THE DEVELOPMENT OF CRITERIA FOR IDENTIFYING MUSIC PREFERRED BY CHILDREN WITH BEHAVIORAL PROBLEMS

by

Jo Ann Curlee Bowman

A Dissertation Submitted to
the Faculty of the Graduate School of
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
1978

Approved by

Joanne W. Sherbon

Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

Dissertation Adviser James W. Shuttleworth

Committee Members Walter L. Wehmer

Richard P. Cox

Kathryn Evans

Richard H. Weller

Nov. 21, 1978

Date of Acceptance by Committee

BOWMAN, JO ANN CURLEE. The Development of Criteria for Identifying Music Preferred by Children with Behavioral Problems. (1978) Directed by: Dr. James Sherbon. Pp. 88.

The purpose of this study was to investigate the differences which may exist between responses to aural stimuli by children classified as possessing behavioral problems (aggressive behavior, passive conduct, hyperactivity and lack of peer communication) and those in a non-behavioral problem category. It was hypothesized that significant differences existed in the musical preferences of the two groups.

Two hundred seventy subjects were drawn from a population representing all fifth grade sections in the Lee County, North Carolina, Public Schools. Subjects were assigned by classes to an experimental group which consisted of 51 children who were identified by the classroom teachers as students exhibiting behavioral difficulties. The remaining members of the classrooms (219 students) made up the comparison group.

Eight musical examples were employed in the study as a source for assessing degree of music preference. Three types of affective response (feeling-state, imaginal, and positive or negative response to the musical examples) were obtained from the students. Checklists and a preferential

line scale were used to record the choice of each student in each musical example. Student choice was compared statistically, using Chi Square test for variations in frequency distribution and analysis of variance procedure to test for possible difference between responses of subjects designated as children having behavioral problems and the other classroom students.

Comparison of the data using Chi Square formula revealed definite differences in affective response to music existed between the comparison and experimental groups. Employing the data derived from lines drawn on the preferential scale, analysis of variance procedure was used to compare musical preferences of the two groups. Differences in choice of the musical examples were present at a significant level in selections 2, 5, and 8.

Examination of the data suggests the following criteria could be used in identifying music that would be acceptable and appealing to children with behavioral problems:

1. Music containing strong rhythmic pulsations.
2. Music containing repetitive melodic patterns.
3. Music containing strong rhythmic/melodic juxtaposition.
4. Music containing familiar timbres.

Explanations of the results were discussed, and recommendations for future research were made.

ACKNOWLEDGMENTS

For their beneficial aid in the completion of this study, I would like to express my heartfelt appreciation to the following individuals:

Dr. James Sherbon, my adviser, for his supportive guidance and example of excellence;

Mr. W. Robert Blue and Mr. James D. Kimball, my colleagues, for their constant help and encouragement;

Miss Catherine Sloan, my cousin and friend, for her unflagging optimism and faith in me;

My husband, Joseph O. Bowman, Jr., for his enduring patience and tolerance;

My children, Catherine and Jody, for loving me more when I needed it most.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figure

CHAPTER I

INTRODUCTION

Educators employ a variety of procedures when teaching in an attempt to deal with the needs, experiences, and behaviors of students. An interaction of these needs, experiences, and behaviors often results in student responses which are of concern to educators.

Complex pedagogical situations are created by differing student abilities as well as dissimilar student psychological and physiological factors. The current trend toward mainstreaming of children causes teachers to be confronted with behavior problems not previously encountered in the classroom. These problems are found at all grade levels and encountered by educators in academic fields of study. Teachers of specialized subjects such as music are experiencing similar difficulties.

It is apparent that nonmusical aspects of education are of utmost importance to music teachers if music programs are to be successfully implemented. Educators must deal with the whole child and confront the totality of the individual student regardless of teachers' specialized interests or training. Educators do not always comprehend all the physical

or psychological complexities which are present in each student. But educators must be aware of the existence of these complexities and constantly reassess all facets of their teaching as it relates to the uniqueness of each student and his learning experiences.

