A Study of Musical Achievement of Culturally Disadvantaged Preschool Children Based on the "Music for Preschool" Curriculum of Marvin Greenberg.

Vicki Vernon Lott

Louisiana State University and Agricultural & Mechanical College

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A STUDY OF MUSICAL ACHIEVEMENT OF CULTURALLY DISADVANTAGED PRE-SCHOOL CHILDREN BASED ON THE "MUSIC FOR PRESCHOOL" CURRICULUM OF MARVIN GREENBERG.

THE LOUISIANA STATE UNIVERSITY AND AGRICULTURAL AND MECHANICAL COL., PH.D., 1978

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A STUDY OF MUSICAL ACHIEVEMENT OF CULTURALLY DISADVANTAGED
PRESCHOOL CHILDREN BASED ON THE MUSIC FOR PRESCHOOL
CURRICULUM OF MARVIN GREENBERG

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
Doctor of Philosophy

in

The School of Music

by

Vicki Vernon Lott
B.M., St. Norbert College, 1973
M.M.E., Louisiana State University, 1974
May, 1978
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ABSTRACT

Recent research studies have proven that at least half of a person's intellectual development is achieved by the age of five. Therefore, in the past twenty years, the importance of early childhood education for future growth has been strongly emphasized. Since 1970, music educators have begun to focus more attention on studies concerning musical development of the preschool child. However, the literature reveals that only a few music educators have concerned themselves with the particular problems of music education for culturally disadvantaged preschoolers.

Little difference has been found in IQ test scores between disadvantaged and advantaged children up to the age of two. But beyond that age, scores of disadvantaged children have declined. Therefore, preschooling is essential for the disadvantaged child to achieve educational equality.

Evaluation is necessary in all subject areas in order to assess the effectiveness of teaching procedures. However, vocabulary used in evaluative situations must be in the background of the children if results are to reflect true ability. In preschool music education, elemental concepts, such as high/low, long/short, loud/soft, and same/different, must be derived from intrinsic values.
Because of the limited verbal development of the young child and his natural, physical need for movement, a variety of activities is essential. In music, these activities are singing, listening, creating, rhythmic movement, and playing instruments. The *Music for Preschool* curriculum of Marvin Greenberg of the University of Hawaii includes the five areas listed above, as well as concepts about intrinsic values of music (melody, rhythm, tone color, form, and harmony). Furthermore, the Greenberg curriculum is unique because specific, extensive suggestions for evaluation are included, and because it was designed for use with culturally disadvantaged preschoolers. Therefore, the Greenberg curriculum was selected as the basis of an experimental study of musical achievement with eighty-five three- and four-year-old Head Start children.

As a pretest, an investigator-constructed test, based on the Greenberg curriculum was administered to each subject. Prior to the pretest, three acclimatization classes were taught to expose the children to terminology used in the test, to allow the children to become acquainted with the investigator, and to eliminate the need for sample questions on the test. The total time of administration was approximately fifteen minutes per child.

After the pretest had been administered, thirty lessons were taught to two experimental classes for twenty minutes a day over a period of six weeks. To determine the effects of familiarity with the investigator on posttest scores, stories that were not related to music were read and discussed with one of the control classes. A
second control group had no contact with the investigator between administration of the pretest and posttest. A posttest, identical to the pretest, was administered after the lessons had been completed.

Results showed that:

1. Significant gains were made by the two experimental groups of culturally disadvantaged preschoolers with a structured approach to music education
2. Concepts of pitch and phrase were the most difficult to develop
3. The children responded equally well to traditional nursery songs and songs of various historical periods
4. Although the results were not significant, three-year-olds showed the greater amount of improvement
5. There was basically no difference between scores of boys and girls
6. Some differences existed between scores of students with previous school experience and those without
7. The control group to which stories were read improved significantly on the total test and on all subtests except rhythm

The conclusion was drawn that the degree of improvement of the first control group indicates that familiarity with the test administrator positively affected test results.
CHAPTER I

INTRODUCTION

There has been an increasing concern for preschool music education since the late 1960s. This recent concern was influenced by social and economic conditions that caused more women to enter the job market, thus creating the need for more and better day-care facilities. Many studies have indicated that certain factors may be critical to a child's development as early as age five. Secondly, the overwhelming documentation in the last fifteen years supporting the fact that at least half of a person's intellectual potential is developed by age five has caused psychologists, sociologists, and educators to advocate very early childhood education.

However, to have successful experiences with other children, the child must first develop a positive self-concept; this self-concept is derived primarily from acceptance and the reaction of others to the things the child does. The culturally disadvantaged child often has a negative self-concept because of uncontrollable environmental factors.

"Children need quality experiences early in their lives which will enhance their mental, physical, and social-emotional growth and human potential." These experiences logically begin with movement since movement begins before the child's first breath in the outside
world as he turns, kicks, and struggles in his mother's womb. "All movement is expressive, if only to announce that we are alive. Much of our movement is an unconscious reaction to our internal and external environment." The child's ability to turn, listen, share ideas, and feel accents and dynamic changes can be capitalized upon by the teacher by transferring it to concepts about music and intrinsic values of music through natural, enjoyable experiences.

Evaluation is essential in preschool music education to appraise and improve curricula and methods. If the evaluation is expressed in numbers (quantitatively), the experimenter can draw more precise conclusions. Also, quantitative thinking, which has been important in the sciences for many years, has become more important in music education in recent years as a means of improving experimental results by making them more objective, precise, and scientific.

Statement of the Problem

Music educators have not provided enough direction for music programs for the disadvantaged, and specifically for Head Start programs. The philosophical concern of the music education profession for "music for every child and every child for music" has not yet taken shape in actual practice. The writings and research in music education have focused on elementary through adult education, with little concern for the general student, especially at the preschool level. Still less attention has been given to music for the culturally disadvantaged by professional educators.

Although the last decade has witnessed a marked increase in curriculum development, evaluation, and measurement of various aspects of musical learning and ability concerning preschool children, "researchers in preschool music education have given little attention to the problems of measurement and evaluation in the field." Since
early childhood education can potentially have such a great effect upon the child's future growth, the types of materials and activities used must be constantly evaluated to show rate of progress, to evaluate the educational process, and to motivate student learning. Of the several published preschool music programs, apparently none have accompanying data concerning reliability or validity.

**Significance of the Problem**

Marvin Greenberg, Associate Professor of Education and music specialist at the University of Hawaii in Honolulu, has done extensive research in the field of preschool music education with particular attention to the culturally disadvantaged preschooler. Therefore, it seems appropriate that his curriculum be further evaluated and validated. The Greenberg curriculum includes the areas of singing, playing instruments, listening, creating, and rhythmic movement, as do many other preschool curricula which have appeared since 1970. However, the Greenberg curriculum is apparently the only one which was specifically designed with the culturally disadvantaged particularly in mind and stresses the five areas mentioned above; the Greenberg curriculum also includes extensive evaluation suggestions. Furthermore, each concept presented in the Greenberg curriculum is broken down into its simplest components, since it cannot be assumed that culturally disadvantaged children have had previous musical experiences at preschool age levels.

Because of adverse environmental factors causing a negative self-concept, culturally disadvantaged children often enter the first grade significantly less prepared in music and other subject
areas than their advantaged counterparts. Evaluation which is structured to promote successful experiences for the student can be a primary source of motivation for learning through creation of a positive self-concept.

Delimitations

This study used the Music for Preschool manual of Marvin Greenberg as the basis for instruction and evaluation of eighty-five culturally disadvantaged three- and four-year-old children attending the McKinley Head Start School in Baton Rouge, Louisiana, from August, 1977, to November, 1977.

Definition of Terms

The term "culturally disadvantaged" is used to denote individuals or groups of people who, regardless of race, residence, or occupation, are deprived of the means to reach the human goals of physical comfort and survival, a feeling of potency, a positive self-concept, and concern for the common good. This deprivation results in or stems from cultural trends and goals that are different from those of the dominant culture (middle class).

"Self-concept" can be defined as "that organization of qualities that the individual attributes to himself, or one's attitudes and beliefs about oneself."

Method of Research

This study used the experimental approach to research. The design employed a control group of forty-two students with twenty-three children in one class and nineteen in another, and an experi-
mental group which contained forty-three students, with twenty
children in one class and twenty-three in the other; the total
number of subjects was eighty-five. These students were three- and
four-year-old children attending the McKinley Head Start School in
Baton Rouge, Louisiana.

As a pretest, an investigator-constructed test was admin­
istered to each child individually. Then, thirty lessons, twenty
minutes each in length, were taught to the experimental classes on
a daily basis. This type of research is one of several recommended
by Campbell and Stanley and is called the static-group comparison.
"This is a design in which a group which has experienced X is compared
with one which has not, for the purpose of establishing the effect of
X." Approximately six weeks after the pretest had been admin­
istered, the thirty lessons were completed and a posttest, identical
to the pretest, was administered to each child individually. Fisher

tests were used to measure the significance of the differences
between mean scores.

The following null hypotheses were assumed and tested at the
.05 level of significance. There will be no difference between
means of:
1. Pretest scores within or among experimental and control groups
   for the total test or any subtest
2. Posttest scores within or among experimental and control groups
   for the total test or any subtest
3. Pretest and posttest scores of subjects for the total test or
   any subtest
4. Pretest and posttest scores of subjects that can be attributed to the sex of the children

5. Pretest and posttest scores of subjects that can be attributed to previous school experience

A sixth null hypothesis stated that there would be no relationship between scores of subjects and number of days absent.

**Development of the Remainder of the Report**

The material presented in this study is organized in four remaining chapters. A review of the literature pertaining to preschool children in general, preschool music education, the culturally disadvantaged child in general, and music education for the culturally disadvantaged preschooler is presented in chapter 2. Chapter 3 contains a description of the procedures that were followed in the development of the study. Criteria concerning test reliability and validity are also included in chapter 3. An analysis of the data collected and other observed findings are presented in chapter 4. A summary, conclusions, and recommendations are contained in chapter 5.
Notes


2 Ibid.


13 Ibid.
CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

"An increased enrollment of over one million children attending public and private preschool programs occurred from 1964 to 1972. During this same span of time, the three- to five-year-old population decreased by more than two million." Some of the general philosophies and findings that generated this rapid expansion will be reviewed in this chapter. Implications and applications of these philosophies will be related to music in preschool education for all children and for culturally disadvantaged children in particular.

Orff, Kodaly, and Dalcroze began their methods of music education around 1900, and each emphasized the need for education to begin as early in life as possible. Since that time, many music educators have adopted and/or adapted portions of these three approaches in their writings, while other writers have developed distinct approaches of their own. Studies in concept development have indicated that very young children have the potential to develop skills such as matching pitches, keeping the beat, clapping rhythmic patterns through imitation, and singing songs within a limited range. Young children seem to do better in aural discrimination if
they have had previous training.  

Apparently, Greenberg's curriculum is the only published full music program intended especially for use with culturally disadvantaged children. Part of the reason for the sparsity of literature in this field results from the educators' insufficient understanding of social and environmental factors which often adversely affect the learning process of these children. Therefore, general information concerning these circumstances are included in this chapter. But, to adequately eliminate the problem of lack of adequate teacher preparation, ineffective method courses for prospective teachers must be reorganized to include classroom contact in urban situations, even if this necessitates exchange programs.

Further research in the field of music education for culturally disadvantaged preschoolers is likely to show positive results, because, in general,

preschool programs have been successful in changing intellectual and social behavior of disadvantaged children in positive directions.

... Experimentation is necessary to find the conditions for optimal performance at different ages and with different kinds of children. Instruction can then be planned in accordance with findings.

Child Development and Importance of Early Education

"Recent psychological studies have convincingly established that the ages between three and seven are more important in education than the years following." Bloom reinforced the fact that early childhood education can have a tremendous impact on future growth with the following statement:
In terms of intelligence measures at age 17, about fifty percent of the development takes place between conception and age four, about thirty percent between ages four and eight, and about twenty percent between ages eight and seventeen. Jerome Bruner went even further to say that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development." More recently, Hess and Croft augmented the philosophies of Bloom and Bruner by declaring that what is learned first stays longest and is most difficult to extinguish. . . . Because they are novel experiences, whatever we learn first is likely to make the greatest impression on us. Also, once we learn something, and especially patterns of behavior, it is more difficult to learn and do the same thing in another way.

Considering the amount of material a student must learn, Bruner suggested that the discovery method is often too time-consuming; therefore, a balance between the discovery method and the inductive method of teaching is often desirable. Rigorous and relevant early training must be administered in order to make later learning easier. But in order for training to be relevant, it must consist of knowledge that is usable and has a great impact upon a child's memory; unconnected sets of facts will hardly be remembered. According to Bruner, usable knowledge will hold a child's interest, and "interest in the material to be learned is the best stimulus to learning."

The concept of spiral curriculum maintains that "later teaching is built upon earlier reactions." Self-instructional materials can help provide these early reactions through immediate correction or feedback to the student while he is in the act of learning. Bruner further believed that children are always ready
to learn, but the teacher is not always ready to understand the children's cognitive level and provide education according to the children's viewpoint of reality.\(^{14}\)

The teacher's task as communicator, model, and identification figure can be supported by a wise use of a variety of devices that expand experience, clarify it, and give it personal significance.\(^{15}\)

Some of Piaget's key ideas about how children learn are:

1. The mental structures of children are different from those of adults. They are not adults in miniature; they have their own distinct ways of determining reality and viewing the world.

2. Children's mental development progresses through definite stages. Those stages occur in a fixed sequence—a sequence that is the same for all children.

3. Although the stages of mental development occur in a fixed order, different children move from one stage to another at different ages. Further, a child may function in one stage for some matters while he functions in a different stage for other matters.

4. Mental development is influenced by four interrelated factors: (a) maturation, (b) experience, (c) social interaction, and (d) equilibrium.

5. For teachers, the three stages of mental development of children are especially important: (a) intuitive thought—ages four to seven, (b) concrete operations—ages seven to eleven, and (c) formal operations—ages eleven to fifteen. In the intuitive thought period, which is often also referred to as the pre-operational stage, children reason and explain on the basis of
intuition or "hunches" instead of logic. They are very poor at:
(a) expressing order of events, (b) explaining relationships,
especially numbers and their relations, (c) understanding other
speakers accurately, and (d) understanding and remembering
rules
6. Children's mental development imposes definite limitations on
what they can learn and on how (the conditions under which)
they learn
7. Thought grows from actions, not from words
8. Knowledge cannot be given to children. It must be discovered
and constructed through the learners' activities. Learning is
divided into two categories: (a) transmission of culture, which
is passively received through daily contacts with family, society,
and school, and (b) cognitive development, which is intellec-
tual development of cognitive structures
9. Children learn best from concrete experiences
10. By nature, children are continually active
Children must act. Seldom are they inactive for more than a
few minutes during their waking hours. To force them to be
still and quiet in school goes strongly against their natures,
and is bound to result in a struggle between teachers' wills
and students' needs...
... The classroom should be arranged and equipped to
enhance an activity-oriented curriculum.
The concept of an open education learning environment is
based on Piaget's philosophy that "learning is something that a child
does rather than something that is done to him." Playing is a
child's way of "working" and learning. Thus, an open education
classroom has an environment that is deliberately designed for
explorative and discovery activities.  

The teacher's main job is not to transmit knowledge. Rather, it is to ensure that children act, physically and mentally. . . . Individualization should be thought of as attempting to do what is best for each child. . . . At times this will be group activity, at times it will be individual activity.  

Concerning the child's attention span, Piaget conceded that it is true that the attention span of children is short when attention is forced and tasks seem dull. However, the same is true for adults. "But children will pay attention and work long at tasks that involve objects to manipulate, bodily movement, and talk." They will attentively watch and listen to presentations that use many different sounds, movements, and colors. "In short, children will work hard at what adults call play. They don't make distinctions between the two at first; some things are worth doing, others simply aren't." 

Sheehy believed that the more the internal growth of a child can be stimulated, the more effectively he will learn. She agreed with Piaget that a source of this stimulation is "the encouragement of diversity (as) a potent method of developing new interests." Furthermore, she recommended that the total environment—personal, physical, home, school, and play—be involved in the stimulation and nourishment of discovery. 

Because a child's reasoning is neither inductive nor deductive, it is illogical by adult standards. Therefore, only the child himself knows how he perceives things, and, according to Andress, he must be left in control of his own learning with the teacher as a model. Andress maintained that the child does not learn through any one approach at a particular time, and so "each experience must
be thought of as a whole rather than as a part of a whole.\textsuperscript{28}

The highly imaginative nature of a child can animate objects as well as make one object become another; for example, pencils can be cars. His level of excitement and curiosity is very high and he imitates spontaneously and unconsciously. His remarkable imaginative abilities allow him to be able to create without inhibition.\textsuperscript{29}

There is wide disagreement as to the best type of program for the preschool child. Traditional approaches stress development of the "whole child" socially, emotionally, and mentally; the importance of play is emphasized. Recently, however, many newer programs are placing greater emphasis on cognitive training and development. Among these types of programs, some are highly structured and emphasize drill, while others advocate the discovery method of learning.

Proponents of cognitive programs claim that traditional programs may provide only pleasant custodial care and not prepare children—particularly disadvantaged children—for the tasks they soon will face in regular school classrooms.\textsuperscript{30}

On the other hand, cognitive growth programs have been criticized as being too authoritarian and conforming.

Many new programs include working with parents so that they, in turn, can work more effectively with the child. This approach is based on the theory that "only parent interest and involvement can sustain intellectual growth, given the fact that the strongest influence and emotional ties are found in the family rather than in the school."\textsuperscript{31}

Contrary to Piaget's sequence of developmental stages, some of
today's psychologists are emphasizing the fact that all aspects of development are neither fixed nor necessarily orderly. ... Children grow and learn at different rates and use different styles of learning at each level. ...

... Child development consists of mental, social, emotional and physical growth. Any child can be above or below the norm for any one of these characteristics.\textsuperscript{32}

**Relationship of Development to Musical Potential in Preschoolers**

"The entire musical development of a child is influenced markedly by his musical experiences in his pre-primary years."\textsuperscript{33}

Piaget's theories imply that music must be learned through action and manipulation in order to be meaningful. However, some limitations in the child's thought patterns must be recognized:

1. Concreteness—he wants to play an instrument himself so he can "know" the sound

2. Irreversibility—if the tempo is changed, he thinks the whole tune is new

3. Egocentrism—he likes a song better sung his way

4. Centering—once he masters the feeling for the beat, he loses the melody

5. Stasis versus transformation—he thinks the whole song is new if only the accompaniment is changed\textsuperscript{34}

It has been acknowledged that children learn the fastest through the media of play; some musical ingredients of play are:

1) repetition, 2) movement, 3) language—rhymes, nonsense, and teasing verses, 4) rhythm, and 5) doing two, three, or four things simultaneously,\textsuperscript{35} such as clapping and speaking. Combining various phases of music with each other adds depth to the child's understanding. For example, the child can play, sing, listen, and move
to music interchangeably. 36

The exploratory nature of a young child necessitates exposure to a variety of musical experiences; development of musical concepts and performance skills should be integrated in these experiences. Since young children do not understand which things in their environment are momentary and which ones will remain constant, they are much more inclined to experiment than are the older children. Thus, the use of "background music to control noise has often proved unsuccessful." 37

A young child's thinking is related to his actions since verbal communication is limited. Therefore, music is best learned through sensorimotor experiences (action and manipulation) in which symbols do not appear until the child has formed aural, kinesthetic, and visual images. 38 "Many children have spatial concepts of high and low and up and down. Relating these spatial concepts to the musical equivalents is often quite difficult." 39 Consequently, visual representations of high/low, up/down, long/short, and fast/slow should be provided for young children since they tend to confuse the terms aurally. For example, a three-year-old child may associate the term "low" with "little" as he relates it to himself. Thus, many purely verbal methods have failed to provide transfer of training in young children. Terms very often confused are high, loud, and fast, or low, soft, and slow. 40

The child who finds difficulty verbalizing his reaction to music may have no difficulty demonstrating his feelings about it through movements of his entire body. . . . The socialization process, the manner in which all children come to know and understand themselves in relation to other children, is eased through the expression of emotion through motion. 41
With motion, as with all activities, "specifics and boundaries are essential for the well-being of the young student. Lack of specifics often causes the learner to flounder and withdraw. Lack of boundaries often takes away his willingness to explore, and lessens his security." Children need specific direction and encouragement by the teacher in order to develop heuristic techniques for further cognitive and affective growth. Children learn best when there is a balance between teacher-structured and child-structured activities. "If the answer is supplied at once, rather than explored further, closure occurs in the child and generally he turns to something else. The effective approach then is: don't tell! Ask!"" With musical activities, the teacher must "preplan and select activities that will entice children to make self-discoveries related to the outcomes she has in mind." She must also apply the same learning principles to different ages while changing only the content. Materials should become "more complex and sophisticated as abilities to discriminate become more refined." Helping a child become aware of his inner responses to music is a first step in the development of his ability to make aesthetic judgements. However, it will be quite some time before he acquires standards of artistic excellence to the degree that he can truly decide whether or not he likes a particular work. Children need guidance also in this development of "awareness of inner response to external stimuli (How does it make you feel?)."

**Role of the Classroom Teacher**

A questionnaire poll of over two hundred nursery schools,
taken in 1969 in the San Francisco Bay area, showed that thirty-eight percent of the teachers felt their music program was inadequate. Twenty-six percent felt that their program was adequate; twenty percent said that their program was good; less than nine percent felt that the program in their school was excellent; and music was nonexistent in two and one-half percent of the schools.

The lack of creative approaches to musical activities was found to be the greatest weakness. Sixty-seven and one-half percent reported that their children were strongly motivated toward musical activities as evidenced by highly responsive attitudes. Other responses showed:

1. Limited experience with melody instruments
2. Sixty-seven percent with only average to above average experience with rhythm instruments
3. Rather limited repertoire of appropriate songs
4. Fair ability in singing accuracy
5. Moderate sense of rhythmic coordination

The wide gap between the children's interest and capabilities was due, to a great extent, to the inadequacies of the teachers. Many teachers reported that they felt "uneasy" or "afraid" with regard to classroom musical activities.

The questionnaire further indicated that many teachers felt that musical training was the weakest part of their preschool training. In fact, it was nonexistent in some curricula and only mentioned as being important. Therefore, music was felt to be a difficult task that had not yet been mastered rather than an enjoyable experience.
Areas which needed the most improvement were:

1. Building a song repertoire
2. Encouraging creative expression
3. Learning simple skills of accompaniment

The autoharp was named as the favorite accompanying instrument.

The overwhelming response to the question "How could a nursery school music course be made really meaningful for the trainee?" was to provide opportunities for prospective teachers to directly participate in preschool music activities. Others felt that technical aspects of music were stressed to the point that daily application procedures were neglected. The areas of creative rhythms, use of recordings, source materials, and development of a "relaxed, playful, flexible, and enthusiastic attitude toward music" also required more attention.

The situation had changed very little in 1977, as verified by Greenberg's statement that "while the desire to teach music to children is there, the problems seem overwhelming due to lack of teacher preparation in music education, the paucity of music education curricula for young children, and poor financial support for many early childhood programs, resulting in inadequate space, facilities, equipment, and materials for music education." 50

The non-musician classroom teacher must be convinced that she is the one (and not the music specialist) who can best work with preschoolers in music. "In the school environment, there is no one who knows (the children) like she does; there is no one who can help them grow and learn like she does." 51 Regardless of the classroom teacher's strengths and weaknesses, she knows what has
gone before and what is coming later. However, Thomas proposed that, rather than thinking of teaching music, the classroom teacher must approach musical activities as using, enjoying, and sharing them.\textsuperscript{52}

According to Thomas, music must not be thought of as an "optional extra" by the classroom teacher; no preschool teacher would say "I'm sorry, I can't paint or color;" it is part of the job even if she has never studied art. But too many teachers are self-conscious about raising their voices. The rare teacher who absolutely cannot sing can use records. Autoharp or unaccompanied singing can and should replace pianistic skills. Most of all, the teacher must risk trying, and confidence will build; everyone can grow in ability to look, listen, and discover.\textsuperscript{53}

Planning is very important as an aid to building confidence; some sources of assistance are: 1) music specialists, 2) older, more musically gifted children, 3) adult volunteers, 4) recordings such as those by Ella Jenkins (Folkways recordings), 5) workshops and in-service training, and 6) books. Even kindergarten and first grade song books present many elements of a course in music teaching.\textsuperscript{54}

Daily instruction in music is necessary for young children, with the classroom teacher being responsible for music education of the three- to six-year-olds "as a basic subject in a flexible, unified, and integrated curriculum."\textsuperscript{55}

\textbf{The Open Classroom Concept}

In addition to being an independent subject, many music educators believe that music can contribute to the young child's development by enhancing learning in all subject areas--science,
social studies, language, health, safety, and mathematical concepts. Nye believed that the open classroom approach is the most effective for young children. In the open classroom, the teacher relies heavily on small group activities, individualized assistance, and only brief periods of activity with the whole group. Participation by small groups has the goal of making music "so relevant and attractive that others will join the group."

Although open education emphasizes the process of learning, it does not de-emphasize specific content. It is a flexible approach to learning in which the teacher acts as a guide in encouraging the child to develop his interests and his own ways of learning. The curriculum takes advantage of the interrelationships of all subject areas.

The basic rational for the development of the open classroom (also called the "integrated curriculum" and the "whole child") approach to learning for children is that the child is not a compartmentalized being in whom there are divisions labeled music, language arts, movement, and social studies. He is a fully integrated person in whom physical, social, emotional, and intellectual aspects interact upon each other and in whom there is not subject matter per se but total experience instead.

However, while planning for integrated experiences, specific objectives for various subject areas must also be incorporated.

In 1960, MENC advocated music throughout the day in an integrated program to help the child's understanding of the significant role music may play in his life. When a child is able to respond and to interpret an experience through music, "the response becomes, to the child, not only an extension of learning, but also
part of the discovery of how music is made and the role that it plays in our lives.\textsuperscript{59}

Numbers concepts can begin with a three-year-old learning to count to two through stepping and singing to his steps. Volume, size, weight, shape, and color can be learned through games such as "Who has the red square?" or "Blue (section) sit down and red stand up," as directed in song by the Hap Palmer record series.\textsuperscript{60}

Since 1972, Andress,\textsuperscript{61} P. Andrews,\textsuperscript{62} Butler,\textsuperscript{63} Crews,\textsuperscript{64} Graham,\textsuperscript{65} Greenberg,\textsuperscript{66} Hess,\textsuperscript{67} Mulligan,\textsuperscript{68} and Nye\textsuperscript{69} have stressed the strong contribution that music makes to other areas of learning. Some suggestions are:

1. Music can help give a historical understanding of other peoples
2. The social studies unit may include music of other countries for insights into international groups
3. A science unit may include a demonstration of how the pitch of the violin is lowered or raised by the amount of tension on the string or position of the fingers. By looking inside the piano, the child can compare size and length of the strings to pitch
4. Folk music and literature give the child an authentic means of discovering knowledge of other cultures
5. Concepts about the physical environment such as "valley" may be explored with "valleys" of silence between "mountains" of sound in recordings
6. Earth science topics of satellites and evaporation can be explored through creative and imaginative activities such as tiptoeing in large circles or comparing evaporation to music that "fades out" or diminishes in sections
7. Mathematics and music may be integrated with the following concepts: (a) categorizing and classifying can be associated with grouping percussion instruments according to tone (dry, sustained, ringing, or clicking), or manner of production (hit, tapped, or shaken), (b) associating can be related to instruments, environmental sounds, or voices, as the child recognizes the instrument by sound with eyes closed, and (c) counting and sequencing can be combined with music in songs and games such as "This Old Man," "Ten Little Indians," or "Ten in a Bed".

