods were randomly assigned to classes, and all subjects were members of heterogeneously grouped first grade classes.

External validity concerns the generalizability of the results to other populations. External validity can be affected by the interaction effects of method and another variable. The interaction of testing and the method can pose a threat when subjects become aware of testing situations. Testing procedures are not normal to first grade level music classes. The interaction of subject selection and the method was controlled through the assignment of schools to the study by the Supervisor of Music of the school district and not by the investigator. The intact classes were randomly assigned from the two schools by the principals and the investigator. Reactive arrangements posed no apparent threat to external validity. Music lessons taught by a music specialist were typical occurrences. The investigator taught all of the music lessons for the four classes. The lesson plans were from the same basic music series with only the Eurhythmic activities added for the experimental group. All conclusions were restricted to the sample tested.

Test

The Melodic Achievement Test (MAT) was designed by the investigator and was administered and SBM as the pretest and posttest measures. The test, consisting of two sub-tests, was designed to measure the students' ability to distinguish aurally between the components of the melodic concepts of register and melodic contour.

Sub-test A consisted of twenty-five recorded items. Each item consisted of two tones. The students heard the two tones and then de-
cided if the second tone was higher than, lower than, or the same as the first tone. The students recorded their decisions on the answer sheet. The items for sub-test A consisted of ten answers which were higher, ten which were lower, and five which were the same. Most of the answers were either higher or lower since these two concepts were the main measure of the sub-test. The third response, "the same," was provided to eliminate partially the chance of the students guessing the correct answer.

Sub-test B was designed to measure the students' ability to distinguish between tones moving higher and/or lower. The twenty-five items of sub-test B consisted of five tones each. The students heard the five tones and then decided if the tones moved higher, lower, or higher and lower. The students recorded their decisions on the answer sheet. Sub-test B consisted of ten answers moving higher, ten moving lower, and five moving higher and lower. Most of the answers were either higher or lower since these two concepts were the primary measure of the sub-test. As in sub-test A, the third response, "moving higher and lower," was provided to eliminate partially the chance of the students guessing the correct answer.

The items of the sub-tests were first written in the order of the largest to smallest interval size. This order was chosen to determine the difficulty of each item since most students can distinguish between pitches in larger intervals better than they can distinguish between the pitches in smaller intervals. To insure a random order of difficulty, the final order for each sub-test was determined through the use of a random number table.

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2See Duell and Anderson, p. 317; and Van Zee, p. 17.
The directions and items for each sub-test were recorded with a Sony Four Track Tape Deck (TC-854-4) at 7½ ips with a Kenwood Solid State Stereo Amplifier (KA-7100) on Maxell Ultra-Dynamic 35-90 Polyester Base Tape of 1.0 mil. The verbal directions for the test were recorded on track one of the tape and the tones on track three. These tracks were then mixed and recorded with a Pioneer Direct Drive Stereo Recorder (RT 701) on 7R-1200 Scotch Brand recording tape. The mixed tape was then recorded on a Realistic Supertape Chrome to be played on a Teac A-103 Stereo Cassette Deck with Dolby System with a Technics Stereo Integrated Amplifier (SU-8044) for administration of the test.

Sine waves, produced by the Moog Synthesizer Authorized Performer of the LSU Electronic Music Lab, were used for the tones for each sub-test. The sine wave was chosen because it contains only the fundamental pitch and no harmonic partials. The tones were performed in beats of equal duration, except for the final tone of each item in sub-test B which was held longer. Five seconds of time were recorded between each item to allow the students to circle their answers on the answer sheets. A transcription of the directions and the items for each sub-test has been included in appendix A.

Since the study utilized first grade students in the first semester of the school year, the answer sheet was designed to remove the factors of reading ability and knowledge of numbers. Instead of numbers, pictures of common objects were used to indicate the items. The students heard the name of the object and then the test item. Therefore, the students could follow the test with the answer sheet without having to recognize numbers. Instead of words, arrows were used to indicate response choices. For sub-test A, the arrows pointed up for a higher
pitch, down for a lower pitch, and horizontally for the same pitch. For sub-test B, the arrows slanted up for pitches moving higher, slanted down for pitches moving lower, and slanted up and down for pitches moving higher and lower. The students circled the appropriate arrows for their responses. Samples from the answer sheets for each sub-test are found in figure 2. Appendix A contains a reproduction of the answer sheets for both sub-tests of the MAT.

![Fig. 2. Samples from answer sheets for sub-tests A and B.](image)

The maximum score for each sub-test was 25. One point was given for each correct answer in the two sub-tests. The two sub-tests scores were combined to produce a maximum composite score of 50 for the MAT.

Content validity of the MAT was established by having three music educators evaluate the test. Reliability was established through a pilot study. Scores of the subjects in the pilot study were subjected to the Rational Equivalence formula to determine reliability coefficients. A Kuder-Richardson Formula-20 was computed to establish the reliability of the pretest and posttest based on internal consistency. These coefficients are reported in chapter five.
Procedures

The eight-week study was conducted from September 28 through November 20, 1981. These eight weeks included six weeks for instruction and two weeks for testing. The investigator conducted two thirty-minute sessions each week for the four intact classes.

The MAT was administered as the pretest measure for all four classes during the first week of the study. Sub-test A was administered during the first scheduled lesson time for each class, and sub-test B was administered during the second scheduled lesson time for each class. In addition to the directions on the tape, an explanation of the directions was given before the beginning of the tape for each sub-test. The explanation of the directions included a brief explanation of the terms "high" and "low." The students were reminded that "high and low" was not the same as "loud and soft" since younger children tend to confuse these two concepts in music. The tape for each sub-test was fifteen minutes in length.

The next six weeks were spent in the study of the melodic concepts of register and melodic contour. The objectives for these two concepts were derived from those stated in the Elementary Vocal Music: Curriculum Guide (K-5) of the East Baton Rouge Parish School System and the first grade level teacher's edition of the 1978 edition of Silver Burdett Music. The objectives for melody in the Curriculum Guide were:

The student will be able to:
- Distinguish between the singing and speaking voice
- Imitate short phrases
- Imitate simple intervals
- Identify melodic direction and register (high-low)

---

Associate music symbols (staff, treble clef, and direction of notes) with melody

The objectives for the unit on register in the first grade level of the 1978 edition of Silver Burdett Music were derived from the concepts:

- Sound can be high or low
- Often the two occur close together
- Some music is generally high; some generally low in register
- Some music ends high; some low

The objectives for the unit on melodic contour in the Silver Burdett Music were derived from the concepts:

- Sounds can move upward or downward
- The direction of the sound adds to the feeling the sound gives

The objectives of the Curriculum Guide and of the first grade level of the 1978 edition of Silver Burdett Music were determined to be complementary according to the investigator.

The lesson plans for SBM were written by the investigator from lessons printed in the modules "Register—High and Low" and "Direction—Moving Higher; Moving Lower" of the teacher's edition of the first grade level of the 1978 edition of Silver Burdett Music. A lesson in this music series has been designed to be "a complete learning episode in itself, with a beginning, a middle, and an end." Each module in the series "contains several lessons that progressively build upon and rein-

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6 Ibid., p. 10.