The heterogeneous grouping of students in music classrooms affects the presentation of musical activities in many ways. Not only are the musical experiences of children varied, but abilities and interests encompass a broad spectrum.

Musical processes and activities often act as a bridge between the music educator and the student whose behavior creates a problem. In this situation there is no direct teacher student involvement; rather, the common element is sharing of musical activities. It is an example of what McLuhan terms "the medium becoming the message."

The importance of gaining more information about musical preferences of children with behavioral problems is supported by Gaston's supposition: "Music is a form of human behavior. It can benefit ill persons by helping them to change their behavior by acquiring new or better behavior."[1]

Survey of Problem Behavior

If student needs are to be met, student behaviors in their multiplicity of emergent forms must be investigated. In an attempt to identify student behaviors, meet the needs

---

[1]E. Thayer Gaston, Music In Therapy (New York: The Macmillan Company, 1968), p. 7.

those behaviors portend, and deal with them effectively, the National Center for Health Statistics conducted a survey of behavior in American schools. This survey, representing a national sampling of teachers, was conducted in two parts. The first section, entitled, "Behavior Patterns of Children in School, United States," was completed in 1972 and dealt with children between the ages of 6-11.[2] The second, designated "Behavior Patterns of School Youths 12-17 Years, United States," was reported in 1974.[3]

The relevant findings from the survey indicate the presence of student behavioral problems of a large magnitude in the public schools in America. It was determined that 16.8 percent of children between the ages of 6-11 possess adjustment problems. Seventeen percent of the youths in the age range of 12-17 years were identified as being maladjusted. The area entitled "adjustment" (as defined in the government study) includes problems such as lack of attentiveness, excessive motor activity, aggressive behavior, and lack of peer communication. The large percentage of students classified as having behavioral difficulties is a forceful reason for educators to find more effective means for dealing with these problems.

---

[2]U. S., Department of Health, Education, and Welfare, Behavior Patterns of Children in School, United States, Series 11, Number 113, February, 1972 (Rockville, Maryland: Government Printing Office, 1972), pp. 31-32.

[3]U. S., Department of Health, Education, and Welfare, Behavior Patterns in School Youths 12-17 Years, United States, Series 11, Number 139, May, 1974 (Rockville, Maryland: Government Printing Office, 1974), p. 8.

A primary focus of this study is an investigation of student behavior which varies in type and expression so radically from expected behavior that it is disruptive to class members, teachers, and instruction. Children with behavioral difficulties are often regarded as problem students by classroom teachers. These children are disturbing to both teachers and peers. At times they may appear to challenge established classroom procedures and persons whom they judge to be authority figures.

Children with behavioral problems are often distinguished by nonparticipation or a behavior that is diametrically opposed to that of others in the classroom. However, students who sometimes give the appearance of being nonparticipants may well be involved in an inner activity which they may not choose to share with those around them.

Musical perception is characterized by covert as well as overt musical behavior. Woodruff asserts that "behavior changes only when it is going on."[4] Examining the musical responses of children with behavioral problems provides an opportunity to investigate ways in which musical interaction may be manifested and the possible implications of these manifestations for music educators.

Art and Inner Reactions

In the field of art, scholars and researchers have analyzed art works in attempts to reveal the intrinsic content

---

[4]Ashel D. Woodruff, Basic Concepts of Teaching (San Francisco: Chandler Publishing Company, 1961), p. 86.

of the creating artist. A study of these findings is helpful in identifying associations between inner reactions of artists and art works produced as a result of these internal activities. A clearer understanding of these associations is useful in relating methods whereby musical perception may be better understood and used in working with students with behavioral problems.