Gelvin proposed a related arts program to begin perceptual awareness in early childhood. The goal of this approach to education is to encourage affective and cognitive factors in decision-making and in aesthetic judgments. The four basic art media which can be combined to form multimedia experiences are: visual art (organized image), dance (organized movement), music (organized sound), and language (organized word).

Other areas of learning that are enhanced by music are:
1. Creativity—through exploration, experimentation, and expression
2. Language—through verbal or musical communication
3. Physical—through movement exploration
4. Social—as children learn to get along with others, cooperate, and share, particularly in group activities
5. Independence—through expression and control
6. Cognition and perception—as children learn to think and solve problems through skill development, classification, identification, and comparison of sounds, instruments, and musical concepts
7. Aural comprehension—through listening as a necessary skill in music and language

8. Self-concept—as children learn to appreciate themselves through their musical accomplishments

With music, "the withdrawn child tends to relax his guard and is more ready to participate with others, while the hostile child seems to be less aggressive." Children's natural, physical release of energy is inherent to music, as is the emotional release of energy that children have not yet learned to verbalize or understand themselves. Frightening experiences, such as encountering large animals, being left with a stranger, or being left alone in the dark, may cause emotional responses in children which are expressed through musical activities.

Dalcroze, Kodaly, and Orff

Dalcroze maintained that all the rhythmic elements in music were originally formed after the rhythm of the human body; therefore, rhythmic movement is a natural starting point for music education. In order to have a balance of these fundamental faculties, an individual must begin at an early age so that fundamental movements may become habitual to the body.

Dalcroze recognized that human life is characterized by rhythm: 1) the heartbeat, 2) breathing, 3) walking, and 4) rhythm as motion. The first thing each person is asked to do after entering the Dalcroze school in New York is to listen to his heartbeat. The child experiences an interrelationship between time, space, and energy as he coordinates his movements with the music. For
example, the child experiences the dynamic level of "soft" while walking on tiptoe; he also discovers that a minimal amount of energy is necessary to produce this effect.76

One major qualification necessary for the "pure" Dalcroze teacher is the ability to improvise at the piano in order to change moods, tempi, and all other expressive aspects of the music with the responses and movements of the students. Improvisation and ear training are stressed in the complete form of the method. Improvisation should begin with rhythms of natural body movements such as walking, running, jumping, and skipping. Movements are to progress naturally from simple to complex.77

The general aims of nursery school music in the Kodaly method are "to increase the child's liking for music, to help him sing in tune, to increase his sense of rhythm and beat, and to begin to develop in him a sense of musical discrimination."78 The method is based on singing, which children do instinctively; but the small child must learn songs "in the spirit of folksongs" with rhythmic simplicity and a narrow range, seldom to exceed six notes. The suggested sequence to follow is: so, mi, la, do, re. With these five notes, the pentatonic scale is completed. Fa and ti are introduced later because Kodaly found that half steps were very difficult for young children to sing in tune. Descending tones were easier for the young children to sing than ascending tones, and skips were easier to sing in tune than steps. Rhythmically, duple meter is considered the most natural and should be introduced first, with the quarter note in walking tempo, followed by eighth notes in running tempo. These values are represented by the syl-
lables "ta" and "ti" respectively, and should be voiced and not written as words. 79

The approach of Carl Orff is based on the idea of "elemental" music, where music, movement, and speech form an inseparable unity. Orff's pedagogical works are contained in his Schulwerk (five volumes of music for children); Orff suggested that children should be exposed to its contents as early in life as possible. Instruments are used from the earliest sessions. One basic principle of the approach involves simple motives which are taken, repeated, and built upon. According to Orff, rhythm is the strongest of the elements of music. His philosophy contains the belief that the child must develop the musical skills of "hearing, recognizing prescribed melodic intervals, and recognizing and playing the prescribed instruments." 80 However, the Schulwerk was not conceived to be a full course in music education by itself; means of implementation were left up to the teacher.

Speech is a definite part of Orff's plan because he felt that a natural progression from speech patterns, to rhythmic patterns, to singing was the most natural for children. Rhythmic activities begin with the four body rhythms: clapping, stamping, finger snapping, and Patschen, and then proceed to the playing of instruments. Orff did not avoid complex or polyrhythms because he felt that normal speech patterns contain these complexities. Other aspects of music are also introduced through speech and rhythms. These include phrasing, dynamics, legato and staccato articulation, repetition, contrast, and form.
Orff believed that melody grew out of rhythm; the first singing experiences should resemble playing games of a singing dialogue. The teacher must encourage rhythmic chanting of the children's names using the same sequence of pitch presentation that Kodaly suggested.

Movement in Orff's approach begins with untrained, natural and elemental movements of children. The teacher must encourage such movements as running, jumping, skipping, and turning. Freedom should be allowed in order to avoid inhibition and to foster enjoyment. Two or more of the four body rhythms may be combined and then, after a desirable amount of coordination develops, these body rhythms can be transferred to untuneable instruments.

Orff advocated the development of the child's creative abilities through improvisation—usually through active participation in performance with Orff instruments. The instruments used in the Orff approach were chosen with the possibility of improvisation in mind and were designed for only large muscle movements. Included are the soprano, alto, and bass metallophone; soprano and alto glockenspiel; soprano, alto, and bass xylophone; drums; cymbals; castanets; triangles; wood blocks; and rattles. Recorders are also used, but are not appropriate for preschool children because of their difficulty.

In the last few years, Monsour and Findlay have developed curricula which follow almost exclusive Dalcroze principles, while Richards and Szabo have patterned their curricula after the philosophies of Kodaly. The Kodaly Musical Training Institute
reported in 1975 that it was not yet ready to publish any definitive preschool curriculum: "such a vast project is still in an experimental, formative stage." However, results of their preliminary work indicated that games, movement, and dramatic play help develop better motor skills, coordination, and awareness of body movement. According to the Institute, basic goals of early childhood education should be the development of concepts concerning feeling for the beat, high/low, loud/soft, strong/weak, fast/slow, and short/long.

Although the second edition of *Threshold to Music* by Kidd was "greatly influenced by the pedagogy of Zoltan Kodaly," it did not comply with Kodaly's basic belief that melodic experiences should begin with the pentatonic scale in order to avoid the difficulty in singing the half steps between mi and fa and ti and do. In lesson 1 of the Kidd edition, two of the three songs presented ("See Saw Marjorie Daw" and "London Bridge") contain semitones.

As in the first edition by Richards, the second edition of *Threshold to Music* used charts instead of books to help the teacher "pinpoint class attention on concepts presented." By using charts, the level of music literacy can be raised without concentrated eye involvement with a score. Thus, literacy, which Kodaly stressed as being a glaring weakness of many music programs for the young, can be gradually overcome.

**Other Unique Approaches**

The Montessori method of motor sensory and language education stresses guided discovery through a prepared environment. Montessori was one of the first to develop the concept of a pre-
pared environment; it was an outgrowth of her work with young children in Italy which began in 1906. An age span of three years was suggested for each Montessori classroom; this would enable the older children to reinforce their learnings while teaching their younger peers. Although the implied music program stresses teacher guidance and music literacy, information in this area is limited.

In a pilot project at a large Harlem day-care center, Madeline Carabo-Cone structured a learning environment with homemade materials, transforming the room into a giant "think tank." The sensorimotor approach of Carabo-Cone is based on a structured environment of movement, games, and play. The children encountered the Grand Staff everywhere, including the floors, walls, and tables. The staves on the floor were very large and notes were paper cut-outs as large or larger than the children themselves; straight sticks and circles represented notes. Her rational for using notation at the preschool level was that Piaget noted that even infants could discriminate between sticks and circles.

The Grand Staff and its notation became an environment into which the children were "born." The children also became acquainted with such words as above, below, in, on, between, nearest, higher, and lower. The giant staff acted as a "mental gymnasium" for developing perceptive skills and basic concepts for music and other academic subjects. Identification activities were played in which children themselves represented the notes or "became" a staff, feeling imaginary staff lines at their feet, knees, waist, neck, and at the top of their heads.
Creatively, the children composed melodies out of themselves, since each one was a tone represented by a location on the staff. Thus, the learning environment was absorbed naturally as the children became an integral part of it. Contrary to many other philosophies of music education for preschoolers, Carabo-Cone declared that actual knowledge of notation could increase the enjoyment of music "if it is taught as a visual stimulation to increase auditory sensitivity."

The Manhattanville Music Curriculum Program (MMCP), which is an exploratory approach for early childhood and the primary grades, maintains that notational complexities often destroy curiosity and interest. The MMCP begins by stressing manipulation and organization of sound in exploration with the teacher's assistance. Goals of the early childhood music curriculum are: 1) experience, 2) development of sensitivity to sound, 3) understanding of basic musical concepts, 4) acquisition of simple skills, and 5) development of a positive attitude toward all musics and self. The creative process is advocated for most activities and is outlined as: 1) free exploration, 2) guided exploration, 3) exploratory improvisation, 4) planned improvisation, and 5) reapplication.

The Contemporary Music Project for Creativity in Music Education (CMP) stresses achievement of competencies rather than just covering material. The Project concerns itself with "the extent and nature of the relationship of contemporary music to music education on all levels." Two of its major activities are: 1) a composer-in-residence program for public schools and 2) a library of contemporary music scores for music educators' use.
Eclectic Approaches

In the United States, where there is a multiplicity of educational programs that encompass "differences in culture, locale, individual learning, diversified goals, school organization, learning environments, and professional resources, only a highly diversified curriculum can possibly function." Furthermore, American music educators embrace the philosophy that music of all native ethnic groups and world cultures must be included in curricula for all children.

In an eclectic curriculum, skills and understanding must be emphasized through analytical concepts (rhythm, melody, harmony, form, tone color, dynamics, and style), associative concepts (music in history, society, and the individual), and musical processes (singing, listening, rhythmic movement, playing instruments, and creating). Many writers have combined elements of Orff, Kodaly, Dalcroze, and others in an eclectic curriculum.

As early as 1929, Thorn suggested use of Orff instruments, bells, tuned water glasses, and tambourines for use in classrooms with young children. She suggested the following activities using three of the five musical processes mentioned above:

1. Singing. (a) divide large group into smaller ones, (b) give individual attention to "non-singers," (c) use musical games, musical conversations, and dramatic play
2. Rhythmic activities. (a) elicit active responses, (b) use toys such as see saws, swings, building blocks for concepts of high/low, and rope ladders, (c) recordings of all types and of good
tone quality should be used, (d) use piano to adjust to the
children's movements. Precaution should be taken that the piano
does not become a necessity, but is only a source of help, and
(e) use dramatic play.

3. Playing instruments. Activities should begin with sound explo­
rati on of environmental sounds with spoons, nails, boxes, beads,
rubber bands, horseshoes, and other items.

In 1933, Hissem discussed pitch and rhythm responses of
young children, while in 1936, Fox encouraged creativity at all
levels, even if the creation was one or two measures long, as was
very often found to be the case with preschoolers. She went further
to say that the preschooler's songs are often fragmentary, frequently
consisting of only two or three words, and seldom make a complete
sentence. Then, in 1947, Flagg discussed four of the musical
processes; creativity was not mentioned as a specific category.

By 1959, the five categories of singing, listening, rhythmic
movement, playing instruments, and creating were advocated by
Ellison. In the 1960s, curricula which include suggestions for
all five musical processes were written by Wilson, Aronoff, and Sheehy.
In addition, Aronoff emphasized Dalcroze concepts while Sheehy viewed dance as a separate category. Also, Saffran focused on movement, rhythm, and listening, while Swanson emphasized movement and singing.

The 1970s have seen a vast increase in curriculum develop­
ment for music with young children. Greenberg, Batcheller, Nye, Baker, and Andress have developed programs specifi­
cally for the preschool child, using the five musical processes. Writings by Hess and Croft,¹¹⁴ Hood,¹¹⁵ Smith,¹¹⁶ Nash,¹¹⁷ Garretson,¹¹⁸ Wheeler and Ræbeck,¹¹⁹ and Nye and Nye¹²⁰ have given suggestions concerning the musical processes as they relate to preschoolers; these works were written for use with young children, but not exclusively for those of preschool age.

The Young Child's Singing Voice

"The child, by nature, would sing before speaking, except that our culture negates this."¹²¹ Singing is a natural and emotionally satisfying experience for children; it is initially learned through imitation of mothers' lullabies or from the singing of other family members. Thus, children can learn quite naturally, just as they learn to speak naturally.

Development of the child's vocal apparatus will occur only through maturation. Therefore, adult standards of a good singing voice should not be imposed on children; this voice quality "should be light, clear, and flutelike."¹²² Garretson suggested that the "oo" vowel sound is helpful to develop the desired quality.¹²³ In early childhood, a few children have very low singing voices; this is probably because they are imitating a low, adult voice. "Very seldom do children sing extremely low tones just because they are physically unable to sing higher ones."¹²⁴ The range of three-year-olds is often d¹ to a¹. These children are seldom successful with higher notes until ages four through seven. There is a noticeable advancement in the four-year-old's ability to control his voice and sing in tune. However, in the beginning of
the school, most children will not be able to sing on pitch. Improvement in their ability to sing on pitch usually develops as the year progresses.\textsuperscript{125}

Labels for developmental stages of growth and control of the singing voice may be as follows:

1. Reproducing singers: children who have developed control over their singing voices, who can both sing spontaneously and reproduce a given melody
2. Spontaneous singers: children who have developed enough control over their singing voices to sing spontaneously, but not enough to be able to reproduce a given melody
3. Experimental singers: children whose control over their singing voices has not developed to the extent that they sing spontaneously and who are also unable to reproduce a given melody.\textsuperscript{126}

Nursery school children are usually spontaneous singers, although a small group may still be experimental singers. According to Ellison, most children have developed to reproducing singers by the age of eight.

Some causes of the child's lack of ability to "find" his singing voice are 1) physical immaturity, 2) lack of experience, and 3) psychological blocks. While some nursery school children have benefited from listening to their own record collection, children's programs on television, and other types of music, other children have either not had the same opportunities or have not benefited from them because of lack of interest. Some techniques to help develop in-tune singing and accurate pitch discrimination are:

1. Children imitating sounds of sirens, birds, crying puppies, or the wind
2. Teacher singing with the child on the child's pitch level
3. Evaluation of performance of in-tune singers by out-of-tune singers

4. Soft singing into the child's ear by the teacher

5. Complimentary remarks

6. Placement of out-of-tune singers next to strong singers

7. Use of repeated song fragments

The development of good standards becomes possible once children begin to sing enthusiastically; enthusiastic responses and requests show that children like a song and therefore want to sing it often.  

The child will not be able to use his singing ability fully unless he learns to sing without assistance from adults, accompaniments, or other children. He must develop confidence in his ability to sing alone. Therefore, portions of each music class should provide the child with the opportunity to sing for his peers. This will also help the teacher in evaluative processes. Assisting the child in developing ability to differentiate between his playground voice and singing voice may enhance singing ability through awareness.  "The teacher should discover whether the child is singing at home. The extent to which a child is transferring his song repertoire to other situations will show the extent to which he is becoming an independent singer."  

Before presenting a new song to the class, a motivating introduction with a picture, story, questions, or discussion is very helpful. The children should also be asked to listen for something specific before the first listening. Then, the song is to be presented in its entirety and sung through several times, depending
upon the group's "readiness to participate." This whole-song method might be used in the initial presentation of the song, but after several times through, the phrase method may be more beneficial to attack certain problem areas. However, "prior to each repetition, the teacher should provide the class with a reason for the repetition." Since voice ranges increase with bodily maturation, the average range of a song should be considered more carefully than an occasional high or low note. The teacher must adjust to the range and quality of the children since they will most likely imitate her.

Possible sounds for vocal exploration include sighing, grunting, hissing, moaning, sneezing, and laughing. Because vocal sounds are readily available to all children, the teacher should encourage them by asking for a vocal reaction to a given situation such as being angry, or receiving an ice cream cone. Single words may be spoken or sung to show concepts of beat, rhythm, ritardando and accelerando (getting slower/getting faster), articulation (long/short), pitch (high/low), dynamics (soft/loud), or tempo (fast/slow).

Other Suggestions

All of the musical processes are interrelated and each can help the development of the other four areas. For example, listening is essential for all activities; creative experiences may consist of singing, playing instruments, and rhythmic movement; playing instruments and rhythmic movement often occur simultaneously; and rhythmic movement may accompany singing. New activities must
include familiar concepts because "children are motivated by a
challenging experience when they discover that a familiar element is
present in the new situation." ¹³³

Most writers agreed with Hood that "instruments for use in
the classroom must be of excellent quality, with accurate pitch and
musical tone quality if they are to develop skill and taste in
children." ¹³⁴ Autoharp exploration can begin at age four or five
with the child strumming as the teacher depresses the keys. The
autoharp should be placed on the floor or table without having the
children attempt to hold it. Triangles, small cymbals, and other
instruments may be frustrating to many preschoolers because large
muscle movements are easier to coordinate than movements of the hand
or fingers. The teacher must keep in mind that control of large
muscles develops in children before control of small muscles. ¹³⁵

"The making of rhythm instruments is a valuable activity
and should be part of all preschool programs. However, this is
essentially an art activity or a science activity and should not
take the place of the daily music experience." ¹³⁶ An advantage of
homemade instruments is that the child will be more highly motivated
to use an instrument of his own creation in musical activities.

All experiences in rhythmic movement should emphasize response
to music through bodily response. Rhythmic movement should involve
feeling the music, thinking about the music, moving to the music,
and coordinating movement with listening. Formal, informal, and
creative rhythmic movements are essential for preschoolers.
Specific directions are given in formal musical experiences which
serve as an introduction to later freedom of movement. Vague
directions such as "Move arms only!" are supplied in informal movements. Although the children are instructed to move a particular part of their body, a variety of movements are possible with that part (such as swinging, reaching, jerking, circulating, or waving). Thus, the children have limited freedom before advancing to creative rhythms which involve interpretations of feelings and thoughts about the music. There are two kinds of creative movement; in the first type, the children's movements reflect their individual reaction to the music. In the second type of creative movement, music is improvised by the teacher as she accompanies the children's dramatizations of a given story or concept.137

In regard to creative activities, Ellison recommended that teachers need to

help children develop their ability to differentiate between what is real and what is unreal. Rather than stamp out their utilization of the unreal, we must help them develop the circular recognition of the unreal so that it can be used as an expressive tool rather than an emotional necessity.138

"Self-concept is extremely vulnerable in the creative process... A child's lack of belief in himself greatly inhibits creative impulses."139 Therefore, the teacher must praise all creative efforts and emphasize the process and not the product.

Tait proposed four phases for creativity for vocal and instrumental compositions. They are:

1. Sound exploration
2. Sound imagery. Sounds are associated with ideas, colors, shapes, feelings, and other images
3. Sound quality. Introducing concepts such as dynamics, repetition, question/answer phrases, ostinato, and tempo
4. Sound imagery. Visual representation which should be as simple as possible, such as "Draw some lines to show the length of these sounds." 140

Stant suggested that puppets are therapeutic.

A puppet becomes what the child wants to be—himself, his parent, his friend, an imaginary personality, or an animal. In addition, puppets give the child a chance to create with his mind and hands, thus giving him a mental and physical exposure to an art medium. 141

Furthermore, a child's singing may be less inhibited as he pretends that the puppet is responding rather than himself. (See appendix A for other specific activities for developing musical concepts).

The Culturally Disadvantaged Preschooler

"The inner city child is exposed to a multiplicity of mores that have the effect of coloring his language and thoughts." 142

First of all, the home environment is critical to educational growth, and in disadvantaged communities, the father often leaves the home because of his inability to find a job or because "the mother can earn more than he does as a domestic." 143 Thus, the mother must leave her family unsupervised while she works, exposing it to a variety of criminal experiences; drugs, robbery, sexual promiscuity, and drunkenness often become a daily routine.

"Four and five children jammed together in one-room jungles, the sickly sight of roaches crawling over human bodies," 144 and the high rate of susceptibility to disease add to the suffocating life that dehumanizes the character of inner-city children. These urban families, which are often matriarchal, frequently are struggling for enough food; "scraps of foodstuffs" such as greens, pigs'
feet, neck bones, or "chitlins" are often the main part of the children's diet. 145

Culturally disadvantaged preschoolers often are affected by these and other variables which hamper achievement, motivation, persistence, ability to defer gratification, interest in school-type activities, and identification with achieving role models. These preschoolers also often have deficiencies in perception, due to overcrowdedness and disorganization in the home, as well as a narrow range of objects for exploration. There is often a lack of models for verbalization, so culturally deprived children may be retarded in verbal development, sometimes severely so. 146

We all do a good deal of listening to our mothers before the age of six. Therefore, if one mother consistently pronounces "there" as "dehuh" or "der" then it is highly likely that her children will pronounce the word in this manner. . . . The so-called Negro dialect is a result of an elision of certain components of a word that present some difficulties. 147

Since verbal interaction is necessary in school, programs must reflect respect for the languages with which the children come to school. "In some instances, basic education may have to be provided in the vernacular of the child until development has progressed to a point where a transition to standard language forms may be achieved." 148

Sexton's study of 1961, concerning the relation between income and educational opportunity, revealed that "where the average family income exceeded $7,000, achievement was above grade level; and where the income was below $7,000, achievement was below grade level." 149

Riessman argued that the capacities of low-income children
have been underestimated, and that very often, teachers of children
defined as disadvantaged expect the children to be unable to learn.
Furthermore, if this expectation is made known to the children, the
probability that they will respond accordingly is increased. Thus,
Kenneth Clark speaks of the deprived child as becoming "the victim
of an educational self-fulfilling prophecy."\(^{150}\)

Poor children "are far less likely to lack innate ability
to learn than they are to lack motivation because of environmental
factors."\(^{151}\)

The fact that middle-class children usually outperform lower-
class and some minority children does not mean that middle-
class children are more intelligent than children from these
groups. It does mean, however, that most middle- and upper-
class children are better prepared to succeed in middle-
class schools than are most lower-class and minority children.\(^{152}\)

What the disadvantaged student needs is "all of the mechanisms for
learning that the suburban youth already enjoys."\(^{153}\)

In order for disadvantaged children to become strongly moti-
vated toward school learning experiences, "their families must develop
attitudes and behavior that encourage them to look upon school as
a ladder to a satisfying future."\(^{154}\) The parental role is decisive,
even if only indirect influences are involved. Comparisons of
sixty advantaged and sixty disadvantaged homes showed no noticeable
difference in the emotional atmosphere. However, many other
differences were noted.

Advantaged parents feel it is their duty to help the child
learn as much and as quickly as possible; disadvantaged parents do
not connect the role of parent with that of the teacher. Although
disadvantaged parents know that knowledge is necessary for success
in life, they feel that virtually all of the child's education should be the responsibility of the classroom teacher. Also, advantaged parents consciously help their children to move from one stage of independent activity to the next (such as dressing). They also talk a great deal with each other and with their children, in addition to answering their children's questions and giving explanations and reasons for actions. On the other hand, disadvantaged parents tend to make more demands, take successful endeavors for granted (such as putting on shoes), talk less, and seldom explain things to their children. Furthermore, advantaged parents consciously or unconsciously "listen to the child as though he has something important to offer the parent" while the disadvantaged parent "does not try to enter the world of the child."\(^{155}\)

In disadvantaged homes, the child is more often valued as an "object" of the parents' affection and/or control. While the advantaged child receives praise for successful activities and commendable behavior, such as playing well with other children, the disadvantaged child is praised for not crying, not wetting his pants, or not making a mess. Advantaged parents often play with their children and encourage imaginative communication, whereas disadvantaged children are allowed to play for a given length of time, as long as they do not disturb adults.\(^{156}\)

Gray stated that although a researcher or teacher should not attempt to remedy the home situation, she should keep in contact with the family to help promote a greater feeling of self-worth in the parents and children.\(^{157}\) Activities such as role-playing and parents' night, where parents learn about what the children
are doing, have proven to be successful in past situations. Parental involvement gives children a sense of belonging. The mother's role as a source of reinforcement for the child's achievement is of extreme importance at the preschool level; she gives this support primarily through affection. Head Start teachers have reported more success with their students when parents were involved.  

Infants from families of low socioeconomic status rarely suffer deprivation in their first year of life, since crowding is one feature of poverty, and babies require only minimal space for movement. In his second year, however, as the child begins to walk, throw things, and engage in other mobile activities, crowded living conditions may hamper his development; he is also "likely to get in the way of adults who are apt already to be ill-tempered from their own discomforts and frustrations." In his late second and third year, as the child is developing word-object associations, he often meets another obstacle as "his questions too seldom bring suitable answers, and too often bring punishment that inhibits further questioning." The effects of his environment may be even more damaging in his fourth and fifth years. But with preschool education beginning at age three, some of the worst effects of his home environment may be reduced.

Tested IQ levels of disadvantaged children have, as a group, been in the average range up to the age of two; a decline in IQ scores has been evident in testing beyond that age. Therefore, preschooling, which is "desirable for all children, is a necessity for the disadvantaged. Without it, there is little possibility
For middle-class children, a lack of early childhood education may result in "a loss of brilliance, a blunted and less interesting life, or a smaller contribution to society. But for children of poverty, the consequence is nearly always a disaster." 163

A structured program for the disadvantaged must "increase the rate of growth in each specific area of development. Unless the child's rate of growth is increased substantially, he will always be behind in those particular areas." 164 In order to foster growth, even without contrasting advantage and disadvantage, a positive view of oneself is critical. In 1966, James Coleman, chief researcher of a United States Office of Education, reported on 645,000 pupils questioned throughout the country. He found that a child's attitude toward himself—the power to affect his future— influenced learning far more than factors of teacher qualifications, class size, or condition of the school plant. 165 According to Munat, a negative or damaged self-concept heads the list of characteristic traits of disadvantaged preschoolers. 166

"Underachievement in music primarily results (from) a low self-concept of one's ability to succeed in musical endeavors." 167 Self-concept is learned through ways in which one has been treated by others, and since these concepts are learned through experience, they can be taught. "Music is a natural activity through which to foster peer acceptance, cooperation, sharing, and judgement. Since music is noncompetitive, it is an obvious success activity. Often, it can provide a child an avenue through which he can gain peer group status." 168 Also, if the child's name is inserted in songs
and chants when possible, the insertion can help him acquire a sense of confidence, mastery, and self-worth because his name is a source of his identity.