7 Ibid., p. x.
force previous lessons." The investigator taught the lessons outlined in the two modules as written except for the addition of seasonal songs. The order of the two modules was taught in reverse from the order in the book. This reversal of modules was in keeping with the scope and sequence presented in the methods of Hughes and Nye and Nye. These methods state that the melodic concept of high and low should be taught before the melodic concept of direction. The change in the order of the modules in Silver Burdett Music is considered appropriate by the editors of the series if the lessons within the modules are taught in sequence. The lesson plans for SBM can be found in appendix B.

The lesson plans for DE were written by the investigator from the lessons in the Silver Burdett Music modules of "Register—High and Low" and "Direction—Moving Higher; Moving Lower" and the method outlined by the Dalcroze method. The investigator added Eurhythmic activities, reinforcing the concepts of register and melodic contour, to the lessons outlined in Silver Burdett Music. These activities followed the format discussed in chapter three. The movement activities ranged from free movement imitating high and low objects, to the addition of music to the movement, and finally to movement responses to the music. Three of the four game categories described in chapter three were utilized in the lessons. These game classifications were the follow game, the quick response game, and the interrupted canon game. The music for the lessons consisted of the music in Silver Burdett Music, music improvised by

8Ibid.


10Silver Burdett Music, p. xv.
the investigator, and seasonal songs. The lessons plans for DE can be found in appendix B.

The MAT was administered to the students in the four intact classes as the posttest measure during the last week of the study. Subtest A was administered during the first scheduled lesson time of the week, and sub-test B was administered during the second scheduled lesson time of the week. The administration of the test was an exact duplication of the administration of the pretest except for the exclusion of the explanation of the directions used on the pretest.

Summary

In order to determine the effect of Dalcroze Eurhythmics on the melodic musical growth of first grade students, an eight-week study utilizing seventy-six first-graders in four intact classes was conducted. The contact control group consisted of two classes using the first grade level of the 1978 edition of Silver Burdett Music. The experimental group consisted of two classes using Dalcroze Eurhythmic activities and the first grade level of the 1978 edition of Silver Burdett Music. The Melodic Achievement Test, designed by the investigator, was administered to the students in both groups as the pretest and posttest measures of the effect of the teaching method, sex, and time.
CHAPTER FIVE

RESULTS AND DISCUSSION OF THE DATA

Introduction

Data collected from the seventy-six first-graders participating in the study were analyzed at the conclusion of the procedures described in chapter four. Reliability of criteria scores and analysis of composite scores using least square means and standard error of least square means have been reported. Composite scores on the Melodic Achievement Test (MAT) were used because these scores represented the total amount of melodic achievement. Sub-test scores were partial representations of melodic achievement. A discussion of the results follows in a separate section of this chapter. Raw data can be found in appendix D.

Results

Reliability and Validity of Melodic Achievement Test

In order to determine the effect of Dalcroze Eurhythmics on the melodic musical growth of first grade students, the MAT was constructed. An examination of the content validity and the reliability of the test was the initial procedure in the analysis of the data.

Prior to the study, a pilot project was undertaken to determine the reliability of the MAT. The investigator administered the MAT to twenty-one first grade students. (The permission letter which was sent to the parents/guardians of each child in the pilot study can be found...
Using the method of Rational Equivalence, which is derived in terms of the difficulty and the intercorrelations of test items, the reliability coefficient was found for each sub-test and for the entire test. The reliability coefficients were .73 for sub-test A and .76 for sub-test B. The reliability coefficient for the entire test of fifty items was .83. These reliability coefficients were satisfactory for the purpose of the test since the formula tends to underestimate reliability. These coefficients provided a minimum estimate of reliability.¹

To determine the content validity of the MAT, three music educators reviewed the test. These reviewers consisted of two university professors of music education and a music supervisor of elementary music in an urban public school system. Each of the three music educators determined that the content of the test was a valid measure of register and melodic contour for use with elementary school children.

To determine the reliability of the MAT based on the internal consistency of the test, a Kuder-Richardson Formula-20 was computed on the pretest and posttest scores. The reliability coefficient for the pretest of the MAT was $\pi_{KR-20} = .85$. The reliability coefficient for the posttest of the MAT was $\pi_{KR-20} = .89$. These coefficients were deemed satisfactory for the purpose of the study.

An item analysis was computed on the pretest and the posttest of the MAT. The pretest and posttest Difficulty and Discrimination Indices are contained in appendix A.

Subjects

While ninety students began the study, seventy-six students completed the project. Five of the students moved from the school district and nine students were unavailable on one or more testing days. At the conclusion of the study, there were thirty-eight students in both the Dalcroze Eurhythmics group (DE) and the Silver Burdett Music group (SBM). Twenty-two boys and sixteen girls were in DE and twenty-four boys and fourteen girls in SBM. The final cell distribution according to sex and method is shown in figure 3.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>BOYS</th>
<th>GIRLS</th>
<th>TOTAL</th>
</tr>
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<tr>
<td>DE</td>
<td>n = 22</td>
<td>n = 16</td>
<td>38</td>
</tr>
<tr>
<td>SBM</td>
<td>n = 24</td>
<td>n = 14</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>30</td>
<td>76</td>
</tr>
</tbody>
</table>

Fig. 3. Cell Design created by sex and method.

Analysis of Composite Data

An analytical program from the Statistical Analysis System (SAS) was utilized to study the available data. This program provided the Three-Way Analysis of Variance (ANOVA) with a repeated measure on time using least square means and standard error of least square means. The program for the multiple ANOVA provided the degrees of freedom, sum of squares, $F$ factor, and probability.

Because the combining of various cells produced unequal sample sizes, the least square means and standard error of least square means
were computed from the composite scores on the MAT. The least square means are unweighted by sample size and are used to negate the influence of the sample size on the contribution to the mean of any combination of cell groups. Thus, the least square means allow the sample size of cells to be due to chance and not as a function of the statistic. The least square means of the three independent variables and the cells created by the various interactions of the independent variables are indicated in tables 1 and 2.

**TABLE 1**

LEAST SQUARE MEANS AND STANDARD ERROR OF LEAST SQUARE MEANS FOR METHOD, SEX, AND TIME ON COMPOSITE MELODIC ACHIEVEMENT TEST SCORES

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>M</th>
<th>SE</th>
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<tr>
<td>DE</td>
<td>38</td>
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<tr>
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<td>1.051</td>
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<td>M</td>
<td>SE</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----</td>
<td>--------</td>
<td>-----</td>
</tr>
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<td>1.580</td>
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<td><strong>Method x Time</strong></td>
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<td>Boys x Posttest</td>
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<td>1.319</td>
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<tr>
<td>DE x Girls x Pretest</td>
<td>16</td>
<td>19.563</td>
<td>2.235</td>
</tr>
</tbody>
</table>

TABLE 2

LEAST SQUARE MEANS AND STANDARD ERROR OF LEAST SQUARE MEANS FOR INTERACTION OF METHOD, SEX, AND TIME ON COMPOSITE MELODIC ACHIEVEMENT TEST SCORES

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The purpose of this study was to determine (1) the difference between DE and SBM, (2) the difference between the aural discrimination ability of boys and girls, and (3) the differences among the interactions of method, sex, and time. In order to determine these differences, the composite scores on the MAT were subjected to a Three-Way Analysis of Variance (ANOVA) with a repeated measure on time (2 x 2 x 2). The multiple ANOVA tests the relationship between one dependent variable (MAT) and two or more independent variables (method, sex, and time) and the relationships between the dependent variable and the interactions of the independent variables. The basic technique of the statistic is to measure the amount of variation of the sample scores from the group means. The repeated measure on time determines the various contrasts between the independent variables from pretest to posttest.