Prinzhorn examined art works to reveal insights into man's inner self.[5] Early in the century Prinzhorn conducted a comprehensive investigation of drawings produced by people suffering from mental illnesses. He concluded that drawings and paintings contained elements which reflected the mental state of the artists who conceived and produced the art works. Prinzhorn believed "that pictorial creative power is present in every person and that this process of making images is readily apparent in the work of children."[6]

There has been an increasing interest in art works of children who are classified as having behavioral difficulties.[7] Mendelowitz referred to forty years' observation of children by psychologists, artists, and educators. He concluded that this systematic study of art provided an understanding of the

---

[5]Hans Prinzhorn, Artistry of the Mentally III (New York: Springer-Verlag, 1972), p. x.

[6]Ibid., p. xiii.

[7]"Behavior difficulties" are defined throughout the study as extremely aggressive behavior, extremely passive conduct, hyperactivity, and lack of peer communication.

social and psychological factors that contribute to individual differences and preferences.[8]

Investigation of Musical Perceptions

Psychologists and music educators have exhibited similar interests in children's reactions to aural experiences. At the beginning of the century, Bingham, Dashiell, and Heinlein[9] conducted experiments dealing with responses of children to various elements of music. These and other researchers explored the function of music, its effect, and its inherent affective qualities.

These experiments generated interest among music educators, and, during the next two decades, reports of experiments dealing with response to musical elements became more frequent and more complex in design. Hevner, Hampton, and Valentine and Danzfusz[10] examined affective response to music and designed procedures for quantifying their findings.

Mendelowitz, in discussing art works and artistic activities, gives a cogent argument for applying the directions used in examining art works to examining reactions to aural experiences.

---

[8]Daniel M. Mendelowitz, Children Are Artists (Stanford, California: Stanford University Press, 1963), p. 26.

[9]W. V. Bingham, "Studies in Melody," Psychological Monographs, 12(1910), 1-88; J. F. Dashiell, "Children's Sense of Harmonies in Colors and Tones," Journal of Experimental Psychology, 2(1917), 466-475; Christian Paul Heinlein, "The Affective Character of the Major and Minor Modes in Music," Journal of Comparative and Physiological Psychology, 8(1928), 101-142.

[10]Kate Hevner, "The Affective Value of Pitch and Tempo in Music," American Journal of Psychology, 49(1935), 621-630; Peter J. Hampton, "The Emotional Element in Music," Journal of General Psychology, 33(1945), 237-250; C. W. Valentine and K. Danzfusz, "The Aesthetic Appreciation of Musical Intervals Among School Children and Adults," British Journal of Social and Clinical Psychology, 6(1933), 190-216.

> Psychologists have decided that the medium of painting is effective in relation to children's personality and provides avenues through which intelligence, emotions, and experiences find expression; artistic activities serve the valuable additional purpose of revealing, through the content of the art work, the areas of conflict and concern.[11]

This transfer of application suggests new and compelling possibilities for investigation. Are children's conflicts and concerns apparent in their response to music? Do children with behavioral problems prefer certain types of music? Do some types of performance media find greater acceptance from these children?

Psychiatrists have found that children experiencing behavioral difficulties tend to exercise considerable prudence in regard to oral communication. They view collocution as disturbing and, in some instances, threatening. Direct verbal communication involves expression of opinion and statement of belief. Nuances of vocal inflection impart attitudinal and mood information. Individuals with behavioral difficulties are averse to expressing these highly personal qualities.

Psychiatrists have concluded that many of the symbols that appear in artistic expressions of children can help in understanding children and their problems.[12] It is possible that reactions to music by children with behavioral problems would be similarly revealing.

---

[11]Mendelowitz, Children Are Artists, p. 20.

[12]Ibid., p. 26.

Children with behavioral problems frequently function poorly in classrooms but relate positively and successfully to musical experiences.[13] It may be hypothesized that the flexible structure of the music class is less threatening than the more formal organization often found in academic classrooms. The possibility also exists that children with behavioral problems respond to different kinds of aural stimuli more frequently than students who conduct themselves in more socially acceptable ways.