"There is musical talent among any group of students regardless of the accident of their background." The teacher of inner city children "can expect to find talent running the gamut from average to exceptional among his students." Because the disadvantaged child must learn to scramble for his share and be prepared to fight for his rights in his home environment at a very early age, the culturally deprived preschooler is probably less retarded in large muscle activities than he is in other areas. Thus, activities involving large muscle movements will be more attractive to him than stationary experiences. Also, "large muscle activities afford the occasion for the child to channel his aggressions into more socially acceptable expression." Orff's system of music education does employ only large muscle movements and is designed for the child to avoid failure because nothing the child does is "wrong." These characteristics make Orff's approach feasible for both preschool experiences and the culturally disadvantaged child.

Dalcroze activities are also practical for disadvantaged preschoolers.

Many of today's inner city children do not communicate well in the classroom situations because their vocabularies are limited and perhaps very different from the teachers' vocabulary. A teacher who understands Dalcroze principles can adapt them to such children. Through listening to music and experiencing it in movement, the children can develop healthy self-concepts and their inner feelings can be explored, expressed, and shaped.
One of the more structured preschool programs for the
disadvantaged was developed in 1966 by Bereiter and Engleman and
later formalized as the DISTAR (Direct Instruction Strategies for
Teaching Arithmetic and Reading) method by Becker and Engleman.
The originators of the program argued that "since disadvantaged
children are already at least one year behind the middle class at
four years of age, time is a premium."\(^{174}\)

Bereiter stated that any decent preschool can produce
improvement, but that that was not enough for the disadvantaged
preschooler. "So we have to step up our pace. The middle-class
child between four and five is learning too, so these children have
to learn a bit faster."\(^{175}\) In the two hours that the children
spend in the type of school that Bereiter recommended, there is
very little free play, and much drill and "work." Intensive,
direct-instructional group work is used in a "wham-bang, pressure-
cooker atmosphere."\(^{176}\)

Judging strictly from IQ test results, Bereiter stated that
"with no exceptions, studies of three- to five-year-old children
from lower socio-economic backgrounds have shown them to be retarded
or below average in every intellectual ability."\(^{177}\) On this basis,
he falsely concluded that cultural deprivation is primarily a lan-
guage deprivation. In contradiction to Bereiter's contention, it
has been proven that standard IQ tests do not reflect the true
level of intelligence of disadvantaged children. This is because
in order to test anyone's intelligence accurately, the background
of that particular person must be taken into consideration. Since
no two people have the exact same experiences, "a different test
would have to be designed for each individual" in order to be completely accurate. This impracticality led the French psychologist Binet to the idea of standardized tests "based on the standards of a large group of children with similar (but not quite the same) backgrounds." Because they are designed for a particular group (middle-class students), IQ tests are most reliable and valid when applied to that group. They are less useful when applied to minority groups--black, . . . and lower-class children of all races.

Chapter 9 of Bereiter's book is entitled "Music for the Preschool." In it, he stated that "music can be used as a very effective language builder" through rhyming; counting; discriminating between left and right; reciting series of names, months, and other sequences; and translating actions into words and words to actions. The suggested music program consists mostly of singing in a rigid and non-aesthetic atmosphere that ignores musical concepts. He said that all songs provide good exercise for the disadvantaged child; however, some songs are better than others. In the preschool, tasks must be measured by their relative educational value. Songs are therefore judged according to how much they contribute to the language development of the child.

Bereiter suggested that the music period should last from fifteen to twenty minutes per day and include a variety of songs. He proposed a fast pace; that is, as soon as one song is finished, another should begin. "Too many interruptions should not be allowed, and the practice of letting children select songs should not be adopted." Bereiter warned teachers to resist the temptation to introduce songs merely because they are supposed to have some musical value. Songs should be selected on the basis of what they do for the language development of the child. Most traditional songs are trivial from
this point of view because they present concepts that are 
not of real significance, and they often present these con­
cepts in stilted language that cannot be readily generalized. 
The question "Where does the Muffin Man live?" is simply not 
on the same level of significance as "What kind of Indians 
are we singing about? . . . Indian boys." Before introducing 
a new song, consider the value of the song and its potential 
contribution in the race against the clock.184 

The approach of Bereiter has been criticized for its 
1) emphasis on rules rather than on the creative process (this is 
contrary to the findings of Piaget and Bruner), 2) intense exposure 
to limited material as opposed to frequent exposure to a variety of 
experiences, and 3) faulty assumptions concerning learner motivation 
and a conducive environment.185 From a music education viewpoint, 
the method must be criticized for its lack of attention to musical 
concepts, intrinsic values of music, and varied activities. How­
ever, as part of an integrated curriculum, Bereiter's treatment of 
music can be used effectively in relation to the development of 
language concepts. Another definite advantage of the method is the 
"highly economic use of time in that the teaching technique insures 
the maximum, intense teacher-child contact."186 

Studies with Disadvantaged Preschoolers 

The Educational Research Service reported 327 selected 
entries concerning research studies of prekindergarten programs; 
a majority of these studies were completed between 1970 and 1975. 
At least eighty-two of the entries were concerned with preschool 
education of the culturally disadvantaged child, while none of the 
titles indicated consideration of musical development. Several 
conclusions were drawn from brief descriptions of forty-seven 
reports involving disadvantaged preschool children:
1. Test scores of disadvantaged children did improve with pre-kindergarten experience in most of the cases reviewed. "In some cases, these gains have brought groups of disadvantaged children near or up to middle-class norms. In other cases, the gains, although statistically significant, have not closed the gap between disadvantaged and middle-class groups"  

2. Structured classes generally proved to be more effective than discovery learning  

3. Significant positive effects were reported in programs that are partially or totally home-based. "Generally in these programs one of the major goals involves encouraging parent-child interaction and helping the mothers develop teaching skills"  

**Evaluation and Testing**

Evaluation is an on-going process, providing for a continual survey and recycling of explorations to acquire new understandings. However, there are three specific points when attention should be focused on evaluation as part of the learning process:  

1. Prior to learning experience to determine if requirements of skills and understandings necessary for beginning a specific unit are present  
2. During the learning experience by analyzing the process and the product to determine if the learner is moving in an appropriate direction  
3. At the culmination of a specific experience to assess one's current behavior and to discriminate factors that may have caused a breakdown in process  

The planning that precedes teaching and the evaluation that follows it will greatly determine the effectiveness of the teaching that is done in between. Evaluation must be done on the basis of objectives and planning and should focus on three types of thinking: 1) analytical—what was heard, 2) judicial—appropriate use, and 3) creative—other possibilities.
Evaluation during group activities can be very misleading since "the child may be merely imitating the responses of another child." Thus, only solo movement or rhythmic activities will truly show the child’s ability to listen and respond.

Evaluation of musical performances have too often been haphazard and subjective, and as a result, "children from low socio-economic groups are more vulnerable to being labeled retarded" with insufficient manifestation. It is necessary that the identification and analysis of students' difficulties be a prerequisite to remedial procedures.

Tests do not reflect ability when words and items used are not in the children’s background. Environmental factors which result in lack of concentration powers, poor listening habits, and short attention span may affect test results. Economic status, conflicting desires, and personalities can also influence evaluation results.

A vocal phrase-matching test was devised by Thorn in 1929, for use with kindergarten children. Vance and Grandprey conducted a study in 1931 to obtain records for certain musical capacities or abilities in thirty-one preschoolers; however, quantitative measures were not used. The abilities evaluated were:

1. Responses to music introduced when the children were engaged in other spontaneous interests

2. Responses to the music played during regular music period when the children received some encouragement to take part in it

3. Imitating the nursery school teacher in singing an interval

4. Beating time to "gramophone music" with a triangle
5. General responses to music played on the "gramophone"

6. Imitating the nursery school teacher in beating rhythmic patterns on the triangle

7. Ratings on the basis of musical aspects of the home environment

Ratings on tests one and two were based on responses shown during an entire period. For the second test, each student was asked, "What can you do to this music?" Points were scored as follows: 0—no response, 1—verbal response, 2—movements of parts of the body, 3—movement of whole body, 4—response appropriate to type of selection. Both ascending and descending intervals were used for the third test, for which students gained points for singing the following: 1—one note, but off pitch, 2—interval, but off pitch, 3—interval of approximate pitch, 4—interval with one note on pitch, and 5—exactly. The child was given ample time to play a given rhythmic pattern four times and was awarded one point for each time it was played correctly; the maximum possible total was four points. Test five was scored in the same way that test two had been scored, but the children responded individually rather than in the group. The teacher visited the homes of the children for the final test and awarded points for instruments and/or singing in the home, training of parents in music, and later musical experiences of parents.

In 1969, Aronoff devised an individual performance test to measure conceptual development of music in children, and it was included in her text.
Quantitative Research Concerning Preschool Music

1920s and 1930s

Many of the studies in preschool music that were conducted in the 1930s were concerned with pitch or rhythmic development of young children. However, as early as 1928, Baldwin conducted a study which attempted to discover if any one tempo or series of tempi was most easily executed by twenty-one four-year-olds, using the three activities of walking, running, and skipping. Results showed that fast tempi were easier for the children to perform than slower ones. 197

In 1931, Jersild investigated the effects of training on the ability of forty-eight three-year-old children to reproduce pitches and intervals. The children's spontaneous singing was also investigated. Results showed that the level of improvement was high after training in both areas. Other findings were: 1) notes from c¹ to a¹ were sung most easily, 2) intervals of seconds and thirds were sung accurately more often than were perfect fourths and fifths, 3) descending intervals were sung correctly more often than ascending intervals, and 4) the half step was sung with little difficulty, and occurred frequently in the children's spontaneous vocalizations. The pitch test consisted of matching individual notes, while the interval test included twelve ascending and descending intervals; major and minor thirds and seconds, perfect fifths, and perfect fourths were included in the test. 198

Then, in 1934, Jersild administered a test of vocal reproduction to twenty-three children of ages three to eight. The experimenter sang and sounded individual tones for the children to
reproduce; scores were based on the number of tones reproduced correctly. The findings reinforced those of the earlier study since it was found that narrow intervals were sung more accurately than larger ones, and that the half step was not found to be more difficult to sing than other intervals. 199

A variety of factors were included in another experiment by Jersild in 1935, which investigated ways in which children's rhythmic responses are influenced. Elements considered were: form, tempo, meter, complexity of rhythmic patterns, type of response (such as clapping or walking), age, intelligence, sex, and the effects of maturation and practice. Subjects were 112 two- to five-year-old children and the experiment attempted to determine the children's ability to accurately keep time to the accompaniment of an electrically operated piano. Results indicated that:

1. Scores increased substantially with age
2. There was no significant difference between scores of boys and girls
3. There was a positive correlation coefficient, often as high as .72, between scores and intelligence
4. Simple rhythmic patterns showed no advantage over more complex patterns
5. "Tempo was found to have a more significant effect than any other factor in the study. There was a consistent and, in most instances, quite substantial increase in score with an increase in tempo" 200
6. Scores were somewhat higher in response to the "developed" piano rolls (mathematically exact patterns which provided uniform
intensities and equidistant beats) as compared with the "undeveloped" rolls (closely resembling music as played by human touch)

7. Of the three different meters used (2/4, 3/4, and 4/4), the 2/4 meter showed a slightly higher score than the others, but the results were not significant

8. No significant difference was measured between the children's ability to keep time by walking and by clapping

9. Children who had received practice doubled their pretest score. However, these scores were not significant when compared with those of the children who had not practiced. Thus, the findings indicated that "much, but not all of the change that was effected during work with the children arose through improved cooperation and interest, as distinguished from improvement in ability" 201

It was concluded that a child who has above average singing ability is likely also to have above average ability in keeping the beat. 202

The purpose of a 1932 study by Hattwick was to examine pitch inflection in the speech of preschool children in order to devise techniques that could be used in studies related to the development of pitch consciousness. He cited several pitch characteristics in speech that could possibly be measured. These were: 1) average range, 2) general pitch, 3) ratio of phonated time to silence, 4) sustained tones, 5) vibrato, 6) accents, and 7) rate of occurrence of inflectional forms.

A "strobophotographic camera" would have been the most adequate technique to measure these characteristics. "Such a method requires, however, expensive apparatus and a degree of technical
skill which would make it undesirable for general or routine measurement of children." Thus, Hattwick chose to use observational measurements and to analyze only two variables of pitch inflection in children's speech: general pitch level and range variation in individual children. Ten three- and four-year-old children were observed under the following conditions: 1) talking to self, 2) talking to another child or an adult, 3) conversation while playing with a group, and 4) shouting at a distance of more than ten feet. For each situation, approximately sixty syllables were obtained from each child. The observers recorded pitches with the aid of a pitch pipe.

Results showed that the mean pitch level was the lowest when the children talked to themselves (f-sharp^1), talking to another person (g-sharp^1), talking in groups (a^1), and shouting (b^1) followed in ascending order. Individual differences in pitch variability were more outstanding than the mean pitch level. The lowest pitch for each child ranged from B to g^1, with highest pitch level ranging from c^2 to e^2. Most of the children's voices encompassed the interval of a major ninth in all conditions combined.

A later study by Hattwick (1933) allowed ninety-five children between the ages of four and eight to choose forty-seven different songs and sing them in any key they wished. Results showed that the mean pitch ranges for children ages three to five was from e^1 to a^1. Ranges of the older children increased gradually with age.

One part of a study by Williams in 1932 measured the ability of 203 three- to five-year-olds to keep time with a periodic stimulus by tapping. In series I of the test, stimuli were spaced at .50
second intervals only; but in series II, the speed of the patterns varied from .50 to .67 to 1.0 seconds. Results showed that:
1) approximately seventy-five percent of the three-year-olds failed,
2) practically none of the six-year-olds failed, 3) relative accuracy of tapping decreased as the interval between stimuli increased, and
4) understanding of directions was not a factor in test results except for the very youngest three-year-olds.

In another part of the study, a vocal control test was administered to three- to six-year-old children. The children were taught selected songs during regular music periods and then evaluated individually on their ability to reproduce these songs. Results showed that:

1. Age and individual differences in vocal control of pitch were present at the preschool level
2. Despite the fact that gross errors were made in singing some intervals in the songs, many children were able to end phrases accurately. "This suggests that the maintenance of tonality is a more primitive category than the accurate singing of intervals"
3. Vocal control of pitch had a very low relationship to intelligence
4. The greatest differences in ability appeared in the four-year-olds. After a year of training, some of these children sang with almost perfect accuracy, while others appeared to totally lack any consciousness of pitch differences

Further study by Williams (1935) found that under controlled conditions, the differences in forty-one preschool children's ability to reproduce a tonal sequence immediately or in delayed recall
ranged from little more than a random effort to a nearly perfect reproduction. It was also found that improvement in delayed recall occurred with practice. The results suggested that there was "a considerable degree of independence between ability in immediate recall and ability in delayed reproduction of pitch at the preschool level." Children were tested individually by two methods: 1) number of correct responses, note by note and 2) a weighted score in which a cumulative error score was obtained by recording the amount of error in half-step units for each tone. Thus, a child who gave monotonous responses was penalized more than one who was slightly off-pitch at times.

A study was conducted in 1935 at the Merrill-Palmer School in Detroit, to determine what teaching procedures were most successful, what the child's musical status was, and what progress the child made under instruction. Seltzer found that it is desirable that the child's response to music be tested in many situations before a decision is made concerning the child's ability or achievement. The most suitable way seemed to be a day to day observance, with progress being recorded. An extremely controlled situation, under which many evaluative processes were administered, was found to destroy group influence, spontaneity of the child, and his lack of self consciousness when expressing himself in a less controlled situation. Each item of the test was evaluated on the basis of its representation of the greatest or least possible stage of development on a scale from one to eleven; ninety-four judges evaluated the items.

Results of Updegraff's research, with sixty-six preschoolers
in 1937, showed that there was no significant difference among
three-, four-, and five-year-old children when tested on their
ability to vocally match single tones and intervals. However,
five-year-olds showed greater ability than did the younger children
when tested on simple phrases. The pitch accuracy test consisted
of nine pitches to be matched by the children; these pitches ranged
from \( c^1 \) to \( f^2 \). A maximum of four trials was given for each note,
with one point awarded for each correct response. In the interval
matching test, one point was awarded for each correct interval, with
twelve being the highest possible score. The children were allowed
to sing using any syllables of their choice, such as "loo-loo" or
"ding-dong." In scoring the phrase test, the total score was the
number of notes in the pattern that were correct. The rhythm
test was administered on the day following the other three tests and
began by acquainting each child with a metronome. Then, the child
was asked to begin stepping to the beat after four introductory
measures were played. His steps were recorded for each of four
rhythms in groups of correct steps, such as

\[ \text{eight, six, three, two (which) indicated that between the groups of eight and six correct steps (for example), . . . incorrect steps occurred. . . . The experimenter assumed that a child who had a group of two steps here and there correct did not have the ability of the child who had a group of eight at once correct, even though the total number of steps correct may have been the same as that of the first child. The largest group of steps correct in each rhythm was used as the score.} \]

Five-year-olds achieved almost perfect scores in pitch and
interval matching on the pretest; so, although posttest scores
showed improvement, amounts were not significant. Three- and four-
year-olds improved significantly in all three singing areas tested
at the .05 level. No statistical information was provided for the results of the rhythm test.

Another part of the study attempted to evaluate the degree of the children's interest in musical activities. Because of the somewhat subjective nature of measurement of interest, ratings were given by observers and teachers before, during, and after the experiment. It was decided that criteria would be: 1) facial expression of animation, 2) fixation, 3) singing throughout, 4) sitting quietly, and 5) interested expression. Two points were possible for the first item, while the others were awarded one point apiece for a total of six possible points in a single observation. The experimental group's increased interest and desire to participate in musical activities was found to be significant when compared with the control group.212

The findings of Drexler (1938) augmented those of Jersild's 1935 study. Drexler reported that although great individual differences were found in general, it was concluded that the average child's ability to carry a tune increased with age. Fourteen nursery school children and nine kindergarten children were used as subjects.213

1960s

Apparently, only a few quantitative studies involving music and preschool children were conducted from about 1938 to the 1960s. Between Drexler's report and 1963, no evidence of studies in the field of experimental research with music for preschoolers was located.

In 1963, results of Smith's research in group vocal training
with forty-one nursery school children showed that both three- and four-year-olds improved significantly with large group training and no individual instruction. The three-year-olds showed the greater amount of improvement. "Low" pitches (c¹ to a¹) were sung more accurately than "high" pitches (g¹ to c²). Songs were scored according to intervals; that is, each interval was evaluated on a four-point scale: 1—lack of pitch matching ability, 2—one tone of the interval correct, 3—accuracy with a tendency to slide into one or both of the intervals, and 4—correct. ²¹⁴

Fullard tested ten preschool children in 1967 to see if programmed techniques could teach them to identify various orchestral instruments. Results were significant at the .001 level. The second hypothesis stated that identification of a second set of similar stimuli would be facilitated by the previous training. Findings again were significant, but at the .05 level. ²¹⁵

The purpose of a study by Schuckert and McDonald (1968) was to determine if controlled exposure to a less preferred type of music (classical or jazz) would produce a shift in musical preference of preschool children. Although the results were not significant, almost one half of the subjects showed a preference shift after four play situations in which each of twenty subjects was individually exposed to the less preferred type. Since children's musical tastes are based on a limited experience, the "teacher should seldom accept the standards of what a group of children or an individual child initially likes best," ²¹⁶ but use a variety of musical experiences. The writers believed that appreciation is a matter of taste, and taste can be modified by familiarity. Thus,
it was concluded that more investigation into the problem of musical taste needs to be undertaken. There have been few experimental studies concerned with this issue in early childhood.  

1970s

Experimental studies in preschool music have proliferated since 1970. While many of these studies indicate results which confirm findings of research conducted approximately forty years earlier, other findings are unprecedented. Reliability and validity of evaluation tools have been improved in more recent studies because of the perfection of recording equipment. Also, more detailed analyses of data have been facilitated by the development of the calculator and the computer.

The University of Hawaii's Center for Research in Early Childhood Education reported results of a study with seventy Head Start children using the PMAT (Preschool Music Achievement Test) developed by Greenberg. The test was constructed to test learnings related to tone, dynamics and tone color, rhythm and tempo, and melody and pitch. The test was designed to measure conceptual growth of children who participated in the activities described by the music curriculum used in the study. Results of this experiment in 1970 were:

1. Both experimental and control groups made significant gains at the .01 level in concept formation in music, as measured by the PMAT

2. Teachers who ranked low in musical background during the experiment seemed to be as effective as those with a substantial
musical background

3. Preschool children can develop concepts about music if guided and given meaningful instruction by the teacher. The PMAT scores showed that concepts of beat, tempo, and dynamics may develop first in young children. Concepts about pitch, melody and melodic rhythm, harmony, and form are more difficult to develop.

4. Ethnic music and "rock" are the most dominant types of music in homes of disadvantaged preschoolers (in Hawaii, the children were from cultural groups such as Hawaiian, Samoan, Filipino, and Japanese).

5. The use of movement and music was a valuable means of helping virtually nonverbal preschoolers develop language and communication skills. Music and movement may serve as a basis for other preschool experiences.

6. Preschool teachers tended to prefer a specific guide to teaching music as opposed to an unstructured, haphazard approach often used in preschool classes.

7. "Preschool children respond equally well to traditional nursery school music, musics from other cultures, rock, pop music, jazz, and music of all historical periods. In fact, some of the most successful lessons involved interacting with electronic music, music of the Renaissance, and old Hawaiian and Maori chants." The purpose of Romanek's study in 1971 was to determine if self-instructional materials could help develop concepts of pitch (high/low), duration (fast/slow), and loudness (loud/soft) in preschool children using the investigator-constructed Preschool Musical
Concepts Test. Responses included pointing, drawing lines and circles, playing instruments, and turning a page with the castanet signal. Forty-four subjects were required to "listen to environmental sounds, songs, musical examples, and to play resonator bells, a guitar, a junior key harmonica, and bongo drums." Because of the age of the subjects, content of the self-instructional program was in story form rather than the typical frame by frame course. Loudness concepts had fewest incorrect responses while concepts of pitch had the most incorrect responses. Significant differences were noted in posttest scores of the experimental group. Also, the posttest scores of the experimental group were significantly higher than posttest scores of the control group. Finally, there was no difference in pretest scores of children matched according to mental age.

It was concluded that many preschoolers can discriminate between loud and soft before they enter school. Also, results of the study indicated that "programmed instructional materials can be developed which will hold the attention of preschool children."

A Kindergarten Music Program (KMP) was developed by the Southwest Regional Laboratory for Educational Research and Development in Inglewood, California. The test focused on development of understanding of musical concepts. It sampled the areas of rhythm, melody, harmony, form, timbre, and dynamics. The mean posttest scores for the experimental and control groups differed significantly at the .001 level. Tasks performed well by the 103 students with no formal training included distinguishing between 1) phrases that were the same or different, 2) accompanied and unaccompanied
music, 3) fast and slow tempi, 4) loud and soft, and 5) identifying clearly delineated melodic contours. A revision of the 1973 version of the test was projected to minimize the above items.221

A rhythmic Ability Test was designed by McDowell and individually administered to thirty-six four-year-olds in order to 1) determine if two tempi produced by a metronome were the same or different, 2) accurately reproduce a given metronome ticking rate by hitting two small wooden blocks together, 3) accurately reproduce a short rhythmic pattern by hitting the blocks together, and 4) determine if two rhythmic patterns were alike or different. Results showed that rhythmic ability of four-year-olds did not improve after one month of training.222

The purpose of Greer's experiment in 1973 was to determine if subjects would increase their symphonic music listening time after being taught simple music discriminations. Results with nursery school children showed that there was no significant difference in posttest symphonic selection time between the experimental and control groups. However, posttest listening time of the experimental group increased significantly as compared with their pretest selection time.223

A 1973 study by Dawkins used 116 four-year-olds to investigate the possibility of enhancing the auditory discrimination abilities of disadvantaged preschool students. Results showed that word discrimination skills were enhanced significantly when music was included in phonics instruction. Also, the findings indicated that "music can be an important factor in the learning activities of disadvantaged preschool students and music may be an efficient means
to influence other learning."

Dorothy Moore investigated the relationship of home musical experiences and pitch and rhythm responses of 150 five-year-olds in 1974. The effect of environment, sex, and economic status was compared with pitch and rhythm responses. Results of a 123 item questionnaire determined the degree of musicality within the subjects' homes. Environments were labeled according to three categories: 1) musically motivated homes included adults or other children who played instruments, went to concerts, or participated in other musical activities; 2) musically interactive homes also included participation by the child in musical activities; and 3) non-musical homes may have had a radio, television, and/or record player, but did not have family members who participated in musical activities.

The test had six sections: Pulse, Rhythm Pattern Identification, Rhythm Pattern Duplication, Pitch Pattern Identification, Vocal Range and Pitch Accuracy, and Pitch Pattern Duplication. Ability to perform each of the following behaviors was evaluated:
1. Maintain steady beat
2. Identify rhythm and tonal patterns as same or different
3. Imitate rhythm patterns
4. Sing familiar songs
5. Reproduce tonal patterns ranging in pitch from c1 to c2

It was concluded that if children's environments provide exposure to music and encouragement and reward for musical attempts, higher levels of musical achievement are likely, as compared with children who lack these advantages. However, it appeared that "some children can succeed without (these advantages). Approximately seven percent
of the subjects who scored at or above the test mean were from non-musical homes. In those cases, educational television programs which included music, and nursery and church schools seemed to be influencing factors. Other findings were:

1. A child's pitch and rhythm responses significantly correlated with environmental variables

2. Some of the home experiences which seemed to have the most positive relationship with the child's pitch and rhythm responses were (a) parental help with in-tune singing and moving to music, (b) age, (c) sex (female), (d) number of brothers and sisters, and (e) fathers' playing piano or brass instruments

3. Girls scored higher than boys in vocal range and pitch accuracy subtests

4. There was a tendency toward positive relationships between pitch accuracy and rhythmic accuracy

5. It is possible for children from a low socio-economic status to have high ability production, but the ratio was low. Forty-nine of one hundred children tested were at or above the mean in the total pitch and rhythm response test. "Of these forty-nine, ten (or twenty percent) were from the lower half of the socio-economic scale"

The results of an experiment involving musical development of 128 preschool disadvantaged children by Young (1974) showed no statistical difference between abilities of the two advantaged groups of children and the disadvantaged group that had received instruction. The overall conclusion was that the type of instruction offered in this project was effective for all, regardless of environmental background.
The Hill Primary Music Skills Test (PMST) was used for evaluation; the test was published in 1976. It was developed at the University of Iowa and consists of thirty-two items divided into the two areas of melodic and rhythmic ability. These areas are subdivided into six sections: Interval Matching, Unknown Phrase Imitation, Single Pitch Matching, Familiar Melody Recognition, Familiar Rhythm Recognition, and Unknown Rhythmic Pattern Imitation.