A summary of the Three-Way ANOVA results for main effects and interactions appears in table 3. The contrast results are included in table 3 to indicate the interaction of the repeated measure on time. Further reporting of these results is organized by each tested hypothesis.
The effect of the two training techniques on melodic achievement was the primary interest of the study. Null Hypotheses 1 - 4 deal with this effect.
Null Hypothesis 1

There will be no significant difference between the Dalcroze Eurhythmics group and the Silver Burdett Music group on the pretest scores of the Melodic Achievement Test.

The results of the ANOVA contrasts in table 3 indicate there was a significant difference between the pretest scores of DE and SBM. A comparison of the least square means indicates SBM scored significantly higher than DE. Based on these results, null hypothesis 1 was rejected.

Null Hypothesis 2

There will be no significant difference between the Dalcroze Eurhythmics group and the Silver Burdett Music group on the posttest scores of the Melodic Achievement Test.

The results of the ANOVA contrasts in table 3 indicate there was no significant difference between the posttest scores of DE and SBM. Based on these results, null hypothesis 2 was accepted.

Null Hypothesis 3

There will be no significant difference for the Dalcroze Eurhythmics group between the pretest and posttest scores on the Melodic Achievement Test.

The results of the ANOVA contrasts in table 3 indicate there was a significant difference between the DE pretest and posttest scores. The analysis reveals an $F = 17.56$, $df = 1$, $p < .0001$. This value is more extreme that the preestablished level for significance of .05. A comparison of the means indicate DE posttest scores were significantly higher than DE pretest scores. Based on these results, null hypothesis 3 was rejected.

Null Hypothesis 4

There will be no significant difference for the Silver Burdett Music group between the pretest and posttest scores on the Melodic Achievement Test.
The results of the ANOVA contrasts in table 3 indicate there was no significant difference between the SBM pretest and posttest scores on the MAT. Based on these results, null hypothesis 4 was accepted.

**Null Hypothesis 5**

There will be no significant difference between boys and girls on the Melodic Achievement Test.

The results of the ANOVA in table 3 reveal there was no significant difference between the boys and girls on the MAT. Based on these results, null hypothesis 5 was accepted.

The results of the ANOVA contrasts in table 3 indicate there was a significant difference between the pretest and posttest scores of the boys and between the pretest and posttest scores of the girls. The analysis for the boys reveals an $F = 7.06$, $df = 1$, $p < .0097$ and for the girls an $F = 8.08$, $df = 1$, $p < .006$. Each of these values were more extreme than the preestablished level of significance of .05.

**Null Hypothesis 6**

There will be no significant difference among the cells created by the interaction of method, sex, and time on the Melodic Achievement Test.

The results of ANOVA in table 3 indicate there was no significant difference for the interaction of method, sex, and time. Based on these results, null hypothesis 6 was accepted.

The results of ANOVA in table 3 also indicate there was no significant difference between the interactions of method and sex, and time and sex. The results of the ANOVA reveal an $F = 3.90$, $df = 1$, $p < .05$ for the interaction of method and time. This value reveals a significant difference for the interaction of method and time.
Discussion

The primary purpose of the study was to determine the effect of Dalcroze Eurhythmics on the melodic musical growth of first grade students. According to the results, SBM pretest scores were significantly higher than DE pretest scores. The use of intact classes probably contributed to this result. Upon examination of individual class pretest scores, it was evident that class 1 did not have a comparable least square mean with the other three classes in the study. This lower class mean could possibly be due to the fact that five of the twenty-one students in the class did not have English as the primary language. Since the test instructions were in English, these students may have had a disadvantage in taking the test, and, thus, their pretest scores lowered the class means and may have lowered the DE mean. Table 4 contains the least square means for the individual classes on the pretest of the MAT.

| TABLE 4 |
|---|---|---|---|
| LEAST SQUARE MEANS AND STANDARD ERROR OF LEAST SQUARE MEANS OF INTACT CLASS PRETESTS SCORES ON THE MELODIC ACHIEVEMENT TEST |

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The results of the study indicated no significant difference between DE and SBM posttest scores. An examination of the least square means indicated that DE scores had increased to meet SBM scores on the posttest. Since all classes used the same basic music series and participated in the same number of lessons taught by the instructor, and since the only difference in the groups was the addition of the Eurhythmic activities for the DE lessons, then this result may be assumed to be due to the Eurhythmic activities. This result is in agreement with the results of the study of Douglas (1977).

There was a significant difference for DE from pretest to posttest on the MAT. The increase in scores from pretest to posttest may have been from the influence of the Eurhythmic activities since an attempt was made to control the factors of internal and external validity. Regression was not considered a factor for DE scores since none of the thirty-eight subjects scored extremely high scores on the pretest (37 and 35 out of a maximum 50 were the highest scores). The majority of the students scored from 15 to 30 points on the pretest and the posttest of the MAT. The factor of the scores of the foreign students in class 1 did not appear to have a negative effect on the class mean or DE mean on the posttest. An examination of the scores of these children reveals that, except for one score remaining the same, the scores increased on the posttest (three of the scores doubled on the posttest). This increase of scores for these five students could have been due to an increase of knowledge of the English language, to learning the task on the pretest, or to an increase of the melodic concepts from the six weeks of study. Except for the addition of Eurhythmics, the class lessons for DE were the same as those for SBM which had no significant increase in
scores from the pretest to posttest. Therefore, the Eurhythmic activities appeared to have a favorable influence on the melodic perception of DE students.

No significant difference was found for SBM scores from pretest to posttest. Regression was not considered a factor for the SBM test scores because only three of the thirty-eight subjects scored extremely high scores on the pretest (42, 47, and 48 out of a maximum 50). The majority of the students scored from 15 to 30 points on the pretest and posttest. Therefore, the extremely high scores did not appear to effect the small amount of gain in the SBM scores. Since SBM lessons contained no Eurhythmic activities, it may be assumed that the no difference in scores from pretest to posttest was due to the absence of Eurhythmic.

Although there was a significant difference for both boys and girls from pretest to posttest, there was no difference between boys and girls on the MAT. This latter result is in agreement with the results found in other studies dealing with the melodic perception of young children (Petzold, 1963; Hair, 1975).