The subject of perceiving and interacting with musical sound in conjunction with a prevailing sensory state is a critical issue to be considered by researchers. Hevner states, "It may be possible to discover the presence of definite principles together with a certain orderliness in the relationship between musical structure and the various emotions and sentiments."[14]

As a result of the Tanglewood Symposium[15] an intensive evaluation of the role of music in American society emerged. The issue most relevant to the present study was the attention shown by music educators in contributing skills, proficiencies, and insights toward assisting in the solution of urgent social problems. The individual with behavioral difficulties constitutes such a problem, for the student is often rejected by the educational structure in which he is compelled to function.

---

[13]E. Thayer Gaston, ed., Music in Therapy, p. 177.

[14]Kate Hevner, "Experimental Studies of the Element of Expression in Music," American Journal of Psychology, 48 (1946), 248.

[15]Robert A. Choate, ed., Tanglewood Symposium at the Berkshire Music Center: Documentary Report of the Tanglewood Symposium (Washington, D. C.: Music Education National Conference, 1976.

These stated concerns provide a foundation for investigating diverse areas of musical activity and varying types of musical participation. The responsible music educator should seek to find more effective ways of working with students who are classified as having behavioral problems.

Wilson discusses the need of the disturbed child for "selected and regulated sets of experiences in order to assume healthy responsibility and learn more effectively."[16] These experiences include socially acceptable means of self-expression; the acquisition of pride in self; opportunities for responsible decision making; verbal and nonverbal communication; and the learning of social skills acceptable to peers.

The selection of music most acceptable to children with behavioral problems is a means whereby these experiences of self-expression, pride in self, responsible decision making, communication, and acceptable peer relationships may be realized more effectively. "There are 'sense hungers' for sights, sounds, shapes, textures, and rhythms. These needs are particularly evident in children and the satisfaction of these needs is essential to normal growth and development."[17] It is necessary that students be open to aural experiences if they are to satisfy these needs.

---

[16]Gaston, Music in Therapy, p. 239.

[17]E. Thayer Gaston, "Expanding Dimensions in Music Education," Documentary Report of the Tanglewood Symposium (Washington, D. C.: Music Education National Conference, 1967), p. 75.

Investigating the musical preferences of children with behavioral difficulties and acquiring a greater understanding of their musical preferences is the research objective for the present study. It is important to music educators that students with behavioral problems develop, through music, ideas and associations which afford opportunities for personal growth, areas in which these students are often deficient.

Music is discussed as a form of human behavior in this study. Responses to music are regarded as indicators of selectivity motivated by differing reactions to aural stimuli. The researcher seeks in this paper to identify musical elements which may serve as criteria for identifying music preferred by children with behavioral difficulties.

The null hypothesis for the present study is stated: Children with behavioral disorders do not possess or display preference for selected musical stimuli. Research questions serving as possible by-products of the study are as follows:

1. Do children with behavioral problems prefer music with prominent melodic patterns?
2. Do children with behavioral problems prefer music with prominent rhythmic patterns?
3. Do children with behavioral problems prefer music with prominent timbre characteristics?
4. Is there a difference in musical preference by male and female students with behavioral problems?
5. Does racial heritage affect musical preference?
6. Is musical preference affected by prior musical study?

To assure that children with behavioral problems interact with aural stimuli without reservation, these students must be introduced to music containing musical characteristics appealing to them. Developing criteria for selecting this music may aid music educators in contributing in a positive way to these students' musical growth.

CHAPTER II

RELATED LITERATURE

Interest in musical perception and understanding is a concern which has long been under consideration by researchers who view this personal reaction to music as complex and most perplexing. St. Augustine wrote about musical values in his De musica libri sex.[1] He judged musical impressions to be an intricate mixture of diverse simultaneous occurrences: the physical fact of sound, the faculty of hearing, imaginal qualities of music, recall of previous musical experiences, acute mental activity at the actual moment of perception, and value judgments of the form and substance of music.