The test, which should be administered individually and lasts for about fifteen minutes per child, yields nine scores: one for each of the subtests, a melodic ability score, a rhythmic ability score, and a composite score for the entire battery. Responses are to be tape recorded, with the child having three trials for each item. The score should be computed for the best score only, to "circumvent the depressant effect on scores from shyness, fear, or misunderstanding which might arise from such an age group." The administrator should "reinforce all responses positively, regardless of their accuracy or quality."  

The purpose of a test conducted by VanZee in 1976 was to obtain information about aural discriminations and verbal responses of eighty kindergarten children to selected musical stimuli, and about their ability to demonstrate, through performance on a "simple keyboard instrument," understanding of terms commonly employed to describe various properties of musical sound. Test A-1 was designed to evaluate the children's ability to discriminate between differences in pitch, melodic contour, duration of tones (equal and unequal), and rhythmic patterns which were paired as same or different.
Test A-2 consisted of the investigator asking the children "How is the second tone (or group of tones) different from the first?" Acceptable answers included: high/low, up/down, straight across, long/short, even/uneven, and smooth/jerky. Test B was designed for the children to demonstrate understanding of the criteria in test A-2 through performance on a simple keyboard instrument. Forty-five minutes were allowed for each child to be tested individually. Test items were spoken, sung, and/or played. Some results were:

1. The smallest intervals (major and minor seconds were the most difficult for the children to discriminate

2. The tonic chord pattern proved to be the most difficult item in the melodic contour section

3. The least difficult item was repeated tones paired with a pattern moving up or down

4. Least difficulty in the tone duration section was found in items containing eighth note patterns as opposed to those containing half note patterns

5. Dotted rhythms had little effect on the difficulty of those items

6. Verbal-descriptive tasks were more difficult than discrimination tasks

7. Performance responses produced the highest mean proportion of correct responses

It was concluded that the ability to verbalize about musical properties does not necessarily develop concurrently with the ability to understand and perceive them. Another conclusion was that "factors of sex and socioeconomic background may be significant variables in the ability of kindergarten children to perceive and
express understanding of properties of musical sound."

Olser (1977) studied the influence of perceptual and verbal training on concept attainment with ninety-six preschoolers. Results showed that four-year-olds were not influenced by any type of pretraining, while five-year-olds were aided by perceptual pretraining but failed to improve after verbal pretraining. These findings are consistent with those of Piaget who said that symbolic representation involves operations, and Bruner who said that symbolic representation involves language. Both Piaget and Bruner stated that symbolic representation is meaningless before the child has developed mental images of a concept.

In her research concerning the relationship between mothers' musical experiences and their offsprings' musical development, Jenkins devised an Individualized Performance Test (IPT) which included items on rhythm, melody, dynamics, tempo, timbre, pitch, meter, and repertoire. The test was developed in 1977 from Frances Aronoff's book *Music for Young Children*.

A three-year longitudinal study to determine ability of preschool children to learn rhythmic tasks is presently being undertaken by Rainbow in the suburban Dallas area. The pilot study was completed by Veenkant with forty preschoolers during the fall semester of 1975. It was noted that many of these four- and five-year-olds performed rhythmic tasks more easily when asked to vocally chant the rhythm as opposed to the traditional method of reproduction by clapping and stepping.

Results of the pilot study indicated that rhythmic tasks
could be graded on three levels of difficulty: 1) easy—successfully completed by four-year-olds with minimum instruction, 2) moderate—completed by most children half way through the semester, and 3) difficult—completed by approximately fifty percent of the children at the end of the instruction.

A list of rhythmic tasks was developed from the pilot study which were to be taught to groups of three- and four-year-old children in regularly scheduled music classes during the 1976-1977 school year. Four basic rhythmic categories were to be investigated: 1) maintaining a steady beat, 2) echoing, 3) rote patterns, and 4) patterns within a musical context. The study is designed to continue the investigation in the second year with the addition of new three-year-old classes, and development of new tasks for five-year-olds. Plans for the final year include the elimination of the five-year-olds from the previous year and the addition of other new three-year-old classes. It is hoped that a test of rhythmic task development will be developed during the third year.\textsuperscript{234}
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CHAPTER III
THE RESEARCH DESIGN AND
DEVELOPMENT OF THE STUDY

Introduction

The experimental approach to research, using both experimental and control groups, was employed in this study. Pretests and posttests were administered to each subject and the t test was used as the statistical procedure. The above approach is recommended by Madsen and Madsen as well as Campbell and Stanley. The purpose of the study was to measure musical achievement of preschool Head Start children using the Music for Preschool curriculum of Marvin Greenberg and an investigator-constructed test that was individually administered to the subjects.

Preliminary Observations

Before a test was devised, an exploratory study was conducted by the investigator in April of 1977, to determine initial ability of the subjects to 1) sing one, two, and three pitches correctly, 2) imitate phrases correctly, 3) echo sing, 4) echo clap, and 5) march to a steady beat. The equipment used consisted of a pitch pipe, a hand drum, and rhythm sticks; the specific activities used in the lessons may be found in appendix B.
Subjects were four- and five-year-old children attending the McKinley Head Start School in Baton Rouge, Louisiana. One class of twenty children was used for this study which consisted of three twenty-minute lessons on three consecutive days.

Rather than collecting and analyzing data, the purpose of this exploratory study was to ascertain general observations which would be helpful in the development of an appropriate test. Because the school had no formal music program, and because the investigator had had no previous classroom contact with preschool children, the exploratory study also served as a source of preliminary observation of the children's behavioral responses to music, and to the investigator as a teacher. Most of the children responded enthusiastically to the lessons; other observations indicated that:

1. Rhythmic activities such as echo clapping and marching were performed with greater accuracy than were melodic activities
2. Accuracy in both activities declined when singing was combined with movement
3. Concepts of beat and rhythm were easily confused
4. The children showed more enthusiasm for movement activities than they did for stationary experiences
5. Only slight difficulty was observed when two rhythmic activities were combined (such as playing the rhythm sticks and marching simultaneously)
6. Students were eager to repeat the same song many times in succession
7. Songs learned the first day, after having been reviewed several
times each succeeding day, seemed to show a great deal of improvement by the third day.

8. Because of the short attention span of young children, lessons were limited to a maximum of twenty minutes each. This limitation of time prevented all of the children from having the opportunity to explore the percussion instruments in every lesson. Although the children enjoyed playing the instruments, particularly the hand drum, many displayed disappointment when they did not receive a chance to play each instrument presented on a particular day.

9. Both individual and group echo clapping responses with rhythm sticks were often excellent.

10. Rhythmic patterns became easier to clap when the children discovered that a pattern was identical to a particular rhythmic pattern in a familiar song.

11. Every child responded to individual melodic echo conversations, although many were off-pitch.

12. The words to the song "Lucy Lockett" were found to be too difficult for the children, thus causing responses to be hesitant and inaccurate, even though the melody consists of only three different tones (so, mi, and la).

13. Melodic responses were generally lower than the given pitches.

14. Having the children pretend to be puppets with someone pulling a string out of their heads was a helpful technique to raise pitch levels closer to the original.
The Main Study

Subjects

Subjects were three- and four-year-old children attending the McKinley Head Start School in Baton Rouge, Louisiana, during the fall semester of 1977. Of the five Head Start centers located in Baton Rouge, the McKinley school was selected because it is the largest in terms of enrollment, space, and facilities. Appendix C contains copies of the forms exchanged between the investigator and parents and between the investigator and the administrative staff concerning permission to use the Head Start children in the study.

Before being admitted into the Head Start program, it was necessary that the children's family income comply with Federal poverty guidelines. Annual income could not exceed the amounts listed in table 1 for respective family sizes. (Federal poverty

<table>
<thead>
<tr>
<th>Family size</th>
<th>Nonfarm family</th>
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<tbody>
<tr>
<td>1</td>
<td>$2,800</td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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<td>5</td>
<td>$6,400</td>
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<td>6</td>
<td>$7,300</td>
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NOTE: For family units with more than six members, an additional $900 was to be added for each member.

guidelines are also used as part of eligibility requirements for other programs such as the Food Stamp Program and Aid to Dependent Children.)
Sixty-two children in four classrooms were divided into four groups; two classes served as the experimental groups, while the other two classes formed the control groups. Approximately three weeks after the pretest had been administered, an additional twenty-three children were admitted to the school and dispersed among the four classrooms being used in the experiment. These additional children joined in classroom music lessons and were given the posttest, with predictive values being calculated for their pretest scores on the basis of their individual posttest scores, group mean scores, and $r$ (coefficient of correlation). Three of the children left the school before the posttest was administered; nevertheless, their posttest scores were also predicted on the basis of their pretest performances, group mean scores, and $r$. Thus, the total number of subjects was eighty-five; only one of these eighty-five children had been in the class of twenty children that was used for the preliminary study during the previous semester.

Three of the classes contained all four-year-olds, while the fourth class was composed of sixteen three-year-olds and seven four-year-olds. Therefore, in order to determine the achievement potential of the younger children, one four-year-old class and the class of predominantly three-year-olds were used as the experimental groups, while the other two four-year-old classes were designated as control groups.

To determine the extent to which familiarity with the investigator affected test results, the investigator read and di-
cussed stories with one of the control groups every day on which a music lesson was taught to the experimental groups. The sessions with the control group never exceeded the amount of time spent with the experimental groups; and content of the stories was not related to music.

The test

An investigator-constructed test was devised on the basis of the method of evaluation (expected behavior) that is presented in detail in the Greenberg curriculum. However, before the test was administered, three twenty-minute "acclimatization" sessions were held.

Because many of the subjects may never have been exposed to a formal testing experience and had never met with the researcher, the acclimatization was used for the following purposes: to develop a rapport between the experimenter and the subjects; to acquaint the subjects with the tape recorder and other equipment; to acquaint the subjects with the procedure and types of responses required; and to have each subject respond to stimuli which were similar to those on the subtests.²

Also, the sessions acquainted the students with some unfamiliar terms, such as "harmony" and "phrase," that were used in the test. Basic concepts such as high/low, long/short, loud/soft, fast/slow, and same/different were initially discussed and demonstrated in non-musical, general terms because it could not be assumed that all of the children had acquired these concepts in vocabulary or in understanding.

The most crucial reason for the incorporation of the acclimatization periods into the design was that their inclusion eliminated the need for sample questions. This elimination allowed
the total administration time of the test to be limited to fifteen minutes per child. Without the acclimatization periods, sample questions would have been necessary for each category of the subtests, and the time of administration would have greatly exceeded the suggested limit of young children's attention span (twenty minutes). Appendix D contains lesson plans for the acclimatization classes.

The investigator administered the test individually to each child as a pretest and posttest. Although the test items were recorded, the investigator verbally repeated directions for each item to every child. The test consisted of thirty-three items and was divided into four subtests: I—Tone, II—Rhythm, III—Melody, and IV—Form. In subtest I, the children were asked to exhibit their understanding of the concepts of high/low, long/short, and loud/soft. The children were also asked to distinguish between a man's voice and a woman's voice, and to recognize harmony as opposed to single tones.

Subtest II required the children to move fast and slow in accordance to the music, to play rhythm sticks with the beat of familiar tunes, and to echo clap with rhythm sticks. Subtest III involved melodic reproduction of phrases or fragments of familiar tunes (sung on the syllable "la"). The children were also asked to sing two familiar songs in their entirety. Since it could not be assumed that the same songs were familiar to all children, each child was permitted to choose from several songs of similar difficulty. The development of concept formation was again the focus of subtest
IV, in which the children were asked to differentiate between same/different in single tones, short rhythmic patterns, tonal patterns, and phrases. The children were also asked to identify the return of an initial phrase after contrasting material had been presented.

All items in subtests I and IV were structured to permit nonverbal answers; subjects needed only to point to a representative picture. For example, directions for one item were given as follows: "You will hear two tones on the tape recorder; one of them will be higher than the other. If the first tone is higher, point to the picture of the bird up in the tree, and if the first tone is lower, point to the picture of the fish down in the water."

While the directions were being given, and while the item was being played, the investigator held a poster which contained the appropriate pictures in front of the child. The children's rhythmic and melodic responses were tape recorded on a separate machine for later evaluation.

Five brightly colored poster boards (twenty-eight by twenty-two inches) were used with the test as backgrounds for the eight by ten inch pictures. Bright water colors were used for all of the pictures. The concepts of long/short were represented by a picture of a full-size train, and another picture of a single engine, while a picture of two identical tigers, placed across from a snake and an alligator, served as the symbols for same/different. A visual image of a man and a woman was prepared for the items concerning identification of voices. The fifth poster contained pictures of
three individual but similar monkeys labeled (with large numbers) "1, 2, 3." This poster was used for items in which the child was directed to select one of three elements such as: "You will hear three tones. Two of them will be alike and one will be different. If the first tone is different, point to the picture of the first monkey. If the second one is different, point to the picture of the second monkey, and if the third tone is different, point to the picture of the third monkey."

The investigator also pointed to each picture while explaining the directions for those items which involved the visual aids. It was not imperative that the posters be used; many children, who were not shy and/or who did feel comfortable with the investigator, chose to give verbal answers such as "High!" (indicating that the first tone was high), or "Number two!" (indicating that the second tone was different). Directions for other nonverbal items involved standing and sitting. For example, for one item, the children were instructed to "Stand for the first phrase and sit down when you hear the next phrase start." Subtests II and III required skill performances only, as displayed by moving body parts, playing rhythm sticks, and singing.

The test consisted of one hundred points divided as follows: Subtest I—20 points, II—22 points, III—38 points, and IV—20 points. Because Greenberg and others stress the importance of skill development through musical activities, especially through singing, performance subtests were weighted more heavily than the subtests which evaluated other concept formations.
In subtests II and IV, two points were awarded for each correct answer. One item in the second subtest was awarded four points if the student moved correctly to both parts of the fast/slow example. The student earned two points if one part of the answer was correct, and no points for no response. All other items in subtest II carried a possible total of three points, which were awarded if responses contained a) correctness, b) consistency, and c) organization. Two points were awarded for a) and c) or b) and c), with one point being awarded for some discernible degree of organization without a) or b).3

In the melodic subtest, two points were awarded for each correct interval in the phrase-matching section. However, only one point was allowed for an entire item if the contour was similar to the original but intervals were transposed. The children's ability to sing familiar songs was graded on a scale from zero to five as follows: 0—no response, 1—very poor, 2—poor, 3—fair, 4—good, 5—excellent. Criteria were listed for each number of the scale.4

The procedure

In the original research design, it was proposed that after the pretest was administered, a total of sixty lessons would be taught on a daily basis over a period of twelve weeks. However, unforeseen circumstances involving the operation of the Head Start program caused the threat of discontinuation of the program for the five Baton Rouge Head Start centers, including the McKinley Head Start School where this study was being conducted. Although the school remained open on a day-to-day basis, the possibility that it
might be closed, before a posttest could be given individually to over eighty children, prompted a change in the research design.

Instead of the original plan of sixty lessons, thirty were taught on a daily basis over a six week period. Madsen and Madsen, and Lehman have pointed out that incidental aspects of research, chance factors, and research obstacles have provided new directions for many past studies. These limiting factors must be taken into account in interpreting the data. "Scientific literature is replete with examples of meaningful diversions that arise from 'negative aspects' of experimentation."^5

Lessons were taught to both of the experimental groups before mid-morning, as suggested by the Greenberg curriculum, and were from fifteen to twenty minutes in length. Stories were also read to the first control group during morning hours of every day that music was taught to the experimental groups. A list of the story titles may be found in appendix E. The second control group had no contact with the investigator between administration of the pretest and the condensed acclimatization classes which were given two days before the administration of the posttest began.

Musical equipment used with the experimental groups included a tape recorder, a record player, resonator bells, a pitch pipe, an autoharp, tambourines, triangles, drums, two rhythm sticks for every child, and jingle bells (wrist bells) for every child.

As advocated in the Greenberg curriculum, each lesson focused on one musical objective and contained review material, new material and many "things to do."^7 Some aspect of each of the
the five musical activities (singing, playing instruments, rhythmic movement, listening, and creating) was included in every lesson. Lesson plans can be found in appendix F.

Some general guidelines that were followed in making lesson plans were:

Listening
1. Have the children listen for a specified musical element before initial listening to a recording
2. Listening experiences should not be interrupted by questions or discussion
3. Introduce at least one new recording per week
4. Use a variety of good music, including jazz, rock, and classical
   (Specific recordings that were used can be found in the lesson plans in appendix F, while their sources are listed in the bibliography.)

Singing
1. Use songs with limited range and many repeated notes
2. The whole song method should be used when initially presenting a new song
3. Students should join in singing with the teacher after having heard the entire song at least three times
4. A motivational story, discussion, visual aid, or reading of the words should precede the introduction of a new song
5. Establish tempo and starting pitch before beginning to sing
6. Isolate difficult sections of songs
7. Review favorite songs daily
8. Allow song requests by students
9. Permit students to sing songs learned outside of class
10. Have children sit up straight
11. Use echo songs, tonal games, and musical conversations to help improve pitch accuracy
12. Introduce a new song after the class is involved in the lesson
13. Review a song often after it has been learned
14. Teach at least two new songs each week
15. Stress good singing habits at every lesson

Rhythmic movement
1. Use all three types of movement: a) formal, b) informal, and c) creative
2. Have children respond to musical elements such as rhythm, melody, tempo, dynamics, beat, phrase, and tone color
3. Encourage individuality and spontaneity of responses
4. Avoid labeling music as "running music" or "walking music" but allow the children to draw their own conclusions
5. Add accompaniments to movements
6. Use locomotor and axial movements
7. Imitate movements of animals
8. Supply movements to songs
9. Always have the children listen to the music before moving to it

Instruments
1. Encourage correct use of instruments
2. Introduce only one instrument at a time
3. Rotate available instruments in a lesson or series of lessons to allow every child a chance to play all instruments

4. Involve instruments in various activities such as listening, singing, rhythmic experiences, and creativity

5. Help develop discrimination through classification of sound production and tone colors

6. Because of its difficulty, the autoharp should generally be played by the teacher only

7. Although children are to receive no formal instruction with orchestral instruments, they may be presented visually and aurally to help develop recognition and discrimination

Creating

1. Creative potential varies from child to child

2. Teacher guidance is necessary

3. Creative activities with singing may include making up tunes, adding new stanzas to familiar tunes, or adding melody to familiar words (such as poems or nursery rhymes)

4. With instruments, creative experiences may involve making up accompaniments, melodies, and sound effects

5. Words to songs may be acted out

Suggested songs in the curriculum are divided into three levels which basically correspond to three-month segments of the school year. Of the fifteen songs taught during the course of the study, nine are suggested as being appropriate for level I (September, October, and November).
After the thirty lessons had been completed, two condensed acclimatization classes (about ten minutes per day on each of two days) were taught to the control groups in order to re-acquaint the children with terminology used on the test. Since six weeks had elapsed since the pretest had been administered, and since the control groups had had no formal contact with musical terms during that time, the terminology learned in the previous acclimatization classes may have been forgotten. The same material that was covered in the first acclimatization classes was presented in the condensed version; however, discussions and demonstrations were abbreviated. The posttest, identical to the pretest, was then administered to all of the experimental and control classes.

Reliability and validity of the test

After the pretest and posttest had been administered, the investigator received a copy of the test Greenberg had written to accompany his curriculum. Many items were found to be similar to those of the investigator's test; in fact, nine items were practically identical.

The reliability of the investigator-constructed test was determined by using the Pearson product-moment method to find the coefficient of correlation for split-halves of the test. Then, the Spearman-Brown prophecy formula was applied and yielded a reliability coefficient of .86.

It was determined that the test had face validity, because the items were selected directly from the objectives of the Greenberg
curriculum and from suggested evaluative procedures also found in the curriculum itself. The fact that nine items were practically identical to items which appeared on Greenberg's test added to the content validity of the investigator's test. A further measure of validity was obtained from computation of the coefficient \( r_{co} \), called the index of reliability; this shows how well obtained scores agree with their theoretical true values.\(^{13}\) It was found that the test measures true ability to the extent expressed by an \( r_{co} \) value of \( .93 \).

Three doctoral students in music education at Louisiana State University were used to judge the investigator's ability as a reliable evaluator. Individually, they scored tape recorded subject responses for the subtests in rhythm and melody for each of ten subjects. Assuming the null hypothesis of no difference between the investigator's evaluations and those of the judges, the chi square procedure was applied with Yates's correction. Results yielded an average chi square value of 19, with individual values being 13, 19, and 24 with 16 degrees of freedom. Therefore, the null hypothesis was accepted at the .01 level of significance.

**Item analysis**

To determine item difficulty, an item analysis was applied to each item of the test. Since subtests I and IV required purely objective answers with each item receiving equal credit, the percentage of students who answered each item correctly was computed. As a general rule, items of moderate difficulty (forty to sixty percent passing) are preferred to those which are harder or easier.\(^{14}\)
Because subtests II and III contained rhythmic and melodic responses with possible maximum points ranging from three to ten, the average score of all subjects was computed for each item and converted to a percentage by dividing by the number of possible points for each item. Items were determined as being difficult if the average score was less than forty percent of the possible total; items for which the average score ranged from forty to sixty percent of the possible total were classified as being of medium difficulty. Easy items were those that had average scores of sixty percent or more of the maximum.

The only items found to be too easy were those in which the subjects were required to determine if a man or woman was singing; these items were answered correctly by as much as eighty-eight percent of the group during the pretest. Difficult items in the objective subtests were those concerning phrases. The identification of the place where the first phrase ended and the second began, and the recognition of the return of an initial phrase were both difficult tasks for the children to perform. However, items which were sung showed better results in terms of phrase recognition than did purely instrumental items.

In the rhythm subtest, the rhythmic-duplication item in 6/8 meter caused the greatest difficulty; only thirty-seven percent of the experimental group subjects answered the item correctly on the posttest. All three melodic phrase-duplication items produced average scores below forty percent of the possible total for experimental group posttest scores, even though the items were
extracted from songs that had been sung in the lessons. Many of
the errors occurred because the subjects began their responses on
a pitch which was lower than the one given; even if all intervals
were sung correctly from their own starting pitch, subjects were
awarded only one point for the entire item if each interval did
not match the ones given. These results may indicate that the
scoring procedures for those melodic items need to be revised to
give more credit for general contour, since the degree of improve-
ment was not shown by test results for those items.
Notes


4Ibid., p. 5.


6Madsen and Madsen, Experimental Research, p. 58.


8Ibid., pp. 15-19.  9Ibid., pp. 21-41.

10Ibid., pp. 46-60.  11Ibid., pp. 61-77.

12Ibid., pp. 78-84.


14Ibid., p. 363.
CHAPTER IV

ANALYSIS AND DISCUSSION

OF THE DATA

Introduction

A number of analyses were required to examine and evaluate the data collected in this study. The abbreviations used in the tables and summary of this chapter are as follows:

$E_1$ = first experimental group
$E_2$ = second experimental group
$C_1$ = first control group
$C_2$ = second control group
$X$ = pretest raw scores
$Y$ = posttest raw scores
$M$ = mean or means
$N$ = number of subjects (cases)
$S.D.$ = standard deviation
$D$ = difference
$t$ = critical ratio \((D/S.D.)_D\)
$r$ = coefficient of correlatin
$T$ = total
$L.S.$ = level of significance
Analysis of the Data

Thirty music lessons were taught to both the first and second experimental groups; sixteen of the subjects in the second experimental group were three years old when the study began, and seven of the children were four years old. All of the children in the first experimental group were four years and seven months old in August of 1977 when the study began, and all of the children in both of the control groups were four years old, with the exception of one three-year-old child in the second control group. Because of these differences in the children's ages, computation of quantitative data concerning pretest and posttest differences between experimental and control groups by chronological age was not feasible.

The first control group participated in non-musical activities for thirty sessions; the investigator read and discussed stories with this group to determine the extent to which personal contact affected posttest scores. The second control group had no contact with the investigator between the pretest and two days before the posttest began. Table 2 contains the dispersion of the subjects in the four classes used in the study.

Table 3 shows the means and standard deviations of the subjects for the total test. The $r$ values pertain only to subjects who took both the pretest and the posttest; these values were used in the computation of predicted values for students who took only one of the tests. Results given in table 3 reveal that the greatest improvement was made by the second experimental group, which contained a majority of three-year-old children.
TABLE 2

DISTRIBUTION OF THE SUBJECTS

<table>
<thead>
<tr>
<th>Group</th>
<th>Original 3-yr-olds</th>
<th>Original 4-yr-olds</th>
<th>Late Entries 3-yr-olds</th>
<th>Late Entries 4-yr-olds</th>
<th>Total</th>
<th>Early Departures</th>
<th>Total who Took Both X and Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>E₁</td>
<td>...</td>
<td>16</td>
<td>...</td>
<td>4</td>
<td>20</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>E₂</td>
<td>13</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>23</td>
<td>...</td>
<td>15</td>
</tr>
<tr>
<td>C₁</td>
<td>...</td>
<td>17</td>
<td>...</td>
<td>6</td>
<td>23</td>
<td>...</td>
<td>17</td>
</tr>
<tr>
<td>C₂</td>
<td>...</td>
<td>13</td>
<td>1</td>
<td>5</td>
<td>19</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>
### TABLE 3

**M, S.D. AND r OF ENTIRE TEST BATTERY**

**EXPERIMENTAL AND CONTROL GROUPS**

<table>
<thead>
<tr>
<th>Group</th>
<th>N&lt;sup&gt;a&lt;/sup&gt;</th>
<th>M&lt;sub&gt;X&lt;/sub&gt;</th>
<th>S.D.&lt;sub&gt;X&lt;/sub&gt;</th>
<th>M&lt;sub&gt;Y&lt;/sub&gt;</th>
<th>S.D.&lt;sub&gt;Y&lt;/sub&gt;</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>E&lt;sub&gt;1&lt;/sub&gt;</td>
<td>15 (20)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>32 (33)</td>
<td>10.1 (9.5)</td>
<td>47 (48)</td>
<td>8.1 (7.6)</td>
<td>.75</td>
</tr>
<tr>
<td>E&lt;sub&gt;2&lt;/sub&gt;</td>
<td>15 (23)</td>
<td>28</td>
<td>8.2 (6.7)</td>
<td>49 (48)</td>
<td>12.9 (11.5)</td>
<td>.24</td>
</tr>
<tr>
<td>E&lt;sub&gt;T&lt;/sub&gt;</td>
<td>30 (43)</td>
<td>30</td>
<td>9.2 (8.1)</td>
<td>48</td>
<td>10.8 (9.9)</td>
<td>.42</td>
</tr>
<tr>
<td>C&lt;sub&gt;1&lt;/sub&gt;</td>
<td>17 (23)</td>
<td>30 (29)</td>
<td>9.4 (8.8)</td>
<td>43 (40)</td>
<td>10.6 (10.8)</td>
<td>.48</td>
</tr>
<tr>
<td>C&lt;sub&gt;2&lt;/sub&gt;</td>
<td>11 (19)</td>
<td>29 (28)</td>
<td>7.0 (8.7)</td>
<td>31 (24)</td>
<td>6.7 (11.7)</td>
<td>.83</td>
</tr>
<tr>
<td>C&lt;sub&gt;T&lt;/sub&gt;</td>
<td>28 (42)</td>
<td>30 (28)</td>
<td>8.5 (8.7)</td>
<td>37 (33)</td>
<td>9.2 (11.2)</td>
<td>.50</td>
</tr>
</tbody>
</table>

**NOTE:** See p. 137 for explanations of superscript letters.
Further results of the total test scores are presented in tables 4-6. Differences in pretest scores were significant between the first and second experimental groups when all subjects of those groups were considered (see table 4). The data in table 5 show that there was no significant difference in posttest scores between the two experimental groups. Thus, the findings displayed in tables 4 and 5 magnify the degree of improvement of the second experimental group. Table 5 also indicates that posttest differences between the first experimental and first control groups, and between the second experimental and first control groups were not significant when only students who had taken both the pretest and posttest were considered. Furthermore, the difference between scores of the first and second control groups was significant. This difference indicates that familiarity with the investigator could have had a significant affect on test results of the first control group.