The interaction of method, sex, and time was shown to have no significant effect in the study. This insignificant effect was possibly due to the influence of sex since the interaction between sex and time or method revealed no significant effect.

There was a significant effect revealed for the interaction of method and time. This result could have been due to the fact that both DE and SBM did experience learning during the six weeks of instruction. An examination of the means indicated that both groups increased on posttest scores. Although there was no significant difference between the two methods, there was a significant difference between the pretest
and posttest. This significant effect of time indicated that the students did increase their scores from pretest to posttest regardless of grouping. The result of learning by both groups after training is in agreement with the results found in other studies dealing with the effect of training on melodic discrimination skills of young children (Hattwick and Williams, 1935; Jeffrey, 1958; Repina, 1961; and Soderquist and Moore, 1970). Finally, the significant effect of the interaction of method and time could be due to chance resulting from the combining of various cells and the use of intact classes.

Summary
The data from the seventy-six first grade students revealed that SBM scores were much higher than DE scores on the pretest of the MAT. However, the posttest scores were comparable since DE scores increased greatly and the SBM scores remained relatively the same as the pretest scores. There was no difference found between boys and girls in the ability to identify aurally the melodic concepts of register and melodic contour. Finally, the study revealed no difference created by the interaction of method, sex, and time.
CHAPTER SIX

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The primary purpose of the study was to determine the effect of Dalcroze Eurhythmics on the melodic musical growth of first grade students. The investigator also sought to determine the difference between boys and girls in the ability to aurally identify the component parts of the melodic concepts of register and melodic contour. Finally, the investigator sought to determine the differences created by the interaction of method, sex, and time.

Seventy-six first grade students in four intact classes participated in the study. Two of the classes served as the contact control group and used only the first grade level of the 1978 edition of Silver Burdett Music. The experimental group consisted of two classes using the first grade level of the 1978 edition of Silver Burdett Music and Dalcroze Eurhythmics activities. The Dalcroze Eurhythmics group (DE) and the Silver Burdett Music group (SBM) consisted of thirty-eight students each.

The Melodic Achievement Test (MAT) was designed and administered as the pretest and posttest measures for both DE and SBM. The test, consisting of two sub-tests, was designed to measure the students' ability to aurally distinguish the component parts of the melodic concepts of register and melodic contour. The directions and items for each sub-
test were recorded on cassette tape for administration of the test. Students recorded their answers on individual answer sheets.

Both DE and SBM participated in six weeks of instruction between the administration of the pretest and the posttest. Each class participated in two thirty-minute lessons each week. The lesson plans for SBM were the register and melodic direction units from the teacher's edition of the first grade level of the 1978 edition of Silver Burdett Music. Lesson plans for DE were the same units from the same music series with the addition of Dalcroze Eurhythmic activities.

At the conclusion of the eight-week study, the data were subjected to a Three-Way Analysis of Variance (ANOVA) with a repeated measure on time. Results indicated that SBM scored significantly higher than DE on the pretest. There was a significant difference between the pretest and posttest scores for DE and no significant difference between the pretest and posttest scores for SBM. Results also indicated no significant difference between the SBM and DE posttest scores. An examination of the least square means revealed that the DE scores increased to meet the SBM scores on the posttest. The multiple ANOVA also revealed there was no significant difference between boys and girls on the MAT. Finally, there was no significant difference between the interactions of method, sex, and time.

Conclusions

Based on the results of the study, the following conclusions are presented.

The results of the study indicated that the presence of Eurhythmic activities had a positive effect on the ability of first grade stu-
dents to aurally perceive the melodic concepts of register (high-low) and melodic contour. This effect was seen in the fact that the group using Eurhythmics significantly increased their scores from pretest to posttest. Because of the positive influence of the Eurhythmic activities on the melodic achievement of the students, it would appear that Dalcroze Eurhythmics should be included in the study of melodic concepts in the first grade music curriculum.

The lesson plans for all classes in the study were from the melodic units of the first grade level teacher's edition of a standard elementary music series. Eurhythmic activities were included in the lessons for the experimental group as an enhancement of the basic music series. Since the addition of Eurhythmics had a favorable effect in the study, Eurhythmic activities could be incorporated by the basic music series in the units teaching melodic concepts at the first grade level.

**Recommendations for Further Study**

Several recommendations for further study are suggested from the results of this study.

Since there was a positive effect of Eurhythmics on melodic concepts at the first grade level, then the relationship between melodic concepts and Eurhythmics should be investigated at other grade levels.

More study is needed to investigate the use of Eurhythmic activities to teach the other elements of music at all grade levels. Although Eurhythmic activities are being employed successfully to teach the various elements of music by many, there have been few studies to analyze the actual relationship between Eurhythmics and these musical elements.
Standardized music achievement tests should be designed for use at the primary grade levels. An examination of currently published achievement tests reveals that most tests are designed for the fourth grade and above. With the current emphasis on accountability, achievement tests should be designed and standardized for the music classes at the lower elementary grade levels.

Further studies dealing with the effect of Dalcroze Eurhythmics on melodic discrimination abilities of primary school children might include the following changes from the procedures and design of this study. All subjects should have English as their primary language or a reliable interpreter. Use of randomly selected subjects would provide more control over chance results than the use of intact classes. The pretest and posttest measures might be administered individually or in small groups with the use of headphones to ensure control over the factors of dynamic intensity of signal and classroom distractions. Finally, future studies in melodic discrimination might schedule the group lessons at the same time of day to avoid possible problems from classes scheduled immediately before and after lunch and recess periods.
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Conferences and Interviews


Research Studies


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APPENDIX A

MELODIC ACHIEVEMENT TEST
TRANSCRIPTION OF MELODIC ACHIEVEMENT TEST

Directions for Sub-test A—Register

As you listen to the tape, you will hear pitches in groups of two. You must decide if the second pitch is higher than, lower than, or the same as the first pitch. Now look at your paper. Find the box with the heart at the top of the page and put your finger on it. In the box there is an arrow pointing up, an arrow pointing down, and an arrow pointing sideways. If the second pitch is higher than the first pitch, draw a circle around the arrow pointing up. If the second pitch is lower than the first pitch, draw a circle around the arrow pointing down. If the second pitch is the same as the first pitch, draw a circle around the arrow pointing sideways. Now pick up your pencil, listen to the two pitches, and draw your circle.

\[
\begin{array}{c}
\text{\\\\\\\\} } \\
\text{.} \\
\end{array}
\]

Did you draw a circle around the arrow pointing down? That is right because the second pitch was lower than the first pitch.

Let's practice one more together. Put your finger on the box with the football. Now listen to the two pitches and draw your circle.

\[
\begin{array}{c}
\text{\\\\\\\\} } \\
\text{D} \\
\end{array}
\]

Did you circle the arrow pointing up? You are correct because the second pitch was higher than the first pitch.

Now you are ready to listen to the pitches and circle the arrows by yourself. Move to the next box of arrows only when you are told to do so. You will hear each set of pitches only once. They will not be

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repeated, so listen very carefully.