Similarly, DeVall[2] discussed the various individual theoretical effects of music. He maintained there is direct physiological response as well as kinesthetic and physical pleasure. These cause mental responses; i.e., subjective feeling, intellectual perceptions, social responses, and associative responses which are dependent upon the unconscious mental processes. These are dependent upon the emotional state of the person who is listening to music.

---

[1]Paul Hindemith, A Composer's World (Cambridge, Mass.: Harvard University Press, 1951), p. 4.

[2]W. Van DeVall, Music and Perception (New York: Macmillan and Co., 1964), p. 40.

The functions of music were isolated by Kohut[3] into three categories: catharsis (id), mastery (ego), and submission (superego). These he viewed as experiences in a nonverbal medium which fall outside the sphere of most structural conflicts. For this reason Kohut believed music affects all the emotional realms.

Studies Testing Artistic Response to Music

Various experimental studies dealing with human response to auditory stimuli have been reported in the literature. These researchers tested emotional responses to the affective values of music.

An early experiment dealing with harmonies in colors and tones was conducted by Dashiell[4] in 1917. His procedure involved a study of the affective preference in choosing colors and intervals. He sought to learn about subjects' capacity for treating colors in terms of combinations of harmonies. Two hundred twelve children, selected from nine Minneapolis kindergartens, were employed in the study. Results from these tests were compared with results obtained from 126 sophomores in general psychology classes at the University of Minnesota who were similarly tested.

---

[3]H. Kohut, "The Psychological Function of Music," Journal of the American Psychoanalyst, 5A(1957), 389.

[4]J. F. Dashiell, "Children's Sense of Harmonies in Colors and Tones," Journal of Experimental Psychology, 2(1917), 466-475.

Materials for the experiment included six rectangular cards of red, orange, yellow, green, blue, and violet. As five intervals were played subjects picked their favorite color which was then removed from consideration. Subjects responded positively or negatively as each interval was played. The testing provided comparisons which had been made of tone intervals with those made of color combinations. Dashiell concluded that there was general agreement among subjects between color and tonal harmonies.

Another approach to measuring affective responses was used by Cowles[5] who investigated that pairing of auditory and visual stimuli. Ten subjects listened to seven recorded selections. Concurrently, the subjects viewed one by one a group of colored reproductions of paintings and attempted to determine if any significant agreement existed when choosing a picture which aroused an affective mood most similar to each selection. (The mood thought to be present for each painting was a result of comparing decisions by art critics.) Over 85 percent of the subjects matched the recording with the painting which aroused a similar affective mood, as judged by the art critics.

Wehner,[6] in a study designed to test the effect of modern music on drawing, tested 27 third and fourth grade students. While listening to two different musical selections

---

[5]J. F. Cowles, "Experimental Study of the Pairing of Certain Auditory and Visual Stimuli," Journal of Experimental Psychology, 18(1935), 461-468.

[6]Walter L. Wehner, "The Effects of Modern Music on Drawing." Unpublished Article.

the children drew pictures using crayons of eight different colors. Using previously established criteria it was concluded that microtonal music elicited imagery in the children, that the stimulative mood of the music was represented in a large majority of the drawings by the children, and that there was similarity of responses evident in a large group of drawings reflecting motion and unrest of the stimulative music.

Studies Interpreting Inner Responses

The arts as vehicles of self-expression have fulfilled special needs of man, enabling him to overtly communicate his feelings. Art therapists have recognized and utilized external stimuli by encouraging patients to reveal feelings.

Koslow[7] discussed the use of art works as excellent diagnostic tools in working with children with behavioral problems. Art therapy enabled these children to communicate their feelings to the world outside themselves. The children did not feel threatened when using art as the communicating vehicle for externalizing feelings.

The development of this means of communication was traced by Rubin[8] who cited the Progressive movement of the thirties as giving impetus to the virtues and values of the

---

[7]Sally Platkin Koslow, "New Exciting Direction in Psychiatry: Dance/Music/Art Therapy," Mademoiselle, 82 (Jan., 1967), 106-7+.