Table 6 shows that both experimental groups improved significantly from the pretest to the posttest and that the improvement of the first control group was also significant at the .01 level. Because contact with the investigator did have some affect on test results, pretest scores of all of the subjects would possibly have been higher if the students had had more previous communication with the investigator.

The results of the tone subtest are analyzed in tables 7-10, with table 7 showing the means and standard deviations for each group, while tables 8-10 examine the differences between means and their significance. Again, the high posttest scores of the first
control group are evidenced in table 10 because there was no
difference between the mean of that group and the means of the experi­
mental groups for certain calculations. Table 10 also reveals
the fact that even though the first experimental group improved
slightly from the pretest to the posttest in the tone subtest, the
results were not significant. Furthermore, the degree of improve­
ment by both the second experimental and first control groups was
significant.

The second experimental group had the lowest pretest mean
score of all four groups in the rhythm subtest (see table 11). In
fact, table 12 reveals that this low score was a significant
difference when compared with pretest scores of both the first
experimental group and with the first control group. However, the
data presented in table 14 shows that by the time the posttest was
administered, the second experimental group had improved more than
any of the other groups in the rhythm subtest. Furthermore, table 14
reveals that rhythm was the only sub-area in which the amount of
improvement of the first control group was not significant.

Although table 15 displays the fact that the means of pre­
test scores of the melodic subtest were low, both experimental groups
doubled those scores by the posttest. Tables 16-18 pertain to
melodic subtest results. The high posttest scores of the first
control group caused the null hypothesis to be accepted when comparing
posttest scores of both experimental groups with the first control
group (see table 17). The degree of improvement of both experimental
groups was significant when pretest and posttest scores were compared.

The posttest scores of the first control group were signif­
icantly higher than those of the second control group in the form subtest, as they had been throughout the other subtests. Tables 19-22 show the higher scores of the first control group as well as provide other data concerning the form subtest. An atypical fact in table 22 is that the pretest mean score of the second control group was significantly higher than the posttest score of the form subtest.

Tables 23-26 reveal that with one exception, no significant differences were found when scores of females were compared with those of males. An analysis of pretest and posttest scores between males and females in the experimental groups is presented in table 23 while table 24 presents the data on the same topic as it pertains to the control groups. Comparisons of differences between means of pretest scores are presented in table 25; posttest mean scores are compared in table 26. Table 26 also reveals that posttest scores of females in the second experimental group were higher than posttest scores of males in the same group. The difference was significant at the .05 level.

Tables 27-30 are concerned with a comparison of pretest and posttest scores of children who had had previous school experiences in the Head Start program with those who had not. The purpose of this analysis was to determine if previous school experience had had an influence on test results due to improved listening skills, attention span, vocabulary, cooperation, or decreased shyness caused by interaction with peers and teachers.

Although tables 27-28 show that, in most cases, scores of the children who had had previous school experience were higher than those who had not, only some of the differences were significant.
### TABLE 4

D BETWEEN $M_X$, S.D.*, ±, AND L.S.

OF ENTIRE TEST BATTERY

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between $M_X$</th>
<th>S.D.*</th>
<th>±</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T-C_T$</td>
<td>0 (2)</td>
<td>2.3 (1.8)</td>
<td>0 (1.09)</td>
<td>...</td>
</tr>
<tr>
<td>$E_1-E_2$</td>
<td>4 (5)</td>
<td>3.4 (2.5)</td>
<td>1.20 (1.97)</td>
<td>... (0.05)</td>
</tr>
<tr>
<td>$E_1-C_1$</td>
<td>2 (4)</td>
<td>3.6 (2.8)</td>
<td>.56 (1.42)</td>
<td>...</td>
</tr>
<tr>
<td>$E_1-C_2$</td>
<td>3 (5)</td>
<td>3.4 (2.9)</td>
<td>.89 (1.71)</td>
<td>...</td>
</tr>
<tr>
<td>$E_2-C_1$</td>
<td>2 (1)</td>
<td>3.1 (2.3)</td>
<td>.64 (0.43)</td>
<td>...</td>
</tr>
<tr>
<td>$E_2-C_2$</td>
<td>1 (0)</td>
<td>3.0 (0 )</td>
<td>.33 (0 )</td>
<td>...</td>
</tr>
<tr>
<td>$C_1-C_2$</td>
<td>1</td>
<td>3.1 (2.7)</td>
<td>.32 (0.37)</td>
<td>...</td>
</tr>
</tbody>
</table>

### TABLE 5

D BETWEEN $M_Y$, S.D.*, ±, AND L.S.

OF ENTIRE TEST BATTERY

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between $M_Y$</th>
<th>S.D.*</th>
<th>±</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T-C_T$</td>
<td>11</td>
<td>2.6 (2.3)</td>
<td>4.18 (4.79)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_1-C_1$</td>
<td>4 (8)</td>
<td>3.3 (2.8)</td>
<td>1.20 (2.84)</td>
<td>... (0.01)</td>
</tr>
<tr>
<td>$E_1-C_2$</td>
<td>16 (24)</td>
<td>2.9 (3.2)</td>
<td>5.50 (7.55)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_2-C_1$</td>
<td>6 (8)</td>
<td>4.2 (3.3)</td>
<td>1.42 (2.43)</td>
<td>... (0.05)</td>
</tr>
<tr>
<td>$E_2-C_2$</td>
<td>18 (24)</td>
<td>3.9 (3.6)</td>
<td>4.63 (6.67)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_1-E_2$</td>
<td>2 (0)</td>
<td>3.9</td>
<td>.50 (0 )</td>
<td>...</td>
</tr>
<tr>
<td>$C_1-C_2$</td>
<td>12 (16)</td>
<td>3.3 (3.5)</td>
<td>3.60 (4.61)</td>
<td>.01</td>
</tr>
</tbody>
</table>
TABLE 6

D BETWEEN M_Y-X, S.D. D, †, AND L.S.
OF ENTIRE TEST BATTERY

<table>
<thead>
<tr>
<th>Group</th>
<th>D between M_Y-X</th>
<th>S.D. D</th>
<th>†</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E_1</td>
<td>15</td>
<td>3.3 (2.7)</td>
<td>4.48 (5.51)</td>
<td>.01</td>
</tr>
<tr>
<td>E_2</td>
<td>21 (20)</td>
<td>3.9 (2.8)</td>
<td>5.32 (7.21)</td>
<td>.01</td>
</tr>
<tr>
<td>C_1</td>
<td>13 (11)</td>
<td>3.4 (2.9)</td>
<td>3.78</td>
<td>.01</td>
</tr>
<tr>
<td>C_2</td>
<td>2 (-4)</td>
<td>2.9 (3.3)</td>
<td>.68 (-3.70)</td>
<td>...</td>
</tr>
</tbody>
</table>

TABLE 7

M AND S.D. OF THE TONE SUBTEST
EXPERIMENTAL AND CONTROL GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>M_X</th>
<th>S.D._X</th>
<th>M_Y</th>
<th>S.D._Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>E_1</td>
<td>10 (11)</td>
<td>3.5 (3.2)</td>
<td>12</td>
<td>4.1 (3.7)</td>
</tr>
<tr>
<td>E_2</td>
<td>9</td>
<td>3.7 (3.1)</td>
<td>13 (12)</td>
<td>2.8 (3.4)</td>
</tr>
<tr>
<td>E_T</td>
<td>10</td>
<td>3.6 (3.2)</td>
<td>13 (12)</td>
<td>4.5 (3.6)</td>
</tr>
<tr>
<td>C_1</td>
<td>9</td>
<td>4.6 (4.0)</td>
<td>13 (12)</td>
<td>3.2 (4.1)</td>
</tr>
<tr>
<td>C_2</td>
<td>9 (8)</td>
<td>3.1</td>
<td>10 (8)</td>
<td>3.3 (4.3)</td>
</tr>
<tr>
<td>C_T</td>
<td>9</td>
<td>4.1 (3.6)</td>
<td>12 (10)</td>
<td>3.2 (4.2)</td>
</tr>
</tbody>
</table>
TABLE 8

D BETWEEN $M_X$, S.D., $t$, AND L.S.

TONE SUBTEST

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between $M_X$</th>
<th>S.D.</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T - C_T$</td>
<td>1</td>
<td>1.0 ( .5)</td>
<td>1.00 ( .54)</td>
<td>...</td>
</tr>
<tr>
<td>$E_1 - E_2$</td>
<td>1 (2)</td>
<td>1.3 (1.0)</td>
<td>.76 (2.00)</td>
<td>... (.05)</td>
</tr>
<tr>
<td>$E_1 - C_1$</td>
<td>1 (2)</td>
<td>1.4 (1.1)</td>
<td>.69 (1.83)</td>
<td>...</td>
</tr>
<tr>
<td>$E_1 - C_2$</td>
<td>1 (3)</td>
<td>1.3 (1.0)</td>
<td>.76 (2.91)</td>
<td>... (.01)</td>
</tr>
<tr>
<td>$E_2 - C_1$</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$E_2 - C_2$</td>
<td>0 (1)</td>
<td>0 (.8)</td>
<td>0 (1.20)</td>
<td>...</td>
</tr>
<tr>
<td>$C_1 - C_2$</td>
<td>0 (1)</td>
<td>0 (1.1)</td>
<td>0 (.94)</td>
<td>...</td>
</tr>
</tbody>
</table>

TABLE 9

D BETWEEN $M_Y$, S.D., $t$, AND L.S.

TONE SUBTEST

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between $M_Y$</th>
<th>S.D.</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T - C_T$</td>
<td>1 (2)</td>
<td>1.0 ( .7)</td>
<td>1.00 (2.80)</td>
<td>... (.01)</td>
</tr>
<tr>
<td>$E_1 - E_2$</td>
<td>1 (0)</td>
<td>1.3</td>
<td>.78 (0)</td>
<td>...</td>
</tr>
<tr>
<td>$E_1 - C_1$</td>
<td>-1 (0)</td>
<td>1.3 (0 )</td>
<td>-.76 (0 )</td>
<td>...</td>
</tr>
<tr>
<td>$E_1 - C_2$</td>
<td>2 (4)</td>
<td>1.5 (1.3)</td>
<td>1.37 (3.00)</td>
<td>... (.01)</td>
</tr>
<tr>
<td>$E_2 - C_1$</td>
<td>0</td>
<td>1.1 ( .9)</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$E_2 - C_2$</td>
<td>3 (4)</td>
<td>1.2</td>
<td>2.43 (3.31)</td>
<td>.05 (.01)</td>
</tr>
<tr>
<td>$C_1 - C_2$</td>
<td>3 (4)</td>
<td>1.3</td>
<td>2.30 (3.10)</td>
<td>.05 (.01)</td>
</tr>
</tbody>
</table>
TABLE 10

D BETWEEN M_{Y-X}, S.D., t, AND L.S.

TONE SUBTEST

<table>
<thead>
<tr>
<th>Group</th>
<th>D between M_{Y-X}</th>
<th>S.D.</th>
<th>t</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E_1</td>
<td>2 (1)</td>
<td>1.9</td>
<td>1.00</td>
<td>.84</td>
</tr>
<tr>
<td>E_2</td>
<td>4 (3)</td>
<td>1.2</td>
<td>3.30</td>
<td>.01</td>
</tr>
<tr>
<td>C_1</td>
<td>4 (3)</td>
<td>1.4</td>
<td>2.90</td>
<td>.01</td>
</tr>
<tr>
<td>C_2</td>
<td>1 (0)</td>
<td>1.4</td>
<td>.73</td>
<td>.05</td>
</tr>
</tbody>
</table>

TABLE 11

M AND S.D. OF THE RHYTHM SUBTEST

EXPERIMENTAL AND CONTROL GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>M_X</th>
<th>S.D._X</th>
<th>M_Y</th>
<th>S.D._Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>E_1</td>
<td>11</td>
<td>3.7 (3.6)</td>
<td>16</td>
<td>3.3</td>
</tr>
<tr>
<td>E_2</td>
<td>7</td>
<td>4.3 (3.2)</td>
<td>13</td>
<td>3.1 (2.9)</td>
</tr>
<tr>
<td>E_T</td>
<td>9</td>
<td>4.0 (3.6)</td>
<td>14</td>
<td>3.2 (3.1)</td>
</tr>
<tr>
<td>C_1</td>
<td>11</td>
<td>3.7 (3.3)</td>
<td>12</td>
<td>4.4 (4.3)</td>
</tr>
<tr>
<td>C_2</td>
<td>10 (8)</td>
<td>4.4 (4.8)</td>
<td>10 (8)</td>
<td>3.8 (4.5)</td>
</tr>
<tr>
<td>C_T</td>
<td>10</td>
<td>4.0</td>
<td>11 (10)</td>
<td>4.2 (4.4)</td>
</tr>
</tbody>
</table>
### TABLE 12

**D BETWEEN $M_X$, S.D., $t$, AND L.S.**

**RHYTHM SUBTEST**

<table>
<thead>
<tr>
<th>Groups</th>
<th>$D$ between $M_X$</th>
<th>S.D.</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T$--$C_T$</td>
<td>1</td>
<td>1.1</td>
<td>-.91</td>
<td>...</td>
</tr>
<tr>
<td>$E_1$--$E_2$</td>
<td>4</td>
<td>1.5 (1.0)</td>
<td>2.67 (4.00)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_1$--$C_1$</td>
<td>0</td>
<td>1.3</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$E_1$--$C_2$</td>
<td>1 (2)</td>
<td>1.6 (1.3)</td>
<td>.63 (1.54)</td>
<td>...</td>
</tr>
<tr>
<td>$E_2$--$C_1$</td>
<td>-4</td>
<td>1.4 (1.0)</td>
<td>-2.86 (-4.00)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_2$--$C_2$</td>
<td>-3 (-1)</td>
<td>1.7 (1.3)</td>
<td>-1.76 (-.77)</td>
<td>...</td>
</tr>
<tr>
<td>$C_1$--$C_2$</td>
<td>1 (3)</td>
<td>1.6 (1.3)</td>
<td>.63 (2.31)</td>
<td>... (.05)</td>
</tr>
</tbody>
</table>

### TABLE 13

**D BETWEEN $M_Y$, S.D., $t$, AND L.S.**

**RHYTHM SUBTEST**

<table>
<thead>
<tr>
<th>Groups</th>
<th>$D$ between $M_Y$</th>
<th>S.D.</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T$--$C_T$</td>
<td>3 (4)</td>
<td>1.0 (.6)</td>
<td>3.00 (6.67)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_1$--$E_2$</td>
<td>3</td>
<td>1.2 (1.0)</td>
<td>2.50 (3.00)</td>
<td>.05 (.01)</td>
</tr>
<tr>
<td>$E_1$--$C_1$</td>
<td>4</td>
<td>1.1 (1.2)</td>
<td>3.66 (3.33)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_1$--$C_2$</td>
<td>6 (8)</td>
<td>1.4 (1.3)</td>
<td>4.28 (6.15)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_2$--$C_1$</td>
<td>1</td>
<td>1.3 (1.1)</td>
<td>.77 (.91)</td>
<td>...</td>
</tr>
<tr>
<td>$E_2$--$C_2$</td>
<td>3 (5)</td>
<td>1.4 (1.2)</td>
<td>2.14 (4.17)</td>
<td>.05 (.01)</td>
</tr>
<tr>
<td>$C_1$--$C_2$</td>
<td>2 (4)</td>
<td>1.6 (1.4)</td>
<td>1.26 (2.86)</td>
<td>... (.01)</td>
</tr>
</tbody>
</table>
### TABLE 14

D BETWEEN $M_{Y-X}$, S.D. $D$, $t$, AND L.S.

**RHYTHM SUBTEST**

<table>
<thead>
<tr>
<th>Group</th>
<th>D between $M_{Y-X}$</th>
<th>S.D. $D$</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_1$</td>
<td>5</td>
<td>1.3 (1.1)</td>
<td>3.91 (4.62)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_2$</td>
<td>6</td>
<td>1.4 (.9)</td>
<td>4.34 (6.66)</td>
<td>.01</td>
</tr>
<tr>
<td>$C_1$</td>
<td>1</td>
<td>1.4 (1.1)</td>
<td>.71 (.90)</td>
<td>...</td>
</tr>
<tr>
<td>$C_2$</td>
<td>0</td>
<td>1.8 (2.0)</td>
<td>0</td>
<td>...</td>
</tr>
</tbody>
</table>

### TABLE 15

$M$ AND S.D. OF THE MELODY SUBTEST

**EXPERIMENTAL AND CONTROL GROUPS**

<table>
<thead>
<tr>
<th>Group</th>
<th>$M_X$</th>
<th>S.D. $X$</th>
<th>$M_Y$</th>
<th>S.D. $Y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_1$</td>
<td>5</td>
<td>3.6 (3.3)</td>
<td>10</td>
<td>3.0 (3.6)</td>
</tr>
<tr>
<td>$E_2$</td>
<td>6</td>
<td>4.6 (3.7)</td>
<td>14 (13)</td>
<td>8.1 (7.2)</td>
</tr>
<tr>
<td>$C_1$</td>
<td>5</td>
<td>2.5 (2.2)</td>
<td>11 (10)</td>
<td>7.7 (7.0)</td>
</tr>
<tr>
<td>$C_2$</td>
<td>4</td>
<td>2.3 (2.5)</td>
<td>6 (5)</td>
<td>3.5 (3.7)</td>
</tr>
<tr>
<td>$C_T$</td>
<td>5 (4)</td>
<td>2.4 (2.3)</td>
<td>9 (8)</td>
<td>6.4 (5.7)</td>
</tr>
</tbody>
</table>
TABLE 16

D BETWEEN M_X, S.D., \( \hat{t} \), AND L.S.

MELODY SUBTEST

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between M_X</th>
<th>S.D. ( D )</th>
<th>( \hat{t} )</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E_T--C_T</td>
<td>1 (2)</td>
<td>.9 ( .6)</td>
<td>1.14 (3.12)</td>
<td>( ... ) (.01)</td>
</tr>
<tr>
<td>E_1--E_2</td>
<td>-1</td>
<td>1.5 (1.0)</td>
<td>-.66 (-.94)</td>
<td>( ... )</td>
</tr>
<tr>
<td>E_1--C_1</td>
<td>0</td>
<td>1.1 ( .9)</td>
<td>0</td>
<td>( ... )</td>
</tr>
<tr>
<td>E_1--C_2</td>
<td>1</td>
<td>1.2 ( .9)</td>
<td>.86 (1.06)</td>
<td>( ... )</td>
</tr>
<tr>
<td>E_2--C_1</td>
<td>-1</td>
<td>1.3 ( .9)</td>
<td>-.74 (1.10)</td>
<td>( ... )</td>
</tr>
<tr>
<td>E_2--C_2</td>
<td>2</td>
<td>1.4 (1.0)</td>
<td>1.45 (2.08)</td>
<td>( ... ) (.05)</td>
</tr>
<tr>
<td>C_1--C_2</td>
<td>1</td>
<td>.9 ( .7)</td>
<td>1.08 (1.36)</td>
<td>( ... )</td>
</tr>
</tbody>
</table>

TABLE 17

D BETWEEN M_Y, S.D., \( \hat{t} \), AND L.S.

MELODY SUBTEST

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between M_Y</th>
<th>S.D. ( D )</th>
<th>( \hat{t} )</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E_T--C_T</td>
<td>3 (4)</td>
<td>1.6 (1.4)</td>
<td>1.87 (2.84)</td>
<td>( ... ) (.01)</td>
</tr>
<tr>
<td>E_1--E_2</td>
<td>4 (3)</td>
<td>2.2 (1.7)</td>
<td>1.79 (1.70)</td>
<td>( ... )</td>
</tr>
<tr>
<td>E_1--C_1</td>
<td>1 (0)</td>
<td>2.0</td>
<td>.49 (0 )</td>
<td>( ... )</td>
</tr>
<tr>
<td>E_1--C_2</td>
<td>4 (5)</td>
<td>1.3 (1.2)</td>
<td>3.10 (4.31)</td>
<td>.01</td>
</tr>
<tr>
<td>C_2--C_1</td>
<td>3</td>
<td>2.8 (2.1)</td>
<td>1.12 (1.43)</td>
<td>( ... )</td>
</tr>
<tr>
<td>E_2--C_2</td>
<td>8</td>
<td>2.3 (1.7)</td>
<td>3.39 (4.58)</td>
<td>.01</td>
</tr>
<tr>
<td>C_1--C_2</td>
<td>5</td>
<td>2.1 (1.7)</td>
<td>2.34 (2.96)</td>
<td>.05 (.01)</td>
</tr>
</tbody>
</table>
TABLE 18

D BETWEEN $M_{Y-X}$, S.D., $\bar{t}$, AND L.S.

MELODY SUBTEST

<table>
<thead>
<tr>
<th>Group</th>
<th>$D$ between $M_{Y-X}$</th>
<th>S.D.</th>
<th>$\bar{t}$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_1$</td>
<td>5</td>
<td>1.2 (1.1)</td>
<td>4.13 (4.65)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_2$</td>
<td>8 (7)</td>
<td>2.4 (1.7)</td>
<td>3.30 (4.11)</td>
<td>.01</td>
</tr>
<tr>
<td>$C_1$</td>
<td>6 (5)</td>
<td>2.0 (1.5)</td>
<td>3.16 (3.32)</td>
<td>.01</td>
</tr>
<tr>
<td>$C_2$</td>
<td>2 (1)</td>
<td>1.3 (1.0)</td>
<td>1.62 (.98)</td>
<td>...</td>
</tr>
</tbody>
</table>

TABLE 19

M AND S.D. OF THE FORM SUBTEST

EXPERIMENTAL AND CONTROL GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>$M_X$</th>
<th>S.D.$_{X}$</th>
<th>$M_Y$</th>
<th>S.D.$_{Y}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_1$</td>
<td>6</td>
<td>3.0 (2.7)</td>
<td>9</td>
<td>4.1 (4.4)</td>
</tr>
<tr>
<td>$E_2$</td>
<td>6</td>
<td>3.3 (2.7)</td>
<td>9</td>
<td>3.7 (3.5)</td>
</tr>
<tr>
<td>$E_T$</td>
<td>6</td>
<td>3.1 (2.7)</td>
<td>9</td>
<td>3.9</td>
</tr>
<tr>
<td>$C_1$</td>
<td>5</td>
<td>2.3 (2.0)</td>
<td>8 (7)</td>
<td>3.8 (3.4)</td>
</tr>
<tr>
<td>$C_2$</td>
<td>6</td>
<td>2.5 (2.4)</td>
<td>5 (4)</td>
<td>2.5 (2.6)</td>
</tr>
<tr>
<td>$C_T$</td>
<td>6 (5)</td>
<td>2.4 (2.2)</td>
<td>7 (6)</td>
<td>3.3 (3.1)</td>
</tr>
</tbody>
</table>
**TABLE 20**

D BETWEEN $M_X$, S.D., $t$, AND L.S.

**FORM SUBTEST**

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between $M_X$</th>
<th>S.D.</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T$--$C_T$</td>
<td>0</td>
<td>.7 ( .5)</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$E_1$--$E_2$</td>
<td>0</td>
<td>1.2 ( .8)</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$E_1$--$C_1$</td>
<td>1</td>
<td>1.0 ( .7)</td>
<td>1.04 ( 1.36)</td>
<td>...</td>
</tr>
<tr>
<td>$E_1$--$C_2$</td>
<td>0</td>
<td>1.1 (1.0)</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$E_2$--$C_1$</td>
<td>1</td>
<td>1.0 ( .7)</td>
<td>.98 ( 1.42)</td>
<td>...</td>
</tr>
<tr>
<td>$E_2$--$C_2$</td>
<td>0</td>
<td>1.1 ( .8)</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$C_1$--$C_2$</td>
<td>-1</td>
<td>.9 ( .7)</td>
<td>-1.06 (-1.45)</td>
<td>...</td>
</tr>
</tbody>
</table>

**TABLE 21**

D BETWEEN $M_Y$, S.D., $t$, AND L.S.