Remember, if the second pitch is higher than the first pitch, draw a circle around the arrow pointing up. If the second pitch is lower than the first pitch, draw a circle around the arrow pointing down. If the second pitch is the same as the first pitch, draw a circle around the arrow pointing sideways.

Now move to the box with the apple. Listen to the pitches and mark your answer. (Tape continues with directions to move to next box and pitches for the rest of sub-test A.)

Put your pencil down and close your booklet. Wait for instructions from your teacher.

**Directions for Sub-test B—Direction**

You will now hear groups of pitches moving higher or lower or both higher and lower. You must decide which direction the music is moving. Now look at the box with the picture of the leaf. In this box you can see an arrow pointing up, an arrow pointing down, and an arrow pointing up and down. If the pitches move higher, draw a circle around the arrow pointing up. If the pitches move lower, draw a circle around the arrow pointing down. If the pitches move higher and lower, draw a circle around the arrow pointing up and down. Now pick up your pencil and listen to these pitches, then circle your answer.

Did you circle the arrow pointing up? That is the correct answer because the pitches moved higher.

Let's practice one more together. Move across the page to the
box with the smiling face. Now listen to the pitches and draw your circle.

\[ \text{\includegraphics[width=1cm]{smiling_face}} \]

Did you circle the arrow pointing up and down? That is the correct answer since the pitches moved both higher and lower.

Now you are ready to listen to the pitches and circle your answers by yourself. You should move to the next box only when you are told to do so. You will hear each group of pitches only once. They will not be repeated, so listen carefully.

Remember, if the pitches move higher you should circle the arrow pointing up. If the pitches move lower you should circle the arrow pointing down. If the pitches move both higher and lower you should circle the arrow pointing up and down.

Now move to the box with the picture of the bow. Listen to the pitches and circle your answer. (Tape continues with directions to move to next box and pitches for the rest of Sub-test B.)

Put your pencil down and close your booklet. Wait for instructions from your teacher.
Transcription of Sub-Test A—Register
Transcription of Sub-Test B—Direction
MELODIC ACHIEVEMENT TEST

REGISTER AND DIRECTION

NAME______________________________________________

SCHOOL____________________________________________

TEACHER______________ DATE OF TEST_______________

BIRTHDATE______________ SEX______________________
MELODIC ACHIEVEMENT TEST
PART 1
REGISTER
ANSWER SHEET

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MELODIC ACHIEVEMENT TEST
PART 2
DIRECTION
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PRE-TEST/POSTTEST RESULTS

NAME_________________________________________

TEACHER_______________________________________

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APPENDIX B

LESSON PLANS
Lesson 1

Concept: Register/High-Low
Pages 43-45; Teacher's edition first grade level Silver Burdett Music

A. Students distinguish between high and low space
   "How high can you reach?"
   "How low can you reach?"
   Discuss picture of dancers in student text (pp. 20-21). Students decide which dancer shows high and which shows low.
B. "High-Low Improvisation" (Book 1, Rec. 3)
   Children listen to high and low sounds of recording and move according to the sounds they hear.
C. "Bye'm Bye" (Book 1, Rec. 3)
   Students listen to song then learn it by rote.
   While singing, students listen for the words "oh my" to discover which way the notes move.
   Sing song again and show movement of tones with arms for "oh my."
   Sing song a third time and add words "bye'm bye" at beginning of song to arm movement.

Lesson 2

Concept: Register/High-Low; Small instruments produce higher pitches and large instruments produce lower pitches
Pages 44-45; Teacher's edition first grade level Silver Burdett Music

A. "Bye'm Bye" (Book 1, Rec. 3)
   Students sing song and demonstrate knowledge of tonal register on words "oh my" by moving arms up and down.
B. Instrument Exploration
   Students identify pictures of instruments on pages 22-23 of student text. Explain that each instrument can produce both high and low pitches.
   Divide Class into small groups. Each group given one instrument (Bongos, resonator bells, autoharp, high-low tone block, and high and low claves) to determine how to play high and low on that instrument. Groups share with entire class.
C. "Bye'm Bye" with instruments
   Students sing song and add high instruments on word "oh" and low instruments on word "my."

Lesson 3

Concept: Register/High-Low
Pages 45-477 Teacher's edition first grade level Silver Burdett Music

A. "Bye'm Bye"
   Students sing song. Add high D. bell on word "oh" and low D bell on word "my" and A bell on numbers. (Students must identify which bell is high and low by sight and then by sound.)
B. "High-Low Improvisation" (Book 1, Rec. 3)
   Play high-low game; students move according to the sounds on the recording.
C. "The Cricket's Song" (Book 1, Rec. 3)
   Students listen to song to discover which section ends high and which section ends low.
   Learn song by rote and sing.

Lesson 4

Concept: Register/High-Low
Pages 46-48; Teacher's edition first grade level Silver Burdett Music
A. "The Cricket's Song" (Book 1, Rec. 3)
   Students sing song.
   Students state which sections ended high and low.
   Students sing again and play resonator bells on section endings (F#, E, D on section A and A, C#, D on section B)
B. "Gatatumba" and "The Death of Mr. Fly" (Book 1, Rec. 3)
   Students listen to each song to determine how the songs end—high or low.
C. Sonata a2 in D Minor, Mov. 3 (excerpt) (Book 1, Rec. 3)
   Explain that a recorder plays high and a bassoon plays low in the music. Students listen to discover which instrument plays first.
   Students listen to music again and raise both hands when they hear both instruments play together.

Lesson 5

Concept: Register/High-Low
Pages 46-49; Teacher's edition first grade level Silver Burdett Music
A. "The Cricket's Song" (Book 1, Rec. 3)
   Students sing song.
B. Sonata a2 in D Minor, Mov. 3 (excerpt) (Book 1, Rec. 3)
   While listening to music, students place hands on table when they hear recorder, on shoulder for bassoon, and in the air for both instruments.
C. What Do You Hear? 6 (Book 1, Rec. 3)
D. Halloween Songs

Lesson 6

Concept: Direction/Moving higher-lower
Pages 10-13; Teacher's edition first grade level Silver Burdett Music
A. "This Old Man" (Book 1, Rec. 1)
   Listen to and sing song.
   Listen for the direction of the music with the missing words ("give a dog a bone")
B. "Barnacle Bill" (Book 1, Rec. 1)
   Listen to song for direction of music with the missing words
   Learn song by rote and sing.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
C. "Michael Row the Boat Ashore" (Book 1, Rec. 1)
   Students listen to song for the direction of the music of the
   missing words.
   Students learn and sing song.
D. Discuss the three directions heard—moving higher, moving lower, and
   moving higher and lower.

Lesson 7

Concept: Direction/Moving Higher-Lower
Pages 10-14; Teacher's edition first grade level Silver Burdett Music

A. "This Old Man," "Barnacle Bill," and "Michael Row The Boat Ashore"
   Prepare charts with the music for the missing words of each song.