**FORM SUBTEST**

<table>
<thead>
<tr>
<th>Groups</th>
<th>D between $M_Y$</th>
<th>S.D.</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_T$--$C_T$</td>
<td>2 (3)</td>
<td>.9 ( .8)</td>
<td>2.11 (3.93)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_1$--$E_2$</td>
<td>0</td>
<td>1.4 (1.2)</td>
<td>0</td>
<td>...</td>
</tr>
<tr>
<td>$E_1$--$C_1$</td>
<td>1 (2)</td>
<td>1.4 (1.2)</td>
<td>.71 (1.60)</td>
<td>...</td>
</tr>
<tr>
<td>$E_1$--$C_2$</td>
<td>4 (5)</td>
<td>1.3 (1.2)</td>
<td>3.17 (4.30)</td>
<td>.01</td>
</tr>
<tr>
<td>$E_2$--$C_1$</td>
<td>1</td>
<td>1.1</td>
<td>.88</td>
<td>...</td>
</tr>
<tr>
<td>$E_2$--$C_2$</td>
<td>4 (5)</td>
<td>1.2 ( .9)</td>
<td>3.29 (5.34)</td>
<td>.01</td>
</tr>
<tr>
<td>$C_1$--$C_2$</td>
<td>3</td>
<td>1.2 ( .9)</td>
<td>2.52 (3.26)</td>
<td>.05 (.01)</td>
</tr>
<tr>
<td>Group</td>
<td>D between M_{Y-X}</td>
<td>S.D. _D</td>
<td>t</td>
<td>L.S.</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------</td>
<td>---------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>E_1</td>
<td>3</td>
<td>1.3 (1.2)</td>
<td>2.29 (2.62)</td>
<td>0.05 (.01)</td>
</tr>
<tr>
<td>E_2</td>
<td>3</td>
<td>1.3 (.9)</td>
<td>2.34 (3.30)</td>
<td>0.05 (.01)</td>
</tr>
<tr>
<td>G_1</td>
<td>3 (-2)</td>
<td>1.1 (.8)</td>
<td>2.79 (2.68)</td>
<td>.01</td>
</tr>
<tr>
<td>C_2</td>
<td>-1 (-2)</td>
<td>1.1 (.8)</td>
<td>-0.93 (-2.46)</td>
<td>... (.05)</td>
</tr>
</tbody>
</table>
TABLE 23

ANALYSIS OF PRETEST AND POSTTEST TOTAL SCORES
ACCORDING TO SUBJECTS' SEX
(EXPERIMENTAL GROUPS)

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M_X</th>
<th>S.D. X</th>
<th>M_Y</th>
<th>S.D. Y</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E_1</td>
<td>7 (8)</td>
<td>30</td>
<td>11.8 (11.0)</td>
<td>46</td>
<td>10.0 (9.3)</td>
</tr>
<tr>
<td>E_2</td>
<td>9 (14)</td>
<td>29</td>
<td>8.4 (6.8)</td>
<td>54 (52)</td>
<td>11.2 (10.5)</td>
</tr>
<tr>
<td>E_T</td>
<td>16 (22)</td>
<td>29</td>
<td>10.1 (8.6)</td>
<td>50</td>
<td>10.7 (10.1)</td>
</tr>
<tr>
<td>Males</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E_1</td>
<td>8 (12)</td>
<td>35</td>
<td>7.7 (7.5)</td>
<td>49</td>
<td>6.1</td>
</tr>
<tr>
<td>E_2</td>
<td>6 (9)</td>
<td>27</td>
<td>7.6 (6.3)</td>
<td>41</td>
<td>11.5 (10.2)</td>
</tr>
<tr>
<td>E_T</td>
<td>14 (21)</td>
<td>31 (32)</td>
<td>7.6 (7.0)</td>
<td>46</td>
<td>8.8 (8.1)</td>
</tr>
<tr>
<td>Group</td>
<td>N</td>
<td>$M_X$</td>
<td>S.D.$X$</td>
<td>$M_Y$</td>
<td>S.D.$Y$</td>
</tr>
<tr>
<td>-------</td>
<td>-----</td>
<td>-------</td>
<td>---------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_1$</td>
<td>8 (12)</td>
<td>32 (30)</td>
<td>7.3 (7.0)</td>
<td>46 (43)</td>
<td>10.6 (11.0)</td>
</tr>
<tr>
<td>$C_2$</td>
<td>8 (12)</td>
<td>30 (28)</td>
<td>6.2 (8.5)</td>
<td>31 (29)</td>
<td>7.0 (11.0)</td>
</tr>
<tr>
<td>$C_T$</td>
<td>16 (24)</td>
<td>31 (29)</td>
<td>7.0 (7.8)</td>
<td>39 (36)</td>
<td>9.0 (11.0)</td>
</tr>
<tr>
<td>Males</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_1$</td>
<td>9 (11)</td>
<td>29 (27)</td>
<td>10.8 (10.2)</td>
<td>40 (38)</td>
<td>9.7 (10.5)</td>
</tr>
<tr>
<td>$C_2$</td>
<td>3 (7)</td>
<td>27 (22)</td>
<td>8.2 (6.6)</td>
<td>28 (19)</td>
<td>5.2 (10.5)</td>
</tr>
<tr>
<td>$C_T$</td>
<td>12 (18)</td>
<td>28 (25)</td>
<td>10.2 (10.4)</td>
<td>37 (30)</td>
<td>8.8 (10.3)</td>
</tr>
</tbody>
</table>
### TABLE 25

COMPARISON OF MALE AND FEMALE SUBJECTS

$D$ BETWEEN $M_X$, $S.D_D$, $t$, AND $L.S.$

<table>
<thead>
<tr>
<th>Group</th>
<th>Females</th>
<th>Males</th>
<th>Females</th>
<th>Males</th>
<th>D</th>
<th>S.D.D</th>
<th>t</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_1$</td>
<td>7 (8)</td>
<td>8 (12)</td>
<td>30</td>
<td>35</td>
<td>-5</td>
<td>5.2</td>
<td>-0.95</td>
<td>-1.12</td>
</tr>
<tr>
<td>$E_2$</td>
<td>9 (14)</td>
<td>6 (9)</td>
<td>29</td>
<td>27</td>
<td>2</td>
<td>4.4</td>
<td>0.47</td>
<td>0.72</td>
</tr>
<tr>
<td>$E_T$</td>
<td>16 (22)</td>
<td>14 (21)</td>
<td>29</td>
<td>31</td>
<td>-2</td>
<td>3.2</td>
<td>-0.62</td>
<td>-0.74</td>
</tr>
<tr>
<td>$C_1$</td>
<td>8 (12)</td>
<td>9 (11)</td>
<td>32 (30)</td>
<td>29 (27)</td>
<td>3</td>
<td>4.4 (3.7)</td>
<td>0.67 (0.82)</td>
<td>...</td>
</tr>
<tr>
<td>$C_2$</td>
<td>8 (12)</td>
<td>3 (7)</td>
<td>30 (28)</td>
<td>27 (22)</td>
<td>3 (6)</td>
<td>5.2 (3.4)</td>
<td>0.57 (1.70)</td>
<td>...</td>
</tr>
<tr>
<td>$C_T$</td>
<td>16 (24)</td>
<td>12 (18)</td>
<td>31 (29)</td>
<td>28 (25)</td>
<td>3 (4)</td>
<td>3.4 (2.9)</td>
<td>0.87 (1.36)</td>
<td>...</td>
</tr>
</tbody>
</table>
### TABLE 26

**COMPARISON OF MALE AND FEMALE SUBJECTS**

* D BETWEEN $M_y$, $S.D_D$, $t$, AND L.S.

<table>
<thead>
<tr>
<th>Group</th>
<th>Females</th>
<th>Males</th>
<th>Females</th>
<th>Males</th>
<th>D</th>
<th>$S.D_D$</th>
<th>$t$</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_1$</td>
<td>7 (8)</td>
<td>8 (12)</td>
<td>46</td>
<td>49</td>
<td>-3</td>
<td>4.4 (3.7)</td>
<td>0.68 (0.80)</td>
<td>...</td>
</tr>
<tr>
<td>$E_2$</td>
<td>9 (14)</td>
<td>6 (9)</td>
<td>54 (52)</td>
<td>41</td>
<td>13</td>
<td>5.9 (4.4)</td>
<td>2.16 (2.49)</td>
<td>0.05</td>
</tr>
<tr>
<td>$E_T$</td>
<td>16 (22)</td>
<td>14 (21)</td>
<td>50</td>
<td>46</td>
<td>4</td>
<td>3.6 (2.8)</td>
<td>1.12 (1.43)</td>
<td>...</td>
</tr>
<tr>
<td>$C_1$</td>
<td>8 (12)</td>
<td>9 (11)</td>
<td>46 (43)</td>
<td>40 (38)</td>
<td>6 (5)</td>
<td>4.9 (4.5)</td>
<td>1.21 (1.11)</td>
<td>...</td>
</tr>
<tr>
<td>$C_2$</td>
<td>8 (12)</td>
<td>3 (7)</td>
<td>40 (38)</td>
<td>28 (19)</td>
<td>3 (10)</td>
<td>3.9 (5.2)</td>
<td>0.77 (1.92)</td>
<td>...</td>
</tr>
<tr>
<td>$C_T$</td>
<td>16 (24)</td>
<td>12 (18)</td>
<td>28 (19)</td>
<td>37 (30)</td>
<td>2 (6)</td>
<td>3.4 (3.3)</td>
<td>0.58 (1.81)</td>
<td>...</td>
</tr>
</tbody>
</table>
TABLE 27

ANALYSIS OF PRETEST AND POSTTEST SCORES OF CHILDREN WITH PREVIOUS HEAD START EXPERIENCE AND THOSE WITHOUT (EXPERIMENTAL GROUPS)

<table>
<thead>
<tr>
<th>Previous School Experience</th>
<th>Group</th>
<th>N</th>
<th>M₁</th>
<th>S.D.₁</th>
<th>M₂</th>
<th>S.D.₂</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E₁</td>
<td>9 (10)</td>
<td>34</td>
<td>7.2 (6.9)</td>
<td>49</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>E₂</td>
<td>3 (6)</td>
<td>29 (28)</td>
<td>12.1 (8.7)</td>
<td>43 (46)</td>
<td>9.6 (10.4)</td>
</tr>
<tr>
<td></td>
<td>E₃</td>
<td>12 (16)</td>
<td>33 (32)</td>
<td>8.7 (7.6)</td>
<td>48</td>
<td>7.2 (7.9)</td>
</tr>
<tr>
<td>First Time in School</td>
<td>E₁</td>
<td>6 (10)</td>
<td>30 (33)</td>
<td>12.9 (11.5)</td>
<td>45</td>
<td>9.8 (9.0)</td>
</tr>
<tr>
<td></td>
<td>E₂</td>
<td>12 (17)</td>
<td>28</td>
<td>6.8 (5.8)</td>
<td>50 (48)</td>
<td>13.1 (11.8)</td>
</tr>
<tr>
<td></td>
<td>E₃</td>
<td>18 (27)</td>
<td>29 (30)</td>
<td>9.3 (8.4)</td>
<td>48</td>
<td>12.1 (10.8)</td>
</tr>
</tbody>
</table>
TABLE 28

ANALYSIS OF PRETEST AND POSTTEST SCORES OF CHILDREN WITH
PREVIOUS HEAD START EXPERIENCE AND THOSE WITHOUT
(CONTROL GROUPS)

<table>
<thead>
<tr>
<th>Previous School Experience</th>
<th>Group</th>
<th>N</th>
<th>$M_X$</th>
<th>S.D.$X$</th>
<th>$M_Y$</th>
<th>S.D.$Y$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$G_1$</td>
<td>12</td>
<td>32 (31)</td>
<td>9.9 (9.5)</td>
<td>45 (44)</td>
<td>11.1 (10.7)</td>
</tr>
<tr>
<td></td>
<td>$G_2$</td>
<td>9</td>
<td>31 (30)</td>
<td>5.8 (7.3)</td>
<td>31 (30)</td>
<td>6.6 (7.1)</td>
</tr>
<tr>
<td></td>
<td>$G_T$</td>
<td>21</td>
<td>31</td>
<td>8.4 (8.6)</td>
<td>39 (38)</td>
<td>9.4 (9.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First Time in School</th>
<th>Group</th>
<th>N</th>
<th>$M_X$</th>
<th>S.D.$X$</th>
<th>$M_Y$</th>
<th>S.D.$Y$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$G_1$</td>
<td>5</td>
<td>27 (25)</td>
<td>7.1 (6.8)</td>
<td>35 (39)</td>
<td>7.6 (8.8)</td>
</tr>
<tr>
<td></td>
<td>$G_2$</td>
<td>2 (9)</td>
<td>21</td>
<td>2.5</td>
<td>27 (19)</td>
<td>6.0 (13.2)</td>
</tr>
<tr>
<td></td>
<td>$G_T$</td>
<td>7 (19)</td>
<td>25 (23)</td>
<td>6.2 (7.1)</td>
<td>35 (27)</td>
<td>7.2 (11.1)</td>
</tr>
</tbody>
</table>
TABLE 29

COMPARISON OF SUBJECTS WITH AND WITHOUT PREVIOUS SCHOOL EXPERIENCE

\( D \) BETWEEN \( M_x, S.D._D, t, \) AND L.S.

<table>
<thead>
<tr>
<th>Group</th>
<th>Previous Experience With</th>
<th>Previous Experience Without</th>
<th>( D )</th>
<th>S.D.(_D)</th>
<th>( t )</th>
<th>L.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>( E_1 )</td>
<td>9 (10)</td>
<td>6 (10)</td>
<td>34</td>
<td>30 (33)</td>
<td>4 (1)</td>
<td>5.7 (4.2)</td>
</tr>
<tr>
<td>( E_2 )</td>
<td>3 (6)</td>
<td>12 (17)</td>
<td>29 (28)</td>
<td>28</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>( E_T )</td>
<td>12 (16)</td>
<td>18 (27)</td>
<td>33 (32)</td>
<td>29 (30)</td>
<td>4 (2)</td>
<td>3.3 (2.4)</td>
</tr>
<tr>
<td>( C_1 )</td>
<td>12 (13)</td>
<td>5 (10)</td>
<td>32 (31)</td>
<td>27 (25)</td>
<td>5 (6)</td>
<td>4.2 (3.4)</td>
</tr>
<tr>
<td>( C_2 )</td>
<td>9 (10)</td>
<td>2 (9)</td>
<td>31 (30)</td>
<td>21</td>
<td>10 (9)</td>
<td>2.6 (2.5)</td>
</tr>
<tr>
<td>( C_T )</td>
<td>21 (23)</td>
<td>7 (10)</td>
<td>31</td>
<td>25 (23)</td>
<td>6 (8)</td>
<td>2.9 (2.4)</td>
</tr>
<tr>
<td>Group</td>
<td>With N</td>
<td>With M</td>
<td>Without N</td>
<td>Without M</td>
<td>D</td>
<td>S.D.</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>-----------</td>
<td>-----------</td>
<td>---</td>
<td>------</td>
</tr>
<tr>
<td>E1</td>
<td>9 (10)</td>
<td>49</td>
<td>6 (10)</td>
<td>45 (47)</td>
<td>4 (2)</td>
<td>4.5 (3.4)</td>
</tr>
<tr>
<td>E2</td>
<td>3 (6)</td>
<td>43 (46)</td>
<td>12 (17)</td>
<td>50 (48)</td>
<td>-7 (-2)</td>
<td>6.7 (5.1)</td>
</tr>
<tr>
<td>ET</td>
<td>12 (16)</td>
<td>48</td>
<td>18 (27)</td>
<td>48</td>
<td>0</td>
<td>3.3 (2.7)</td>
</tr>
<tr>
<td>C1</td>
<td>12 (13)</td>
<td>45 (44)</td>
<td>5 (10)</td>
<td>39 (35)</td>
<td>6 (9)</td>
<td>4.6</td>
</tr>
<tr>
<td>C2</td>
<td>9 (10)</td>
<td>31 (30)</td>
<td>2 (9)</td>
<td>27 (19)</td>
<td>4 (11)</td>
<td>4.7 (4.9)</td>
</tr>
<tr>
<td>CT</td>
<td>21 (23)</td>
<td>39 (38)</td>
<td>7 (10)</td>
<td>35 (27)</td>
<td>4 (11)</td>
<td>3.4 (3.2)</td>
</tr>
</tbody>
</table>
The findings shown in table 29 indicate that differences between pretest mean scores of students in the second control group with previous school experience and those without it were significant at the .01 level. This difference caused the t value of the control groups as a total to be significant also. Posttest scores for both control groups showed a significant difference when all subjects in the groups with previous school experience were compared with those who were in school for the first time.

**Discussion**

The fact that the subjects in the study who had contact with the investigator did show significant improvements after only thirty lessons suggests that increased improvements could have been evidenced if daily lessons had continued throughout the semester. An even greater degree of improvement would probably have resulted if lessons had continued throughout the entire school year. The Greenberg curriculum advocates that daily lessons should be taught by the classroom teacher for the entire school year, culminating with an evaluation.

Test results also indicate that the evaluative tool used was a valid instrument and that it was based on criteria described in the curriculum. However, concepts of melody and phrase were the most difficult for the children to comprehend. These two areas would need to receive greater focus in future studies.

Techniques to help raise the children's voices (imitating puppies and sirens and pretending to be puppets with a string being pulled out of the head) were initially successful in the lessons.
But as each lesson progressed, the children's voices gradually lowered to their original pitches. Generally, the children's pitches ranged from a minor third to a perfect fifth below the given pitches.

Concepts about phrases seemed to be learned in particular situations as evidenced by accurate responses. For example, when the children were asked to stand for the "E-I-E-I-O" phrase of "Old MacDonald" and to sit for the other phrases, they responded appropriately. However, when this approach was applied to less familiar recorded examples, the children showed little ability to transfer former training.

Some of the children were negatively influenced by echo clapping responses of their classmates. Individual children would sometimes echo a rhythm clapped by the previous child during that lesson, even though the investigator had changed the rhythmic pattern to be echoed. A favorite pattern that seemed to be predominant in the children's memories and was given as the response to various other stimuli was \( \text{\textbackslash J J P J J} \) ("ta ta ti ti ta").

In several of the lessons, many of the children confused the concepts of high and long. This confusion may have resulted partially from the close proximity of the lessons which focused on high/low concepts with a drum and a triangle, and lessons which focused on long/short concepts with rhythm sticks and a triangle. Also, confusion may have been lessened if the triangle had not been used to demonstrate both long and high. As a result, on the day after the long/short lesson had been presented, answers to the
review question "Is the sound of this triangle long or short?"
were "High!"

The children had no trouble distinguishing tones with
harmony from those without harmony as they watched the investigator
pluck or strum the autoharp. Slight difficulties were observed
when the children were asked to close their eyes and identify single
tones or tones with harmony. Posttest results of the harmony items
apparently did not reflect the degree of mastery that the children
had achieved in the lessons. This inconsistency may have been
influenced by the more rapid progression from one concept to the next
during the testing situation as opposed to the focus on each concept
that was given in the lessons.

The attention span of the three-year-olds was noticeably
shorter than that of the four-year-olds during the lessons as well as
in the testing situations. The attention span of all of the children
seemed to have improved by the time the posttest was administered.
It was observed during the administration of the test that some of
the students who were the "class clowns" became reticent when they
were alone with the investigator and chose to point to pictures on
the posttest rather than to give verbal responses. Another obser­
vation was that the answers of a few of the children showed that
they evidently understood neither the verbal directions to test
items, nor the concepts being evaluated. For example, when asked
"Was the first tone long or short?" some of the children replied
"Long or short." However, most of the children apparently did
understand verbal directions but seemed to become confused with the
rapid changes from one concept to another.

Although test scores were low for melodic items, melodic rhythm was often very good. In fact, many of the experimental group subjects would have received a "very good" to "excellent" post-test score for the rhythm of melodic items, but the pitch accuracy of those same items was frequently "poor" to "fair."

Some positive results of the lessons were that the children seemed to enjoy all types of music (jazz, classical, and spiritual) and music from all the historical periods which they were exposed to. Although the concepts of melody/no melody and beat/no beat were not grasped from the example of twentieth-century music that was heard, the children enjoyed the listening experience. Their enjoyment was manifested by subsequent requests to "hear that 'spooky' music again."

The children successfully identified various percussion instruments and several recorded examples of wind instruments with their eyes closed. A revision of the test should therefore consider the inclusion of items concerning instrumental timbre. During lessons in which song requests were sung, the children most frequently chose songs for which specific actions had been learned ("Ring Around a Rosy," "London Bridge," and "The Farmer in the Dell"). Another favorite song was "Hot Cross Buns," although specific actions had not been learned to accompany it.
Summary of Results

Entire battery

Several null hypotheses were assumed and rejected at the .05 level of significance when only students who took both the pre-test and the posttest were considered. Therefore, there were significant differences between:

1. \( M_Y \) scores of \( E_T \) and \( C_{T*d} \)
2. \( M_Y \) scores of \( E_1 \) and \( C_1^* \)
3. \( M_Y \) scores of \( E_1 \) and \( C_2^* \)
4. \( M_Y \) scores of \( C_1^* \) and \( C_2^* \)
5. \( M_{Y-X} \) scores of each group except \( C_2^* \)

When predicted scores affected the level of significance, the level was consistently raised rather than lowered. Thus, the null hypothesis was accepted without predicted scores and rejected with predicted scores for a few of the assumptions. In those cases, additional results revealed a significant difference between:

7. \( M_X \) scores of \( E_1 \) and \( E_2 \)
8. \( M_Y \) scores of \( E_1 \) and \( C_1 \)
9. \( M_Y \) scores of \( E_2 \) and \( C_1 \)

The combined results above show that posttest differences between both experimental groups and either control group were significant. Furthermore, there was a significant difference between pretest and posttest scores of the first control group as well as between posttest scores of the first and second control groups.
Tone subtest

Rejection of the null hypothesis showed that there was a significant difference between:

1. $M_Y$ scores of $E_2$ and $C_2(*)$
2. $M_Y$ scores of $C_1$ and $C_2(*)$
3. $M_{Y-X}$ scores of $E_2*$
4. $M_{Y-X}$ scores of $C_1*$

Additional differences which became significant when predicted values were considered were between:

5. $M_X$ scores of $E_1$ and $E_2$
6. $M_X$ scores of $E_1$ and $C_2*$
7. $M_Y$ scores of $E_T$ and $C_T*$
8. $M_Y$ scores of $E_1$ and $C_2*$

Rhythm subtest

Significant differences were found between:

1. $M_X$ scores of $E_1$ and $E_2*$
2. $M_X$ scores of $E_2$ and $C_1* (C_1$ mean scores were significantly higher)
3. $M_Y$ scores of both experimental groups and either control group with the exception of $E_2$ and $C_1$
4. $M_{Y-X}$ scores of $E_2*$
5. $M_{Y-X}$ scores of $E_1*$

Predicted values raised the level of significance between:

6. $M_X$ scores of $C_1$ and $C_2$
7. $M_Y$ scores of $C_1$ and $C_2*$
Melody subtest

Significant differences were found in the melody subtest between:

1. $M_Y$ scores of $E_1$ and $C_2^*$
2. $M_Y$ scores of $E_2$ and $C_2^*$
3. $M_Y$ scores of $C_1$ and $C_2(*)$
4. $M_Y$-$\chi$ scores of each group except $C_2^*$

Other differences became significant when predicted values were included. These were between:

5. $M_X$ scores of $E_T$ and $C_T^*$
6. $M_X$ scores of $E_2$ and $C_2$
7. $M_Y$ scores of $E_T$ and $C_T^*$

Form subtest

The following differences were significant in the form subtest as a result of rejection of null hypotheses: between

1. $M_Y$ scores of $E_T$ and $C_T^*$
2. $M_Y$ scores of $C_1$ and $C_2^*$
3. $M_Y$ scores of $C_1$ and $C_2(*)$
4. $M_Y$ scores of $E_2$ and $C_2$
5. $M_Y$-$\chi$ scores of all groups except $C_2$

Other Findings

The null hypothesis of no difference between pretest scores of experimental and control groups was accepted for the entire test and for each subtest when only students who had taken both tests were considered. However, the second experimental group
was an exception on the rhythm subtest; that is, the pretest scores of the second experimental group were significantly lower than those of both the first experimental and first control groups.

Computation of $r$ values rather than $t$ values would have been a less complicated and more appropriate statistical procedure for analysis of the relationship between subjects' scores and their sex, and for the relationship between the subjects' scores and previous school experience. However, male and female students and students with and without previous school experience were very unevenly matched in each group. Therefore, many subjects would have had to be eliminated from the calculation of $r$ values, thus reducing the sample size considerably. Differences between mean scores ($t$) were computed rather than relationships between scores ($r$).

The result of $t$ tests between scores of males and females showed that although the females' scores were generally slightly higher than those of males, differences were not significant except between posttest scores of males and females in the second experimental group.

An analysis of the difference between scores of students with previous school experience and those without showed that only students in the control groups with previous school experience scored higher than those without it.

An analysis of the relationship between posttest scores and days absent was computed for the experimental groups and for the first control group. The null hypothesis of no relationship between posttest scores and number of days absent was assumed. The
resulting \( r \) values were .25 with 21 degrees of freedom for the first experimental group, -.13 with 21 degrees of freedom for the second experimental group, and -.05 with 15 degrees of freedom for the first control group. None of these values were significant at the .05 level, and thus the null hypothesis was accepted. The \( r \) values paired with the raw data showed that on the posttest, a few students, who were absent as many as seven or more days, performed as well as or better than some other students who had missed one, two, or no days of class. These findings add credence to Simmons' statement that the range of talent is wide in any classroom, regardless of the environmental background of the children. The findings may also indicate that some degree of improvement in the experimental groups was due to familiarity with the investigator, increased cooperation, or other factors besides concept development.

The acclimatization days were not intended to help improve students' scores, but were intended merely to serve as a substitute for sample questions. The \( r \) results which compared the relationship between days absent and posttest scores also indicated that the acclimatization days alone did not result in improvement of scores, because some of the students who were absent for one or more of the acclimatization classes did as well on the test as some other children who were present each day. Thus, the necessity for inclusion of acclimatization lessons becomes an issue for further consideration. The need to include the acclimatization classes can be justified from the point of view that these classes replaced sample questions, which are not necessary for all children either, but which are essential for children of this age group.
Notes

The N column will not be included in further tables until table 23 because the number of cases in each group in tables 4-22 is identical to those in table 3.

Values in parentheses indicate that the numbers enclosed include some predicted data for students who enrolled after the pretest was given or who left the school before the posttest was administered. Parenthetical numbers under columns headed "N" indicate the inclusion of some subjects for whom some predicted values have been used. The absence of parentheses in some categories indicates that the incorporation of predicted scores for those items did not alter their value.

The negative t values show that the mean score of C₁ was significantly higher than that of E₂.

Asterisks indicate that values for those items were also significant at the .01 level.

Asterisks enclosed in parentheses indicate that values for those items were significant at the .01 level when predicted values were considered.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Since the late 1960s, there has been an emphasis on the importance of early childhood education for future growth by Bloom, Bruner, Piaget, and other psychologists, sociologists, and educators. As a result of this emphasis, the necessity for the understanding of various aspects of child development has been stressed. Several approaches to early childhood education include the "whole child" method in which the social, emotional, and mental facets of the child are integrated in play and discovery experiences. The open classroom concept developed partially from the whole child approach and is based on the interrelationship of all subject areas because the young child does not compartmentalize experiences into separate divisions. The "cognitive approach" is a more inductive method. Some advocates of the cognitive approach stress drill while others prefer a less-structured discovery system. However, research findings have indicated that a balance between the cognitive and whole child approaches have been most successful. Also, structured classes have been found to be more effective than discovery learning.

Positive results have been reported when parental involve-
ment has been incorporated in preschool programs; mothers' involvement in school activities has had particular impact on their children's progress. Regardless of the educational approach employed, guidance and direction by the teacher is essential for the child to develop heuristic techniques. But, as a prerequisite, the teacher must have acquired an understanding of the cognitive development of children as well as an understanding of the environmental background of her students. Culturally disadvantaged children are affected by many adverse variables which may hamper achievement, motivation, and interest in school activities. IQ test results have shown little difference between scores of disadvantaged and advantaged children up to the age of two. Beyond that age, a decline in test scores of culturally deprived children has been evident. Therefore, preschooling for culturally disadvantaged children is essential in order to achieve educational equality.

Results of many studies that have been reported since 1970 indicate that test scores of disadvantaged preschoolers did improve with prekindergarten experiences. However, many of the gains were not statistically significant and have not closed the gap.