![charts]

Students sing songs as they view each chart. Students "draw"
   arrows in air to show direction of pitches of missing words.
B. Discuss the pictures on pages 4-5 of student text. Students identify
   each arrow and explain the meanings.
C. Staff Study
   Students discuss arrows on charts.
   Explain how to find high and low on staff.
D. Halloween Songs

Lesson 8

Halloween Celebration—Sing Halloween songs and listen to Halloween
   recordings

Lesson 9

Concept: Direction/Moving Higher-Lower
Pages 15-16; Teacher's edition first grade level Silver Burdett Music

A. "Sound Effects, No. 1" (Book 1, Rec. 1)
   Students listen to the two sounds and decide which way each one
   moves.
   Students match sound to pictures and arrows on pages 6-7 of stu-
   dent text.
B. "Sound Effect, No. 2" (Book 1, Rec. 1)
   Students listen to sound and decide which way it moves.
   Students match sound to pictures and arrows on pages 6-7 of stu-
   dent text.
C. "The Death of Mr. Fly" (Book 1, Rec. 3)
   "Which way should the music move for the end of the song 'The
   Death of Mr. Fly?'"
   Students listen to song and discover how the end moves.
   Students learn song.
Lesson 10

Concept: Direction/Moving Higher-Lower
Pages 16-18; Teacher's edition first grade level Silver Burdett Music

A. "The Death of Mr. Fly" (Book 1, Rec. 1)
While students sing song, they add resonator bells on rhythm of
the words of last phrase starting on B bell.
B. "Gatatumba" (Book 1, Rec. 1)
Listen to song and discover the way the last line moves.
Learn song by rote
While singing song, students play rhythm of the words of last
phrase starting on D bell. Students not playing show direc-
tion with arm.
C. Staff Study
Children examine the staffs on the picture on pages 10-11 of the
student text. "Which moves higher and lower?"
Students decide which notation matches each song.
Teacher plays notation on bells after student responses.

Lesson 11

Concept: Direction/Moving Higher-Lower
Pages 18-20; Teacher's edition first grade level Silver Burdett Music

A. "Gatatumba" (Book 1, Rec. 1)
Students sing song and move hand in direction of music of last
phrase.
Students decide which notation on pages 10-11 of student text
matches the song.
Add bells to last line of song while singing song.
B. "The Death of Mr. Fly" (Book 1, Rec. 1)
Sing song and move hand in direction of music of last phrase.
Match notation on pages 10-11 of student text to song.
Add bells to last line of song while singing song.
C. Group "Compositions"
Divide class into small groups. Each group given paper and
marker to compose song with high and low directions. Students
draw arrows to indicate directions. Perform for class.

Lesson 12

Concept: Direction/Moving Higher-Lower
Page 20; Teacher's edition first grade level Silver Burdett Music

A. Sing "Death of Mr. Fly," "Barnacle Bill," "Gatatumba," "This Old
Man," and "Michael Row the Boat Ashore." Tell direction of the
specific phrases in each song.
B. What Do You Hear? 2 (Book 1, Rec. 1)
Lesson 1

Concept: Register/High-Low
Dalcroze Eurhythmic Activities/Page 43; Teacher's edition first grade level Silver Burdett Music

A. Students distinguish between high and low spaces
   Students think of at least 3 ways to move to show high spaces.
   Upon command, students demonstrate all the ways they thought of to move high.
   Students think of at least 3 ways to move to show low spaces.
   Upon command, students demonstrate all the ways they thought of to move low.

B. Students distinguish between high and low spaces with music
   Students name high objects (birds, kites, clouds, etc.).
   Students choose one of the high objects and imitate the movement. Teacher adds improvised music on recorder to complement the high movements.
   Students name low objects (grass, snakes, etc.).
   Students choose one of the low objects and imitate the movement. Teacher adds improvised low music on recorder.

C. Discuss pictures of dancers in student text (pp. 20-21). Students decide which dancer shows high and which shows low.

D. "High-Low Improvisation" (Book 1, Rec. 3)
   Students listen to high and low sounds of recording and move according to the sounds they hear.

E. Teacher improvises high and low registers on recorder. Students move to show register changes.

Lesson 2

Concept: Register/High-Low; Small instruments produce higher pitches and large instruments produce lower pitches
Dalcroze Eurhythmic Activities/Page 44; Teacher's edition first grade level Silver Burdett Music

A. Students distinguish between high and low pitches
   Teacher improvises high recorder tones while students imitate "high" animals.
   Teacher improvises low recorder tones while students imitate "low" animals.
   Teacher improvises high and low on recorder while students move to indicate registers.

B. Instrument Exploration
   Students identify pictures of instruments on pages 22-23 of student text. Explain that each instrument can produce both high and low pitches.
   Divide class into groups. Each group given one instrument (bongos, resonator bells, autoharp, high-low tone block, and high and low claves) to determine how to play high and low on that instrument. Each group uses movement to show the
high and low sounds of the instrument and the timbre effect.
Groups share with class.

Lesson 3

Concept: Register/High-Low
Dalcroze Eurhythmic Activities/Page 45; Teacher's edition first grade level Silver Burdett Music

A. Students listen to poems and move to illustrate high and low spaces.
   Fishes swim in water clear/ Birds fly up into the air/
   Serpents creep along the ground/ Boys and girls run round and round.
   Here is a giant who is tall, tall, tall/ Here is an elf who is small, small, small/
   The elf who is small will try, try, try/
   To reach the giant who is high, high, high.
   Substitute high and low pitches of recorder for rhythm of the words as students move accordingly.

B. "Bye'm Bye" (Book 1, Rec. 3)
   Listen to song then learn by rote.
   While singing, listen for the words "oh my" and move to show direction of music.
   Add movement for words "bye'm bye" at the beginning of the song as students sing again.
   Add instruments to movement and singing. Some students move while others play instruments: high and low tuned hand drums, high-low tone blocks, claves, and bells (d).

Lesson 4

Concept: Register/High-Low
Dalcroze Eurhythmic Activities/Pages 45-47; Teacher's edition first grade level Silver Burdett Music

A. Children move to teacher-improvised melodies on recorder to show high and low registers.

B. "Bye'm Bye" (Book 1, Rec. 3)
   Students sing song and move to show registers of "oh my" and "bye'm bye."

C. "High-Low Improvisation" (Book 1, Rec. 3)
   Students move to the register sounds they hear on the record.

D. "The Cricket's Song" (Book 1, Rec. 3)
   Students listen to song and move to show how each section ends. Students move to each phrase ending of song to show register.

Lesson 5

Concept: Register/High-Low
Dalcroze Eurhythmic Activities/Pages 46-48; Teacher's edition first grade level Silver Burdett Music

A. Students move to show high-low tones of tuned hand drums.
   Students move forward on high drum and backward on low drum.
   Students move up on high drum and down on low drum.
B. "The Cricket's Song" (Book 1, Rec. 3)  
Students sing song and move to show register for section endings and phrase endings.  
Students sing song again and play high and low D bells on endings.  
(Students must identify high and low bell by sight then by pitch.)  
C. Sonata a2 in D Minor, Mov. 3 (excerpt) (Book 1, Rec. 3)  
Explain that a recorder plays high and a bassoon plays low in the music. Students listen to discover which instrument plays first.  
Students listen again and imitate recorder and bassoon through movement.