Bereiter believed that the pace should be increased for disadvantaged preschool children because their advantaged counterparts are learning also. In a study with music and preschool culturally disadvantaged children, Moore found that it is possible for these young children to have high ability, but the ratio was low. Young found no difference between abilities of two advantaged and two disadvantaged groups that received instruction in melodic and rhythmic discrimination.
The philosophies of Dalcroze, Kodaly, and Orff have influenced many approaches to general preschool music education, while other approaches are eclectic and stress focus on music of all ethnic groups and world cultures. In 1959, Ellison advocated that attention should be placed on five areas in music education for young children. These areas are singing, listening, rhythmic movement, playing instruments, and creating. Since then, and especially since 1970, many other music educators have focused on curriculum development for preschool children and the five areas mentioned above. However, the Greenberg *Music for Preschool* curriculum is apparently the only one that is also intended particularly for the culturally disadvantaged preschooler.

Action and manipulation are essential for preschool music learning because a young child's thinking is related to his actions, since verbal communication is limited. Musical concepts that preschoolers can learn include high/low, long/short, same/different, fast/slow, and loud/soft.

Many experimental studies with preschool children have focused on one of three areas: pitch, rhythm, and auditory discrimination. Pitch discrimination was the focus of studies by Jersild (1931 and 1934), Hattwick (1932 and 1933), Williams (1932), Updegraph (1937), Drexler (1938), and Smith (1963). Rhythmic development was studied by Baldwin (1929), Jersild (1935), Williams (1932), McDowell (1974), and Rainbow (1977). Various aspects of auditory discrimination were studied by Fullard (1967), Schuckert and McDonald (1968), Greer (1973), Dawkins (1973), and VanZee (1976).
Other areas of study included teaching procedures (Seltzer—1936); interest in musical activities (Updegraph—1937); intelligence, sex, maturation, and effects of practice (Jersild—1935); effect of home musical experiences and pitch and rhythm responses (Moore—1974); and mothers' musical experience and off-springs' development (Jenkins—1977).

A few researchers have studied concept development in preschool children with components of several intrinsic values of music. Greenberg's research (1970) involved the areas of tone, dynamics, tone color, rhythm and tempo, and melody and pitch, while the focus of Romanek's study (1971) was the effects of a self-instructional program on concepts of pitch, duration, and loudness. Piper and Shoemaker (1973) studied the development of rhythm, melody, harmony, form, timbre, and dynamics in kindergarten children.

A variety of tests and evaluative procedures has been employed in conjunction with the studies mentioned above.

Some results of studies concerning rhythmic development have been:

1. Responses to fast tempi were easier than slower ones (Baldwin—1929, Jersild—1935, Williams—1932, and VanZee—1976)

2. Complex rhythmic patterns were no more difficult to perform than simple patterns (Jersild—1935) and dotted notes did not add difficulty to those items (VanZee—1976)

3. Clapping and walking to the beat showed that neither was more difficult than the other (Jersild—1935)

4. Vocal chanting was easier than either clapping or walking to the
beat (Rainbow--1977)

5. Four-year-olds did not improve their rhythmic responses after one month of training (McDowell--1974)

Some findings in studies concerning pitch and melody have been:

1. The arpeggiated major chord was a most difficult melodic item (VanZee--1976)

2. Accuracy in general tonality was obtained more frequently than accuracy in singing specific intervals (Williams--1935)

3. Descending intervals were sung more easily than ascending intervals (Jersild--1931 and 1934)

4. The pitches sung most easily by preschool children were c\textsuperscript{1} to a\textsuperscript{1} (Jersild--1931 and Smith--1963); Hattwick found them to be e\textsuperscript{1} to a\textsuperscript{1} (1932)

5. There seems to be a relationship between pitch accuracy and rhythm accuracy (Moore--1974)

Moore also concluded that higher levels of musical achievement are likely if home environments provide exposure to and encouragement for musical attempts. However, some children succeeded without these advantages.

Results of some studies have been dichotomous. For example, Jersild (1931) found that intervals of seconds and thirds were sung more accurately than fourths and fifths, with no difficulty being encountered with the semitone. On the other hand, VanZee (1976) reported that major and minor seconds were the most difficult melodic intervals for the children in her study to sing accurately. While Jersild (1935) found a significant correlation between intelli-
gence and test scores, Williams (1932) found a low correlation between pitch scores and intelligence. Furthermore, Romanek (1971) reported no difference between pretest scores and mental age.

In general, it has been found that scores increase with chronological age (Jersild--1935, Williams--1932, and Drexler--1938); but Updegraph (1937) reported that age was not a factor in scores of tone matching and interval tests. Jersild (1935) reported no difference between scores of boys and girls; girls scored higher than boys in vocal range and pitch accuracy tests in Moore's study (1974). Understanding directions was not a factor in the test results of Williams' study (1932). However, VanZee (1976) reported that verbal-descriptive tasks were harder than discrimination tasks and that performance tasks had the highest mean scores. Therefore, VanZee concluded that the ability to verbalize about musical concepts does not necessarily develop concurrently with ability to understand them.

Eighty-five three- and four-year-old children, attending the McKinley Head Start School in Baton Rouge, Louisiana, were the subjects of this experimental study based on the Music for Preschool curriculum of Marvin Greenberg. These children were divided into four classes; two of the classes were used as experimental groups, and the other two classes served as control groups. Prior to the administration of an investigator-constructed pretest, three acclimatization classes were taught to expose the children to terminology used in the test, to allow the children to become acquainted with the investigator, and to eliminate the need for sample questions on the test. Then, the pretest, which was based on the Greenberg curriculum, was individually administered to each
child. The total time of administration was approximately fifteen minutes per child.

After the pretest had been administered, thirty lessons were taught to the two experimental classes for twenty minutes a day over a period of six weeks. To determine the effects of familiarity with the investigator on posttest scores, stories were read and discussed with the first control group; content of the stories was not related to music. The second control group had no contact with the investigator between administration of the pretest and the condensed acclimatization classes that were taught two days before the administration of the posttest began. After the lessons had been completed, a posttest, identical to the pretest, was administered to all of the children in the experimental and control classes.

Findings of this study that were similar to Greenberg's results with Head Start children in Hawaii (1970) were that concepts of melody and phrase are more difficult to develop than concepts of beat, tempo, and dynamics. Also, the children responded equally well to traditional nursery school music and music of various historical periods, while movement was a valuable means of developing skill. In general, results reinforced those of Greenberg's study by indicating that significant gains can be made by culturally disadvantaged preschool children with a structured approach to music education.

Results of this study that concur with findings of other studies were that the three-year-olds showed the greater amount of
improvement (Smith--1963); and there was generally no difference between scores of boys and girls (Jersild--1935). Furthermore, items concerning pitch had the greatest number of errors (Romanek--1971).

It was found that although scores of the experimental groups improved significantly after musical training, the improvement of the first control group was also significant for the total test and for every subtest except rhythm. This degree of improvement tends to indicate that familiarity with the investigator (obtained as stories were read to the group for every day on which lessons were taught to the experimental groups), increased cooperation, interest, or factors other than increased ability affected posttest results. Jersild reported similar findings in his 1935 study.

Conclusions

Since some degree of improvement in test results of the experimental groups also was probably due to factors other than increased ability, greater familiarity with the test administrator prior to the pretest probably would have caused improvement of pretest scores, thereby improving mean scores for the entire test. Other conclusions drawn from the results of the study were:

1. In order for young children to produce optimum responses in the classroom or in evaluative situations, a relaxed atmosphere, created partially through familiarity with the teacher, is essential.

2. The degree of improvement achieved in thirty lessons suggested
that greater progress would have been made if lessons had continued throughout the semester or throughout the school year.

3. Discrimination of the difference between men's and women's singing voices was learned before the children entered school.

4. Concepts of phrase and melody were the most difficult for the children to learn.

5. Concepts of melodic rhythm developed before those of melodic pitch.

6. Attention span improved with age.

7. Apparently, the gamut of ability is wide among culturally disadvantaged preschool children, as evidenced by some of the subjects who a) did not take the pretest, b) missed some of the acclimatization classes, or c) missed four or more days of class, and still achieved higher posttest scores than some of the other children who had been present every day.

More specific conclusions drawn from the data which pertain to analyses of the assumed null hypotheses are:

1. The mean pretest score of the second experimental group (which contained a majority of three-year-olds) was lower than pretest mean scores of all the other groups. However, this difference was not significant.

2. The mean posttest score of the experimental groups as a whole was higher than the mean posttest score of the control groups as a unit at the .01 level of significance.

3. Scores of both experimental groups and the first control group improved significantly (.01 level) from the pretest to the posttest.

4. Significant gains were made on subtests by the following groups.
at the .01 level: second experimental group and first control group (tone subtest); first experimental group and second experimental group (rhythm subtest); first experimental group, second experimental group, and first control group (melody and form subtests)

5. There was generally no difference between scores of boys and girls

6. The extent of the effects of previous school experience on test scores could not be determined from the analyses of this study

7. There was no relationship between days absent and posttest scores

Recommendations

As a result of this study, the following recommendations are proposed:

1. All preschool teachers must understand the mental and physical developmental processes of young children and not treat them as miniature adults

2. Music educators must place more focus on music for every child, particularly on the disadvantaged preschool child, in order to help eliminate educational deficiencies

3. Children should be familiar with the testor prior to test administration to the degree that they will feel at ease and produce responses that are indicative of their true abilities

4. The degree of familiarity that the preschool classroom teacher has with the children indicates that she, and not the music specialist, is the one who should elicit responses to musical
stimuli in order that the responses more closely reflect the children's true abilities

5. Because the *Music for Preschool* curriculum of Marvin Greenberg can be used successfully with culturally disadvantaged preschool children, it should be considered for implementation in Head Start programs.

6. Music education classes for prospective preschool teachers must be improved so that the classroom teacher may have the knowledge to take a more active role in the child's music education.

7. In order to develop more effective developmental curricula, efforts to achieve a more specific hierarchy of concept formation in preschool children must be attempted through research.

8. Further research is needed in the field of evaluative procedures and test contents for preschool children in order that a standardized evaluative instrument may be developed.

9. The ability of two-year-olds to develop musical concepts needs extensive investigation.

10. Programs need to be organized in which parents may learn musical concepts in order to assist the musical development of their children.

11. Further research concerning the effects of familiarity with the test administrator on test results is needed.
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**Dissertations**


Recordings

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Tests


APPENDICES
APPENDIX A

SPECIFIC ACTIVITIES TO DEVELOP MUSICAL CONCEPTS

From the Music for Preschool Curriculum of Marvin Greenberg, pp. 88-90

 Loudness
 a) Discuss whether the music is loud or soft.
 b) Compare two pieces for loudness.
 c) Use big movements for loud music, small movements for soft music.
 d) Sing a song loudly, softly.
 e) Clap a song loudly, softly.
 f) Speak a song's words loudly, softly.
 g) Play rhythm instruments loudly, softly.
 h) Relate dynamics to energy level (more vocal energy or stronger hitting of rhythm sticks increases dynamics).
 i) Sing tunes at different dynamic levels; evaluate for appropriateness.
 j) Raise hands when music gets louder, softer.
 k) Use bigger movements when dynamics increase and smaller ones when dynamics decrease.
 l) Experiment with changing dynamic levels when singing or playing instruments.

 Tempo
 a) Use slow movements for slow tempo and faster movements for faster tempo.
 b) Classify pieces as moving relatively slow or fast.
 c) Imitate animals and people and how they move at different speeds.
 d) Raise hands when music changes tempo.
 e) Use a steady drum beat to keep steady tempo.
 f) Compare two pieces for tempo.
 g) Sing a song in various tempi; evaluate which tempo is most appropriate.
 h) Play steady tempo as students move; change tempo and have students move correspondingly faster or slower.
 i) Change tempo of bodily movement to correspond with tempo changes of music.
 j) Relate tempi to feelings and mood; e.g., fast tempo often happier than slower tempo (more peaceful, quieter).

 Tone Color
 a) Listen to and identify sounds of the environment.
 b) Experiment with obtaining interesting sounds by striking objects with
mallets.
c) Play rhythm instruments or make other sounds as children close eyes.
d) Ask child to sing individually as other children close eyes and identify vocal tone color.
e) Listen to and show pictures of instruments.
f) Show children real instruments. Discuss, demonstrate.
g) Listen to recording and differentiate:
   - voice, instruments
   - male, female voice
   - solo, many voices
   - children's voices
   - common, easy-to-hear instruments, as drums, piano, guitar, trumpet, violin
   - high, low voices and instruments
h) Stand or raise hands when one tone color is heard; sit or lower hands when contrasting tone color is heard. Also point to pictures of tone colors featured.
i) Experiment with making different tone colors on instruments such as the autoharp, piano, or tone bells.
j) Use certain rhythm instruments for tonal effects in accompanying a song or instrumental work.

Beat
a) Highlight the beat of all music by:
   - clapping, tapping, walking, marching, swinging, and other forms of bodily movement
   - "tipping" the hands to the beat
   - using a metronome to accompany the beat
   - using rhythm instruments on the beat
   - playing rhythmic games, such as:
     - clap, snap, snap (1-2-3)
     - hitting partner's hands in patty-cake style
     - imitating movement for bouncing a ball, jumping a rope, pushing a swing
b) Listen to steady beats in the environment and imitate movement (windshield wiper, faucet dripping, heart beating, clock ticking).
c) Compare beats of different pieces as to the tempo and quality (heavy and strong or light and subtle).

Duration and melodic rhythm
a) Echo clap rhythms played by teacher.
b) Clap, tap names, jingles, rhymes, words, text of song.
c) Use rhythm instruments (especially rhythm sticks, tambourine, or tone blocks) to accompany and highlight rhythmic patterns.
d) Show long and short tones through sustained or short moment and symbols (long or short).
e) Listen to and imitate rhythms in environment (running, rain, faucet dripping, horse's gallop).
f) Children sing a long, a short tone.
g) Join in on interesting rhythmic pattern heard in the melody or accompaniment.
h) Make up original patterns.
i) Raise hands when a tone in the music is held very long.

j) Clap the melodic rhythm of a tune while singing it.

k) Clap the melodic rhythm of a tune while children guess name of tune.

l) Walk for slow, even rhythms and run for fast, even rhythms.

m) Step out, clap a predominant rhythmic pattern in a tune.

n) Send messages, using drum talk.

o) Clap a rhythm; ask children to add words to fit pattern.

p) Clap three rhythms, two of which are the same. Identify which rhythm is different.

Pitch and melody

a) Play melodies, tonal patterns on step bells as children observe movement.

b) Use body, moving up and down, to show pitch levels.

c) Move hands up and down to show pitch levels.

d) Imitate sounds, using varying pitch levels.

e) Children sing back tonal patterns sung or played by teacher.

f) Find objects in room with high or low pitches when struck.

g) Children play easy tonal patterns from familiar tunes on the step or melody bells.


i) Play or sing a tune or phrase, leaving out one tone. Children sing missing tone.

j) Play two different autoharp or ukulele strings, or resonator or tone bells. Compare pitches with size of string or bar.

k) Practice singing the starting pitch of a song after hearing the teacher play it on the pitchpipe, piano, or tone bells.

l) Sing a melody of familiar songs. Identify title of song or add words.

m) Echo tonal patterns sung by teacher.

n) Make up tunes with and without words.

o) Sing or play the tones of a chant. Add words to fit the tonal pattern.

p) Engage in musical conversations with the children.

q) Move hands, body up and down for tonal patterns of a familiar tune.

r) Make up chants of two or three tones, using children's names, objects, or language patterns.

s) Children sing a tune to themselves. When teacher points to children, they sing out loud.

t) Sing two tonal patterns, the second of which is the same or different. Children identify whether they are the same or different.

Phrase

a) Use the phrase method of teaching some songs (see p. 29).

b) Move hands in rainbow-shaped arcs and draw arcs on a chalkboard.

c) Count the number of phrases by putting up appropriate fingers.

d) Show phrase changes through bodily movement (sit on one phrase, stand on the next, or change direction of movement for each phrase).

e) Add a different instrument for each phrase.

f) Add an instrument or clap to the first beat of each phrase.

g) Alternate singing of phrases (teacher--phrase 1, children--phrase 2;
or one group--phrase 1, another group--phrase 2; or soloist--phrase 1, group--phrase 2).

h) Emphasize and illustrate need to take breath before and after each phrase.

Form--repetition and contrast

a) Raise hands, or stand when the music changes.

b) Clap every time you hear this pattern (sing or clap the pattern). Then sing a familiar tune, with children listening for repetition.

c) Stand every time the music gets louder, softer, slower, or faster.

d) Ask students to move only on the main section and not on the introduction.

e) Clap two rhythmic patterns. Children say "same" or "different" if patterns repeat or contrast.

f) Repeat above activity, using two tonal patterns.

APPENDIX B

ACTIVITIES USED IN THE PRELIMINARY STUDY

First day:

I. Warm up voices by singing as high as possible; no specific pitches

A. Imitate the sound of sirens
B. Imitate the sound of crying puppies
C. Imitate the sound of the wind
D. Imitate the sound of chirping birds

II. Matching the pitch e^1 on the syllable "loo"

A. Entire class
B. Individuals

III. Echo clap with rhythm sticks:

Teacher: \( \frac{4}{4} \) ____________ | ____________ | ____________ | ____________ |

Class: \( \frac{4}{4} \) ____________ | ____________ | ____________ | ____________ |

Teacher: \( \frac{4}{4} \) ____________ | ____________ | ____________ | ____________ |

Class: \( \frac{4}{4} \) ____________ | ____________ | ____________ | ____________ |
IV. Echo sing

A. Entire class

B. Repeat each several times:
   1. "See-Saw"
   2. "Today is Wednesday"
   3. "Cackle, Cackle, Mother Goose" (from Greenberg curriculum, p. 87)

V. Sing familiar song: "Are You Sleeping?"

VI. Learn new song: "Clap Your Hands" (from Lois Choksy, Kodaly Method, p. 148)

A. Listen to teacher sing it several times

B. Join in singing

C. Learn accompanying clapping movement

D. Vary words and motions to "Stamp your feet"

VII. Marching to drum beat

A. March in place to a steady beat

B. March in a wide circle to a steady beat; follow leader

C. Allow various class members to lead group

D. March to various rhythmic cadences played by teacher

Second day

I. Warm up voices (same as first day)

II. Musical conversations

A. "What is your name?"

B. "What kind of food do you like?"

C. "Can you sing what I sing?" (from Greenberg curriculum, p. 87 and p. 96.)

III. Review "Clap Your Hands"

A. Sing original verse—add movement
1. Vary dynamics: soft/loud
2. Vary tempo: fast/slow

B. Sing second verse with "Stamp your feet" words and motions

C. Add new verse and movement: "March along"
1. Play drum to steady beat
2. Play drum to rhythm of song
3. Discuss beat and rhythm
   a. Movement of feet is to the beat
   b. Rhythm is being sung

IV. Sing "Are You Sleeping?"

V. Echo clap
   A. Review rhythms from first day
   B. Add Kodaly syllables to above
   C. Add new rhythms:
      
      Teacher: \(\frac{4}{4} j j j j j \quad \frac{3}{4} j j j j j\)
      Class: \(\frac{4}{4} \quad \frac{3}{4}\)
      Teacher: \(\frac{4}{4} j j j j j \quad \frac{3}{4} j j j j j\)
      Class: \(\frac{4}{4} \quad \frac{3}{4}\)
   D. Add Kodaly rhythm syllables to above

VI. Learn new song: "Hot Cross Buns"

**Third day**

I. Warm up voices (same as first day)

II. Musical conversations
   A. Review conversations from second day
   B. "Hello--Where are you?" (from Greenberg curriculum, p. 27)
III. Review "Hot Cross Buns" and "Are You Sleeping?"

A. Teacher sings with class
B. Class sings without teacher

IV. Learn new song: "Lucy Lockett"

V. Echo clap:

A. Review rhythms from first two days
B. Add new rhythms:

Teacher:

Class:

C. Class members make up their own rhythmic patterns for group to echo

VI. Marching

A. In place

1. While singing "Stamp your feet"
2. While playing rhythm sticks to rhythm of "Stamp your feet"

B. Around the room

1. While singing "March around"
2. Class members lead marching
APPENDIX C

FORMS USED IN THE STUDY

Letter requesting permission to use students of the McKinley Head Start School in the study .................. 172

Letter granting permission to use students of the McKinley Head Start School in the study .................. 173

Form to obtain parents' permission to use their children in the study ........................................... 174

Request to LSU Committee on Use of Humans and Animals as Research Subjects, for approval of experimental design . . . 175

Approval of the LSU Committee on Use of Humans and Animals as Research Subjects ...................... 176

Test blank used in the pretest and posttest .................. 177
Mr. Lee Wesley, Director
Community Advancement, Inc.
2147 Government St.
Baton Rouge, Louisiana

Dear Mr. Wesley:

Upon the recommendation of Dr. Pearl T. Andrews, Professor of Early Childhood Education at Southern University, I hereby request permission to conduct an experimental research project in music at the McKinley Head Start School.

I am presently a Ph.D. student at LSU in music education and would like to teach a series of approximately sixty classes of twenty minutes each in length to two classrooms of four- and five-year-old children at the Head Start school beginning in August of 1977 and ending in December of 1977.

I have received the approval of Dr. Andrews, who is a member of my dissertation committee, and from Dr. Robert Shambaugh, chairman of my committee and Professor of Music Education at LSU; I have also received permission from Mrs. Pealer, the Director of McKinley Head Start.

It has been pointed out that I must receive written permission from the parent or guardian of each child that is administered any type of test. Because a pretest and posttest will be a part of my research design, I plan to have a formal letter sent to the parent or guardian of each child in the program, briefly explaining the research design and teaching procedures. This letter will also ask their permission to use the test results in my writing, while keeping the individual children anonymous.

The children will benefit from the aesthetic experiences that are inherent to music in addition to developing skills through musical activities such as singing, playing instruments, listening, creating, and rhythmic movement.

Please reply in writing as soon as possible so that I can proceed with preliminary plans. Also, feel free to call me at 344-9443, Ext.5 if you have further questions. Thank you.

Sincerely,

Vicki Vernon Lott

Vicki Vernon Lott
Ms. Vickie Lott  
P. O. Box 17278  
L.S.U.  
Baton Rouge, Louisiana  70893  

Dear Ms. Lott:  

Your request for permission to conduct an experimental research project in music at McKinley Head Start Center has been approved.  

Please submit to me your findings of pre-test and post-test administered.  

If at anytime during your research at McKinley Head Start Center I can assist you, please feel free to contact me at 387-0465, ext. 248.  

Sincerely,  

Barbara J. Wilson  
Coordinator of Children Services  

BW:rhn
Dear Parent:

As part of my work for the doctoral degree in music at LSU, I will be doing some research with four classrooms at the McKinley Head Start school. Your child will be in one of those classes.

I will be teaching music lessons to two classes every day during this semester (from August to December). I will be reading stories and playing games with the third class, and I will meet with the fourth class for a few music lessons in August, and a few in December. In the first two classrooms, we will be doing activities such as singing, marching, clapping, listening and moving to the music.

Also, as part of my work at LSU, I need to give your child a short test before the lessons begin in August. The same test will be given again in December after the lessons are over. I will test each child alone for about fifteen (15) minutes and ask questions such as: "Is a man or woman singing on this tape?" or "Listen to these two tones and tell which was loud and which was soft." I will then write up the results of the tests and the teaching in a formal paper called a dissertation, which will be put in the library at LSU after I have finished. The children's names will not be used anywhere in the writings.

Thank you for your co-operation, and please feel free to call me at 344-9443 if you have any questions.

[Signature]

I __________________ give my permission for Mrs. Lott to
(test my child) in music. I understand that his (her) name will not be used in the writing of the results.

Does the mother sing with the child at home? (Please circle the answer that fits best): 1) VERY OFTEN 2) OFTEN 3)SOMETIMES 4) ALMOST NEVER 5) NEVER

[Date] __________________ (Signature of Parent or Guardian)

[Phone] __________________ (Child's Birth date)
To: LSU Committee on the Use of Humans and Animals as Research Subjects, 
Dr. R.B. Lank, School of Veterinary Medicine—Chairman

Date: July 18, 1977

From: Vicki Vernon Lott, Ph.D. candidate, 
School of Music

Title of Experimental Research Project: A STUDY OF MUSICAL ACHIEVEMENT 
OF CULTURALLY DISADVANTAGED PRESCHOOL CHILDREN BASED ON THE 
MUSIC FOR PRESCHOOL MANUAL OF MARVIN GREENBERG

This experimental design will employ a control group of approx­imately forty students with twenty students in each of two classes, and 
an experimental group of forty students in two classes for a total of 
eighty subjects. These students will be four- and five-year-old children 
attending the McKinley Head Start School in Baton Rouge, Louisiana from 

A pretest of no more than twenty minutes in length will be 
administered to each child individually. Questions will be such as: 
"Is a man or woman singing on this recording?" or "Do you know the name 
of this song?" (Jingle Bells). Then, approximately sixty lessons, 
twenty minutes each in length will be taught to the experimental classes 
on a daily basis. Test and lesson materials will include the areas of 
singing, rhythmic movement, listening, creating, and playing simple 
instruments predominately of the rattle and drum type.

A posttest identical to the pretest will be administered to each 
child, again individually, after the lessons have been completed.

This experimental design proposal of the Doctoral Dissertation 
for partial fulfillment of the requirements of the Doctor of Philosophy 
degree has been approved by the following committee members.

Chairman

__________________________

__________________________

__________________________

__________________________

copy

175
From: Committee on Humans and Animals as Research Subjects.

To: Vice Chancellor for Advanced Studies and Research
David Boyd Hall

RE: Proposal of Vicki Vernon Lott, School of Music
Entitled A Study of Musical Achievement of Culturally Disadvantaged Preschool Children Based on the Music for Preschool Manual of Marvin Greenberg

Principal Investigator

Received July 21, 1977

This is to certify that a quorum of the Committee on Humans and Animals as Research Subjects reviewed the above proposal. The Committee evaluated the procedures of the proposal with appropriate guidelines established for activities supported by federal funds involving as subjects humans and/or animals.

Recommendation of Committee Approved 8-26-77.

Comments:

A review of this proposal by the Committee will be accomplished at least on an annual basis and at more frequent intervals depending on the element of risk.

Date 10-18-77

Duplicate

Chairman, Committee on Use of Humans and Animals as Research Subjects

176
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### I. TONE—Pretest Posttest

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APPENDIX D

ACCLIMATIZATION CLASSES

Concepts

Tone
high/low, long/short, loud/soft, harmony/no harmony, same/different

Rhythm and tempo
steady beat, melodic rhythm, echo clapping, same/different

Melody
echo singing, vocal reproduction

Form (Phrases)
recognition of, identification of, same/different, long/short

Equipment
resonator bells, recorder, pitch pipe, rhythm sticks, record player,
tape recorder, posters to be used with pretest and posttest

Activities

First day

I. High/low
   A. Reach high
   B. Stoop low
   C. Discuss poster of bird and fish
D. Identify high and low tones played on bells by pointing to appropriate picture on poster for pitch of first tone
   1. Melodic octave (ascending)
   2. Perfect fifth (descending)

II. Long/short
   A. Stretch arms out long
   B. Squeeze shoulders and hands in close to body
   C. Discuss poster of long and short trains
   D. Identify long and short tones played on recorder by pointing to appropriate picture on poster for length of first tone

III. Loud/soft
   A. Sing "Hel-lo" (so-mi) loudly
   B. Sing "Hel-lo" softly
   C. Listen to loud and soft tones played on bells
   D. Discuss poster of three monkeys
   E. Determine if everyone in class can count to three
   F. Identify which of three tones played on bells is loud by pointing to appropriate picture on poster
      1. Soft/soft/loud
      2. Soft/loud/soft

IV. Harmony
   A. Demonstrate and discuss single tones on bells
   B. Play tape recorded examples of chords and discuss harmony
   C. Identify which of three tones played on tape has harmony by pointing to appropriate picture of three monkeys on poster
      1. No harmony/ harmony/no harmony
      2. No harmony/no harmony/harmony
V. Steady beat
   A. March around the room to feel the concept of steady beat
   B. Pass out rhythm sticks
      1. Play to marching
      2. Play to walking tempo
   C. Keep beat to recording: "Rocking Jerusalem" (Silver Burdett Learning to Listen to Music)
   D. Keep beat to recording: Honneger, King David, "March of the Philistines" (Silver Burdett Learning to Listen to Music)

Second day

VI. Echo clapping
   A. Imitate the following rhythms with rhythm sticks:
      1. \(
          \begin{array}{cccc}
            & & & \\
            & & & \\
            \hline
            & & & \\
            \hline
          \end{array}
        \)
      2. \(
          \begin{array}{cccc}
            & & & \\
            & & & \\
            \hline
            & & & \\
            \hline
          \end{array}
        \)
   
VII. Fast/slow
   A. Discuss physical appearance and movement of an elephant
   B. Imitate elephant's movements with:
      1. hands
      2. shoulders
      3. arms
      4. head
      5. toes
      6. whole body
   C. Discuss appropriate tempo for singing a baby to sleep
   D. Move slowly to recording: Brahms, "Lullaby" (RCA Victor Record Library for Elementary Schools Listening Activities)
E. Discuss characteristic movements and speed of a bumble bee

F. Imitate those movements (using same sequence of motions in VII--B)

G. Discuss and imitate movements and speed for bouncing a basketball

H. Move fast with recording: Beethoven, Third Symphony, "Scherzo" (RCA Victor Record Library for Elementary Schools Listening Activities)

I. Listen to how recording changes from fast to slow to fast to slow to fast to slow, several times: Hebert, "Badinage" (RCA Victor Record Library for Elementary Schools Listening Activities)

J. Listen again and move fast when the music is fast, and move slowly when the music is slow

VIII. Melody

A. Echo sing the following:
   1. "Ding-ding-dong; ding-ding-dong" (from "Are You Sleeping?")
   2. "Rain-rain" (so-mi)

B. Sing "Are You Sleeping?"

IX. Phrases (Same/different)

A. Discuss concept of phrase

B. Listen to phrases in recording: Haydn, "Surprise" Symphony, "Minuet" (Bowmar Orchestral Library, Concert Matinee #63)

C. Discuss concept of same/different

D. Listen to Haydn example again
   1. Sit for first phrase
   2. Pause and discuss approaching contrasting material
   3. Continue listening and stand when initial phrase returns

Third day

X. Phrase recognition

A. Continue discussion of same/different with reference to phrases
B. Listen for same/different phrases in recording: 16th-century dance, "Suite: Bergerette" (Silver Burdett Learning to Listen to Music)

C. Listen again and sit down for the first phrase, stand up for the second phrase, sit down for the third phrase, and so forth

XI. Same/different (Tones, fragments, and rhythms)

A. Identify same and different single tones played on bells

B. Identify which of three tones played on bells is different by pointing to appropriate picture of three monkeys on poster

1. G G A
2. D A D

C. Discuss same/different poster of two identical tigers and snake and alligator

D. Identify same/different melodic fragments played on bells by pointing to appropriate picture on poster

1. (a) C D E C (b) C D E C
2. (a) F F F (b) F G A

E. Identify same/different rhythmic patterns played on rhythm sticks by pointing to appropriate picture on poster

1. (a) † † † † † † † † † (b) † † † † † † † † †  
2. (a) † † † † † (b) † † † † † † † † †

XII. Introduction of tape recorder

A. Individual children sing into tape recorder

B. Class listens to playback

XIII. Review

A. High/low

B. Long/short

C. Loud/soft

D. Harmony/no harmony

E. Steady Beat

F. Fast/slow

G. Same/different

H. Phrases
APPENDIX E

TITLES OF STORIES READ TO FIRST CONTROL GROUP

Lesson

1. The Sesame Street ABC Storybook, "An 'A' Story"
The Sesame Street 1.2.3 Storybook, "Bert's Bath"

2. The Sesame Street ABC Storybook, "Bert and the Beanstalk"
The Sesame Street 1.2.3 Storybook, "Sherlock Hemlock in 'The Mysterious Stranger'"

3. The Sesame Street ABC Storybook, "A Poem by Cookie Monster"
The Sesame Street 1.2.3 Storybook, "The Monster's Three Wishes"

4. The Sesame Street ABC Storybook, "The Case of the Missing Letter"
The Sesame Street 1.2.3 Storybook, "Oscar and the Number Four"

5. The Sesame Street ABC Storybook, "Grover's Elevator"
The Sesame Street 1.2.3 Storybook, "Sam Shows Big Bird Five"

6. The Sesame Street ABC Storybook, "The Fable of Fat Fireman Foster"
The Sesame Street 1.2.3 Storybook, "Six Monsters in the Restaurant"

7. Walt Disney's Bambi Gets Lost

8. Walt Disney's Bambi Gets Lost

9. Alice and Martin Provensen, Our Animal Friends at Maple Hill Farm

10. Provensen, Our Animal Friends at Maple Hill Farm

11. Provensen, Our Animal Friends at Maple Hill Farm

12. Richard Scarry's Best Counting Book Ever

13. Richard Scarry's Best Counting Book Ever

14. I Want to Know About . . ., Vol. 1, "Sounds We Hear"

15. Walt Disney's Aristocats

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17. The Sesame Street Storybook, "The Boy, the Girl, and the Jellybeans"

18. The Sesame Street Storybook, "Oscar Chooses a Pet," "Ernie Dusts the Shelf," "Bert Presents the Number 5"


20. The Sesame Street Storybook, "Grover Above and Below," "Ernie's Six Delicious Cookies," "Cookie Monster Up and Down"


22. Phoebe Erickson, Baby Animal Friends

23. Walt Disney's Peter and the Wolf

24. Walt Disney's Peter and the Wolf

25. Walt Disney's Pinocchio: And His Puppet Show Adventure

26. Walt Disney's Pinocchio: And His Puppet Show Adventure

27. Marguerite de Angeli's Book of Nursery and Mother Goose Rhymes

28. Walt Disney's Cinderella

29. Walt Disney's Cinderella

30. I Want to Know About . . ., Vol. 3, "Seasons"
Lesson Plans for the Main Study

Lesson 1
Concepts: Steady beat; tone color—trumpet
Equipment: Pitch pipe, record player
Activities:
1. Sing "Ring Around a Rosy" several times
2. Clap beat of tune
3. Introduce march tune: Bizet, Petit Suite, "March" (RCA Victor Record Library for Elementary Schools Listening Activities)
4. Move feet in place to the beat of the music
5. Listen again and pay attention to trumpet passages
6. Listen again and raise hands when trumpet enters
7. March to the music
8. March in place to "Ring Around a Rosy"
9. Clap beat of tune while marching in place
10. Isolate pattern for word "ashes"
11. Move hands in proper directions up and down for "ashes"
12. Isolate pattern for words "all fall down"
13. Move hands in proper directions

Lesson 2
Concepts: High/low; rest
Equipment: Pitch pipe, rhythm sticks
Activities:
1. Learn new song "Hot Cross Buns"
2. Move hands from high to low with pitches
3. Clap rhythm of the song with rhythm sticks
4. Show places where rests occur by throwing sticks out
5. Sing song again on syllables mi, re, and do
6. Sing syllables while moving hands up and down
7. Review "Ring Around a Rosy"
8. Add accompanying motions

Lesson 3
Concepts: Fast/slow; beat/rhythm
Equipment: Pitch pipe, resonator bells, record player
Activities:
1. Review "Hot Cross Buns"
2. Introduce words of Hap Palmer, "The Elephant" (Learning Basic Skills Through Music, Vol. 1)
3. Listen to recording for contrast of fast and slow sections
4. Listen again and raise hand when fast section occurs
5. Listen again and move slowly when the music is slow and fast when the music is fast
6. Learn new song "Rain, Rain, Go Away"
7. Play beat on rhythm sticks
8. Repeat while teacher plays rhythm on bells
9. Have volunteer play melody on bells
10. Sing "Ring Around a Rosy" with actions

Lesson 4
Concepts: High bars are short and low bars are long; echo singing and clapping
Equipment: Pitch pipe, high/low poster, resonator bells
Activities:
1. Review "Hot Cross Buns" with hand signs
2. Review "Rain, Rain" with resonator bells
3. Compare size of individual bells with their pitch level
4. Discuss poster of high and low pictures
5. Individuals play high or low bells while class points to appropriate picture
6. Echo sing: "What is Your Name?" (from Greenberg's curriculum, p. 87)
7. Echo clap: (examples from Greenberg's curriculum, p. 86)
8. Ask individuals to sing "Ring Around a Rosy"
9. Everyone sing and do motions

Lesson 5
Concepts: Phrase; tone color--trumpet
Equipment: Pitch pipe, record player, picture of trumpet
Activities:
1. Listen to solo trumpet excerpts (RCA Victor Instruments of the Orchestra LES 6000-2)
2. Present picture and listen again
3. Listen to Bizet excerpt (from lesson 1) and raise hand when trumpet enters
4. Learn new song "Old MacDonald"
5. Stand for "E-I-E-I-O" phrase and sit for other phrases
6. Discuss meaning of the word "phrase"
7. Sing several verses and imitate the following animals:
   a) Cow
   b) Duck
   c) Pig
   d) Sheep
   e) Donkey
8. Review "Hot Cross Buns" and "Rain, Rain"

Lesson 6
Concepts: Phrase; harmony
Equipment: Pitch pipe, autoharp, record player
Activities:
1. Review "Old MacDonald"
2. Add autoharp accompaniment
3. Discuss concept of harmony
4. Individuals sing "Ring Around a Rosy" and "Hot Cross Buns"
5. Learn new song: "This Old Man"
6. Sing again while alternating movements of clapping and *patschen* with each phrase
7. Sing all verses with appropriate motions
8. Listen to "Suite: Bergerette" (Silver Burdett Learning to Listen to Music) for phrases
9. Listen again and do a different motion for each phrase
10. Sing "Ring Around a Rosy" with motions

**Lesson 7**

Concepts: Loud/soft; harmony

Equipment: Pitch pipe, autoharp, poster of three monkeys

Activities:
1. Review "Old MacDonald" with autoharp accompaniment
2. Stand for "E-I-E-I-O" phrases and sit for others
3. Sing "E-I-E-I-O" phrases loud and others soft
4. Determine if everyone can count to three
5. Discuss poster of three monkeys
6. Compare tones with harmony and those without by plucking and strumming autoharp
7. Identify which of three tones has no harmony by pointing to appropriate picture (Example: Harmony/no harmony/harmony)
8. Review "This Old Man" (first verse only)
9. Alternate singing phrases loud and soft
10. Stand for loud phrases and sit for soft phrases
11. Work with individuals to get voices higher by imitating sounds of crying puppies and sirens

**Lesson 8**

Concepts: Phrase; echo singing and echo clapping

Equipment: Pitch pipe, record player, rhythm sticks

Activities:
1. Listen to "Suite: Bergerette" and stand for the first phrase, sit for the second phrase, and so forth
2. Review "Hot Cross Buns"
3. Learn new song "London Bridge"
4. Sing again and clap with the beat
5. Echo sing: *so-mi-la-so-mi* ("come again another day" from "Rain, Rain")
6. Echo clap: *2 × 9 | 3 × 9 | 9 | 9 | 3 × 9 | 9 | 9 |
7. Ask individuals to lead singing of favorite songs
8. Play game while singing "London Bridge"

**Lesson 9**

Concept: tone color--compare trumpet and drum

Equipment: Pitch pipe, hand drum, record player

Activities:
1. Warm up voices by imitating sirens, crying puppies, and the wind
2. Review "London Bridge"
3. Listen to excerpts of drum solo (RCA Victor Instruments of the Orchestra LES 6000-2)
4. Introduce hand drum and have individuals explore
5. Play example of trumpet solo (from lesson 5)
6. Discuss differences in sound of drum and trumpet
7. March to drum beat while singing familiar tunes:
   a) "Ring Around a Rosy"
   b) "Hot Cross Buns"
   c) "London Bridge"
   d) "This Old Man"
   e) "Old MacDonald"
   f) "London Bridge"

8. Learn new song: "Twinkle Twinkle"

9. Isolate phrases with downward motion of pitch:
   a) "How I wonder what you are"
   b) "Up above the world so high"
   c) "Like a diamond in the sky"

10. Use hand motions for above phrases

Lesson 10
Concept: Same/different
Equipment: Pitch pipe, record player, rhythm sticks, poster of same/different
Activities:
1. Review "Twinkle Twinkle"
2. Point out phrases that are alike
3. Discuss poster of two same tigers and alligator and snake
4. Listen to "Jane, Jane" (Silver Burdett Music, Book 4) for phrases that are the same
5. Listen again for phrases that are different
6. Sing "Hot Cross Buns" and listen for alike phrases
7. Echo clap using rhythmic patterns of children's names

Lesson 11
Concepts: Same/different; solo/many voices
Equipment: Pitch pipe, record player, recorder, rhythm sticks
Activities:
1. Identify same/different rhythmic patterns on rhythm sticks
2. Identify same/different phrases played on recorder
3. Warm up voices
4. Learn new song: "The Farmer in the Dell"
5. Class sings on refrain only while teacher sings phrases
6. Discuss concept of solo voice and many voices
7. Listen to "Jane, Jane" and distinguish between solo phrases and phrases with many voices
8. Sing favorite song requests: "Rain, Rain," "Ring Around a Rosy," "Old MacDonald"

Lesson 12
Concepts: Phrase; long/short
Equipment: Pitch pipe, record player, jingle bells
Activities:
1. Warm up voices
2. Review songs:
   a) "Old MacDonald"
   b) "London Bridge"
   c) "Hot Cross Buns"
   d) "Twinkle Twinkle"
3. Point out same/different phrases in c) and d) above
4. Learn new song: "Hickory Dickory Dock"
5. Shake jingle bells during rests after phrases
6. Listen to Elgar, "Moths and Butterflies" (RCA Victor Listening Activities)
7. Listen again and pause after the first phrase ends; then, stand when that phrase is heard again
8. Echo rhythmic patterns with jingle bells
9. Ask individual students to make up patterns with jingle bells for class to echo
10. Have individuals play long or short shakes with jingle bells while class identifies

**Lesson 13**

Concept: tone color—man's voice compared with woman's voice

Equipment: Pitch pipe, record player, jingle bells, same/different poster

Activities:
1. Warm up voices
2. Sing song requests
3. Play rhythm patterns on jingle bells (same/different) while class identifies by pointing to appropriate picture
4. Echo sing: "What is your name?"
5. Listen to differences in man's and woman's voices: Britten, *Friday Afternoons*, "A Tragic Story" (Silver Burdett Music, Book 2) and Leontyne Price singing Barber, *Hermit Songs*, "A Monk and His Cat" (Silver Burdett Making Music Your Own, Book 5)
6. Individuals play long/short patterns with jingle bells
7. Sing "Ring Around a Rosy" with motions

**Lesson 14**

Concept: Long/short

Equipment: Pitch pipe, long/short poster, rhythm sticks, jingle bells

Activities:
1. Warm up voices
2. Review "This Old Man" with different rhythmic movements for each phrase (jingle bells signal end of each phrase)
3. Echo clap with rhythm sticks
4. Echo clap rhythmic patterns using children's names
5. Review "Hickory Dickory Dock"
6. Play long and short notes on recorder
7. Discuss poster of long and short trains
8. Play more long and short tones on recorder while children identify by pointing to appropriate picture
9. Listen to "Jane, Jane" for long and short phrases
10. Listen again and stretch arms out long for long phrases and close arms against side of body for short phrases

**Lesson 15**

Concept: Long/short

Equipment: Pitch pipe, record player, jingle bells, recorder

Activities:
1. Review long and short tones on recorder
2. Listen to Hebert, "Badinage" (RCA Victor Listening Activities) for long notes and short notes
3. Listen again and raise hand during long note sections
4. Listen again and wiggle fingers for short notes and stretch arms out long for long notes
5. Warm-up voices
6. Learn new song "Kumbaya"
7. Sing again and move with long movements
8. Review long and short with jingle bells as individuals play patterns and class identifies
9. Sing song requests

Lesson 16
Concepts: Long/short; loud/soft; tone color--triangle
Equipment: Pitch pipe, rhythm sticks, triangle, record player
Activities:
1. Introduce triangle for long sound
2. Compare with short sound of rhythm sticks
3. Relate triangle and sticks to poster of long and short trains
4. Everyone takes turn striking triangle
5. Play loud and soft tones on recorder; class identifies
6. Play three tones, one of which is soft; class identifies by pointing to appropriate picture of three monkeys (Example: Loud/soft/loud)
7. Listen to Hap Palmer's "Loud and Soft" (Learning Basic Skills Through Music, Vol. 1) for dynamic changes
8. Listen again and tiptoe for soft music and march with high steps for loud parts
9. Warm up voices
10. Review "Kumbaya"
11. Review "London Bridge," "This Old Man," and "Hickory Dickory Dock"
12. Ask individuals to sing songs learned outside of class

Lesson 17
Concept: High/low
Equipment: Pitch pipe, resonator bells, record player
Activities:
1. Warm up voices
2. Learn new song: "Bye Baby Bunting"
3. Sing again and sway with the beat
4. Pass out G, A, and E bells and have individuals accompany singing
5. Review "Rain, Rain"
6. Individuals play melody on bells
7. Individuals make up rhythmic and melodic patterns on bells
8. Review discussion of relation of size of bell to its pitch
9. Listen to Hap Palmer's "Scales" (Learning Basic Skills Through Music, Vol. 1) for movement from high to low and from low to high
10. Listen again and stoop for low notes and gradually ascend to standing on tiptoe for high notes
11. Review "Hickory Dickory Dock" and click tongue during rests at ends of phrases
12. Review "Kumbaya" and "Twinkle Twinkle"
Lesson 18
Concept: Fast/slow
Equipment: Pitch pipe, record player, resonator bells
Activities:
1. Discuss appropriate speed for rocking a baby to sleep (fast or slow)
2. Sing "Bye Baby Bunting" while swaying slowly
3. Listen to Hap Palmer's "The Elephant" (Learning Basic Concepts Through Music, Vol. 1)
4. Review "The Farmer in the Dell" and raise hands high for phrase "Hi-ho the dairy-o"
5. Review a fast and slow familiar song ("Kumbaya" and "Old MacDonald")
6. Individuals play high and low bells
7. Individuals play fast patterns and slow patterns on bells
8. Review Hap Palmer's "Scales" from previous day
9. Sing song requests

Lesson 19
Concepts: High/low, fast/slow, tone color—drum and triangle
Equipment: Pitch pipe, drum, triangle, record player
Activities:
1. Listen to high sound of triangle compare with low sound of drum
2. Close eyes and identify the two instruments
3. Warm up voices
4. Echo sing: "Hello, Where are You" (from Greenberg's curriculum p. 27)
5. Ascend by half steps
7. Listen to Brahms "Lullaby" (RCA Victor Listening Activities) and determine if speed is fast or slow
8. Listen again and move slowly with the music
9. Echo rhythmic patterns with drum
10. Review "Kumbaya" and move slowly

Lesson 20
Concepts: Phrase, tone color—children's voices
Equipment: Pitch pipe, record player, resonator bells
Activities:
1. Warm up voices
2. Echo sing: "Hello, Where are You" and "What is Your Name?"
4. Listen to "Amazing Grace" (Silver Burdett Music, Book 4) for the sound of the children's voices
5. Listen again for phrase endings
6. Listen again and stand for the first phrase, sit for the second phrase, and so forth
8. Point out high and low notes of first phrase of "See Saw"
9. Play on bells

Lesson 21
Concepts: High/low, same/different
Equipment: Pitch pipe, resonator bells, same/different poster, record player
Activities:
1. Warm up voices
2. Review "See Saw Marjorie Daw"
3. Partners make see saws by linking arms
4. Go up and down with see saws to the beat of the music
5. Play three tones on bells, two of which are the same
6. Review discussion of same/different poster
7. Play series of two tones which are the same or different, and class identifies by pointing to appropriate picture
8. Listen to "Shoo Fly" (Silver Burdett Music, Book 2)
9. Play first phrase again and pause
10. Stand when the initial phrase returns

Lesson 22
Concepts: Uneven measures; Curwen hand signs for pitch levels
Equipment: Pitch pipe, record player, rhythm sticks
Activities:
1. Warm up voices
2. Review "Hickory Dickory Dock"
3. Play rhythm sticks to the beat and notice how phrases are even
4. Listen to Dave Brubeck, "Unsquare Dance" (Silver Burdett Learning to Listen to Music) for unevenness
5. Listen again and clap rhythm sticks with the beat
6. Listen again and move body with the music
7. Learn new song "Mouse Mousie" (Lois Choksy, The Kodaly Method, p. 153)
8. Review "Rain, Rain"
9. Learn Curwen hand signs for so and mi
10. Sing "Rain, Rain" again and apply hand signs

Lesson 23
Concepts: Phrases; Curwen hand sign for la
Equipment: Pitch pipe, record player, rhythm sticks
Activities:
1. Warm up voices
2. Review "Rain, Rain" with hand signs
3. Learn new hand sign: la
4. Review "Bye Baby Bunting"
5. Add hand signs for so, mi, and la
6. Listen to Haydn, "Surprise" Symphony, "Minuet" (Bowmar Orchestral Library, Concert Matinee #63) for phrase endings
7. Listen again and stand for the first phrase, sit for the second phrase, and so forth
8. Review "Mouse Mousie"
9. Sing favorite song requests and accompany with rhythm sticks

Lesson 24
Concept: Phrase
Equipment: Pitch pipe, record player, autoharp
Activities:
1. Warm up voices
2. Review "Rain, Rain," and "Bye Baby Bunting" with hand signs
3. Learn new song: "A Tisket a Tasket"
4. Add hand signs
5. Review "Mouse Mousie"
6. Add movement to "Mouse Mousie"
7. Listen to Anton Reicha, Quintet in E-flat, "Minuetto: Allegro" for phrase endings
8. Listen again and stand for the first phrase and sit for the second phrase, and so forth
9. Individuals sing songs learned outside of class
10. Review "See Saw Marjorie Daw" with autoharp accompaniment
11. Review favorite songs with autoharp accompaniment

**Lesson 25**

**Concept:** Harmony/no harmony

**Equipment:** Pitch pipe, autoharp

**Activities:**
1. Warm up voices
2. Review "Rain, Rain," "Bye Baby Bunting," and "A Tisket a Tasket" with hand signs
3. Add other motions to "A Tisket a Tasket"
4. Listen to tones with and without harmony on autoharp
5. Close eyes and identify harmony and no harmony
6. Musical conversations with three pitches only (so, mi, and la):
   a) "Hello, Where are You?"
   b) "What is your name?"
   c) "What games do you like to play?"
   d) "What is your friend's name?"
   e) "What will you do on Halloween?"
   f) "What kind of candy do you like?"
7. Sing favorite songs

**Lesson 26**

**Concept:** Tone colors—all instruments used in classes

**Equipment:** Pitch pipe, recorder, record player, drum, triangle, bells, autoharp, jingle bells, rhythm sticks

**Activities:**
1. Play each instrument and discuss characteristic qualities: drum, recording of trumpet, autoharp, recorder, resonator bells, jingle bells, rhythm sticks, triangle
2. Close eyes and identify various tone colors aurally
3. Warm up voices
4. Learn new song "Row, Row, Row Your Boat"
5. Sing again with autoharp accompaniment
6. Review "Kumbaya" with autoharp accompaniment

**Lesson 27**

**Concept:** Same/different

**Equipment:** Pitch pipe, record player, rhythm sticks, same/different poster

**Activities:**
1. Warm up voices
2. Review "Row, Row"
3. Listen to Edward Elgar, "Moths and Butterflies" (RCA Victor Listening Activities) for phrases that are the same
Lesson 28
Concept: Listening—jazz and African music
Equipment: Pitch pipe, record player, jingle bells
Activities:
1. Listen to "Samandoza: Iwe" (Chitiruano Tribal Dance Song from Rhodesia) (Silver Burdett Learning to Listen to Music) after discussing characteristics of African music
2. Add creative movements while listening again
3. Warm up voices
4. Review "Row, Row"
5. Learn new song "Jingle Bells"
6. Sing again and accompany with jingle bells (with the beat)
7. Discuss characteristics of jazz
8. Listen to "Indiana" by Louis Armstrong (Silver Burdett Learning to Listen to Music)
9. Listen again for trumpet sound
10. Listen again and add creative movements

Lesson 29
Concepts: Absence of beat, melody and phrases
Equipment: Pitch pipe, record player, jingle bells, resonator bells, recorder
Activities:
1. Listen to "Contrasts" part 2 by Dick Raajimakers (1930- ) (Silver Burdett Learning to Listen to Music) and determine whether or not there is a steady beat, a discernible melody, or clear phrases
2. Discuss sounds that were heard
3. Warm up voices
4. Review "Jingle Bells" and accompany with jingle bells
5. Review concepts:
   a) Same/different
   b) High/low
   c) Loud/soft
   d) Long/short

Lesson 30
Review concepts learned in previous lessons
VITA

Vicki Vernon Lott was born 15 December 1950 in Milwaukee, Wisconsin, where she graduated from Messmer High School in 1969. She enrolled at St. Norbert College in DePere (Green Bay), Wisconsin, in August of that same year and received a Bachelor of Music degree, cum laude, in piano performance in May of 1973.

Her graduate studies began at Louisiana State University in May of 1973, and she received a Master of Music Education degree in 1974. Ms. Lott has been a graduate assistant since her arrival at Louisiana State University in Baton Rouge. During the first four years of her assistantship, her duties consisted of teaching private piano lessons to non-piano majors. Since the summer term of 1977, she has been teaching the music fundamentals course for elementary education majors as a graduate assistant and is currently seeking permanent employment.
EXAMINATION AND THESIS REPORT

Candidate: Vicki Vernon Lott

Major Field: Music

Title of Thesis: A Study of Musical Achievement of Culturally Disadvantaged Preschool Children Based on the Music for Preschool Curriculum of Marvin Greenberg

Approved:

[Signatures of Major Professor and Chairman, Dean of the Graduate School]

EXAMINING COMMITTEE:

[Signatures of Examining Committee members]

Date of Examination:

April 18, 1978