Lesson 6

Concept: Register/High-Low  
Dalcroze Eurhythmic Activities/Page 48; Teacher's edition first grade level Silver Burdett Music

A. Sonata a2 in D Minor, Mov. 3 (excerpt) (Book 1, Rec. 3)  
Divide class into two groups. Group 1 moves to recorder high pitches and group 2 moves to bassoon pitches.  
Switch groups and repeat activity.  
B. "Gatatumba" and "The Death of Mr. Fly" (Book 1, Rec. 1)  
Students listen to each song to determine how the songs end—high or low. Students move to indicate the ending registers of each song.

C. Halloween Songs

Lesson 7

Concept: Register/High-Low  
Dalcroze Eurhythmic Activities/Page 49; Teacher's edition first grade level Silver Burdett Music

A. Teacher improvises high and low tones on recorder. Students move to demonstrate register changes.  
B. "What Do You Hear?" 6 (Book 1, Rec. 3)  
C. Halloween Songs

Lesson 8

Halloween Celebration—Sing Halloween songs and listen to Halloween recordings.

Lesson 9

Concept: Direction/Moving Higher-Lower  
Dalcroze Eurhythmic Activities/Pages 10-14; Teacher's edition first grade level Silver Burdett Music

A. Direction Movement Game  
Students pretend to be flower seeds and grow to be flowers as sun shines. Teacher plays pitches moving higher on recorder.
Students pretend to be snowmen and melt as sun shines. Teacher plays pitches moving lower on recorder.

B. "This Old Man," "Barnacle Bill," "Michael Row the Boat Ashore" (Book 1, Rec. 1)

Students listen to songs for the missing word sections. Students move to show direction of music for missing word sections. Prepare charts with the music for the missing words of each song. Students match charts to songs.

C. Discuss the pictures on pages 4-5 of student text. Students identify each arrow and explain the meanings.

D. Staff Study

Students discuss arrows on charts. Explain how to find high and low on staff.

Lesson 10

Concept: Direction/Moving Higher-Lower
Dalcroze Eurhythmic Activities/Pages 15-17; Teacher's edition first grade level Silver Burdett Music

A. "Sound Effects, No. 1" (Book 1, Rec. 1)

Students move to the two sounds to show the direction of the pitches. Students match sound and movements to pictures and arrows on pages 6-7 of student text.

B. "Sound Effects, No. 2" (Book 1, Rec. 1)

Students move to sound to show direction of pitch. Students match sound and movement to pictures and arrows on pages 6-7 of student text.

C. "The Death of Mr. Fly" (Book 1, Rec. 1)

"Which way should the music move for the end of the song 'The Death of Mr. Fly'?"

Students listen to song and move to show direction of pitches of last line. Play rhythm of words of last line beginning on B bell and move to show direction of pitches. Students learn song by rote.

D. Teacher improvises directions on bells and recorder for children to move to.

Lesson 11

Concept: Direction/Moving Higher-Lower
Dalcroze Eurhythmic Activities/Pages 18-20; Teacher's edition first grade level Silver Burdett Music

A. Teacher improvises pitches moving higher, lower, and higher and lower on recorder. Students move to show directions of the pitches heard.
B. "The Death of Mr. Fly" (Book 1, Rec. 1)
   Students sing song and move to show direction of melody of last line of music.
C. "Gatatumba" (Book 1, Rec. 1)
   Students listen to song to decide the direction of the last line of the song.
   Students move to show the direction of the last line.
   Students learn song by rote.
   Students sing song and add bells on rhythm of words of the last line and show direction through movement.
D. Staff Study
   Students examine the staffs on the picture on pages 10-11 of the student text. "Which moves higher and lower?"
   Students decide which notation matches the two songs.
   Teacher plays notation on bells after student responses.
E. Group "Compositions"
   Divide class into small groups. Each group given paper and marker to compose songs with high and low directions. Students draw arrows to indicate directions. Groups perform for class. Class moves to show the directions they hear.

Lesson 12

Concept: Direction/Moving Higher-Lower
Dalcroze Eurhythmic Activities/Page 20; Teacher's edition first grade level Silver Burdett Music

A. Teacher improvises pitches on recorder and bells. Students move to indicate direction of pitches they hear.
B. Teacher improvises melodies on recorder.
   Teacher improvises a measure of music followed by a measure of rests. During the rests, the students move to show the direction of the music they heard.
C. "What Do You Hear?" 2 (Book 1, Rec. 1)
D. Students move to demonstrate direction of teacher-improvised melodies on recorder. Teacher plays a measure of music followed by a measure of rests. Students move during the rests to demonstrate the direction of the music.
APPENDIX C

LETTERS AND FORMS
To: Sue Crumpler  Date: 7-21-81

From: School of Music Committee on Use of Humans and Animals as Research Subjects

The Committee has reviewed your proposal: the Identification of Melodic Musical Growth of First Grade Students using Dalcroze Eurhythmics and Silver Burdett Music.

We accept and approve the afore mentioned proposed project.

Corbelita J. Astraquillo
Chairman

Myrtis F. Riley

Paul Dirksmeyer
To: East Baton Rouge Parish School Board
Jack Story, Supervisor of Music

From: Sue E. Crumpler
Ph.D. Candidate
LSU School of Music

Title of Experimental Research Project: The Identification of Melodic Musical Growth of First Grade Students Using Dalcroze Eurhythmics and Silver Burdett Music

This experimental design project will investigate the melodic musical growth of first grade students in a musical program using Dalcroze Eurhythmics and the elementary music series Silver Burdett Music. Two first grade classes will serve as the control group and will use only Silver Burdett Music—no movement training will be used. The experimental group will consist of two first grade classes using Dalcroze Eurhythmics in conjunction with the same series as the control. Each group will receive two lessons per week for thirty minutes each for approximately ten weeks during the Fall 1981 semester.

Both groups will be pretested and posttested using the Silver Burdett Achievement Test, Grade One, and one other test to be announced at a later date. The tests will be given in a structured environment during the scheduled music lessons. The individual scores will be recorded and comparisons will be drawn. Findings according to sex, socio-economic levels, musical backgrounds, and achievement test scores/rankings will also be drawn and recorded. The reporting of these findings will not include any names or personal references to the students involved in the study. Therefore, the chance of a student being labeled will be eliminated.

The students who will participate in this study will be attending one of four first grade classes in a school or schools in the East Baton Rouge Parish School System. Permission forms will be sent to each parent to be completed and returned to the examiner. A questionnaire will also be completed by the parents concerning socio-economic levels and musical backgrounds. The achievement test scores/rankings will be used with permission of the parents and school system.

The examiner will work closely with the School Board, Music Supervisor, School Principal(s), Music Specialist, and Classroom Teachers in order to maintain a schedule which will assure no conflicts with the regular classroom schedule and the established music goals and objectives. If desired, progress reports and final results will be made available for administrators and faculty involved in or with the project.
To: East Baton Rouge Parish School Board  
Jack Story, Supervisor of Music  
Dr. Don Hoover, Director of Research  

From: Sue E. Crumpler  
Ph.D. Candidate  
LSU School of Music  

Title of Experimental Research Project: The Identification of Melodic Musical Growth of First Grade Students Using Dalcroze Eurhythmics and Silver Burdett Music  

Re.: Addendum to letter of February 9, 1981  

In order to insure complete and open communication between the School Board and the investigator, the following forms and/or documents will be sent to Dr. Don Hoover and Jack Story:  

a) Copy of approved prospectus  
b) Copy of approval of the LSU Committee on the Use of Humans and Animals as Research Subjects  
c) Copy of completed dissertation  

The examiner also agrees to acquire the permission of the School Board before publishing the results in any journal, magazine, book, or other instructional media source.
To: East Baton Rouge Parish School Board
    Jack Story, Supervisor of Music
    Dr. Don Hoover, Director of Research

From: Sue E. Crumpler
      Ph.D. Candidate
      LSU School of Music

Title of Experimental Research Project: The Identification of Melodic Musical Growth of First Grade Students Using Dalcroze Eurhythmics and Silver Burdett Music

Re.: Addendum to letter of February 9, 1981

The following changes have been made in the design of the experimental research project:

a) The variables of socio-economic levels and achievement test scores/rankings have been eliminated from the study.

b) The variable of age has been added to the study.

c) Instead of using the Silver Burdett Achievement Test, a music achievement test designed by the investigator will be used.

d) A fifth first grade class will be required to test the reliability and validity of the music achievement test. Permission forms will be sent to each parent of the students in this class to be completed and returned to the investigator.

Except for these changes, the project remains as described in the letter of February 9, 1981.
June 6, 1981

Dr. Don Hoover  
Director of Research  
East Baton Rouge Parish School Board

Dr. Hoover:

I have approved the experimental study on the melodic musical growth of first grade students using Dalcroze Eurhythmics and Silver Burdett Music which was designed by Sue E. Crumpler. The concepts of the project reflect the basic goals and objectives of the Elementary Vocal Music Curriculum Guide (K-5) of the East Baton Rouge Parish School System. The schools which have been selected to participate in the study are Highland Elementary School and Walnut Hills Elementary School. The project will begin Monday, September 28, 1981, and continue through Friday, November 20, 1981. This experimental study has the support of my department.

Sincerely,

Jack V. Story  
Supervisor of Music

copy: Sue E. Crumpler
June 15, 1981

Ms. Sue E. Crumpler
LSU School of Music
Baton Rouge, Louisiana 70803

Dear Ms. Crumpler:

I have discussed the issue of your study with Jack Story, our Music Supervisor, and he assures me that the study would be of value to our system. After reviewing the methods you plan to employ in the study, I have found they are basically sound and therefore authorize the study in our schools providing the principals of the chosen schools agree. It is also my understanding that parental permission will be obtained.

Let me take this opportunity to commend you for your careful planning. I frequently receive requests for studies only days before the study is planned to begin. To receive one planned so far ahead is refreshing indeed. If I can be of help in contacting schools etc., please feel free to call.

Yours sincerely,

Donald L. Hoover

DLH:pmh
September 19, 1981

Dear Parents:

Your child's class has been chosen to participate in a reliability/validity test of a music achievement test I have constructed as a part of the requirements of the Doctor of Philosophy Degree in music at Louisiana State University. In order to determine the reliability and validity of this test, I will need to administer the test to your child. Only the test scores will be used in the reporting of this data—no names or personal references to the students involved will be used.

Please complete and sign the following form and return it to your child's teacher by Wednesday, September 23, 1981. This form will be kept on file as an indication of your permission for your child to participate in this study.

Thank you for your co-operation in this request.

Sincerely,

Sue E. Crumpler

My child _____________________________ has my permission (Please Print Child's Name) to take the Music Achievement Test designed by Sue Crumpler. I understand that this permission allows Miss Crumpler to use the results of this test in her work at LSU. I further understand that no names or personal references will be used in the writing of these results.

Signature of Parent or Guardian _____________________________ Date _____________________________
September 21, 1981

Dear Parent:

Your child's class has been selected to participate in an experimental study which I am conducting to fulfill the requirements for the Doctor of Philosophy Degree in music at Louisiana State University. The study is being conducted in conjunction with the East Baton Rouge Parish School Board. The purpose of the study is to determine the amount of musical growth in first grade students through a musical program that incorporates the child's natural response to music through movement. I will be working with classes at Highland Elementary School and Walnut Hills Elementary School. Each of the four classes will receive two lessons per week for thirty (30) minutes each for eight weeks. Two of the classes will use movement in conjunction with the basic music lesson, while the other two classes will use no movement. The classes will be coordinated with the classroom teachers and music specialist to maintain a schedule which will assure no conflicts with the regular classroom schedule and the established musical goals and objectives.

As a part of this study, I will need to give your child a short test the first and last weeks of the study. The test will be administered during the scheduled lesson times. The individual scores will be recorded and comparisons will be drawn. The data will be used as a part of the dissertation I am writing to complete the doctoral degree. The reporting of the data will not include any names or personal references to the students involved in the study. Therefore, the chance of a student being identified or labeled will be eliminated.

If at any time you wish to have your child removed from the study, you may do so by contacting me or your child's teacher.

Please complete and sign the following form and return it to your child's teacher by Friday, September 25, 1981. This form will be kept on file as an indication of your permission for your child to participate in this study.

Thank you for your co-operation. I look forward to working with your child.

Sincerely,

Sue E. Crumpler
My child ____________________ has my permission to participate in the musical project designed by Sue Crumpler. I understand that this permission allows Miss Crumpler to test my child and use the results in her final report. I further understand that no names or personal references will be used in the writing of the results.

Signature of Parent or Guardian ___________ Date ___________ Child's Birthdate ___________
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VITA

Sue Crumpler was born March 31, 1953, in Enterprise, Alabama. She attended the elementary and secondary school system of Enterprise. After one year at Enterprise State Junior College, she attended Samford University in Birmingham, Alabama. In 1975, Miss Crumpler received the Bachelor of Music degree with an emphasis in voice and music education.

From 1975 through 1978, Miss Crumpler was employed as the music specialist for the Fort Rucker Primary School in Fort Rucker, Alabama. During this same time, she was also a music instructor for the night division of Enterprise State Junior College. Miss Crumpler began her graduate studies at Louisiana State University in the summer of 1977. She received the Master of Music Education degree in 1979 from LSU.

From 1979 through 1982, Miss Crumpler was a graduate assistant at LSU and taught a music education methods course for elementary education majors. During this time, she was working toward the Doctor of Philosophy degree in music education. Miss Crumpler received the Doctor of Philosophy degree in August 1982.
EXAMINATION AND THESIS REPORT

Candidate: Sue E. Crumpler

Major Field: Music Education

Title of Thesis: The Effect of Dalcroze Eurythmics on the Melodic Musical Growth of First Grade Students

Approved:

Robert Beak
Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Wallace McKee

Paul Louis Noel

John Carroll

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