[8]Judith A. Rubin, "On Education: How the Arts Can Help," High Fidelity and Musical America, 25 (May, 1975), MA 6-9.

arts as means of self-expression. Case studies of children were presented which demonstrated that the arts are helpful to troubled children with communication difficulties. The children overtly expressed feelings which they had previously repressed. Pictorially, these children revealed problems they were experiencing: sibling jealousy, the externalization of disturbing nocturnal fantasies, inability to communicate orally, and the desire to inflict harm upon peers.

Graphic elements corresponding to the expression of particular affective states were found by Alshuler and Hattwick.[9] Warmer, more intensive colors were associated with aggressivity and excitement while cooler, more subdued hues were associated with reservation and emotional control. Angular, jagged, and vertical lines were produced by assertive, aggressive children, and circles and horizontal lines were regularly drawn by immature, unaggressive children.

The force of pressure of the brush stroke correlated with the degree of tension thought to be present in the children. The authors also examined the use of space in drawings and concluded that placement of art compositions on paper indicated presence or absence of self-assertiveness, passivity, or impulsiveness.

A study was designed by Orton[10] to measure the effect of "active" versus "passive" music on children's drawings.

---

[9]Rose H. Alshuler and La Berta Hattwick, Painting and Personality: A Study of Young Children (Chicago: University of Chicago Press, 1947).

[10]Danny E. Orton, Development of Criteria for the Study of the Influence of Music on Children's Drawings (Lawrence, Kansas: National Association of Music Therapy, 1953).

The test was designed to examine feeling-states and imagery which music elicited from children and was portrayed in their drawings. Two hundred fifty children were randomly selected to participate as subjects. The subjects drew pictures while listening to musical selections labeled "sedative" and "stimulative". Two groups of judges sorted the pictures into opposite categories: those they thought were produced to "sedative" music and those produced while the "stimulative" music was played. One group of judges used criteria (four elements: story theme, movement, color, and line) as the basis of their selections while the second group did not use predetermined criteria. Orton found that judges who used established criteria in guiding the selection process were more successful in sorting paintings correctly than were those who did not use criteria.

The effect of music on paintings was further tested by Carter.[11] A group of art students was asked to paint to music, after which they completed a questionnaire. Following this, Carter attempted to determine the subjects' reactions to the musical selections. It was found that: (1) all subjects reported an awareness of a response to the musical examples; (2) the pattern of the music was reflected in the paintings; and (3) the same musical selections induced similar moods in different paintings by different individuals.

---

[11]Maurice Carter. The Effect of Music on Paintings (Lawrence, Kansas: University of Kansas Press, 1955).

Extensive studies designed by Naumberg[12] are of importance and contributed to the subject being examined in this paper. Children with behavioral problems were employed as subjects. Free art expression was used most often as an artistic activity for psychiatric therapy studies. Naumberg found these free art expressions to be a prime source of categorizing inner feelings and used the art works in communicating with these children. The most salient characteristics in this study relating to the project under consideration were the use of children with behavioral problems as subjects and the categorizing of the inner feelings of these children.

Subjects with disturbed behavioral patterns were also used by Offer and Stine[13] to examine the effect of music on drawings. Subjects were placed in three categories: schizophrenics, neurotically depressed patients, and a comparison group of undisturbed subjects. An analysis of variance was used to determine differences between diagnostic groups, between music, and the order in which stimuli were presented. The data revealed that one artistic medium (music) can be translated into another artistic medium (drawings). The affective response of subjects to expression of the first medium was an important variable in determining the translation of feeling into the second medium.

---

[12]Margaret Naumberg. Studies of Free Art Expression of Behavior Problem Children and Adolescents as a Means of Diagnosis and Therapy (New York: Coolidge Foundation, 1947).

[13]Daniel Offer and Diane Stine, "Function of Music in Spontaneous Art Productions," Archives of General Psychiatry, 3(Nov., 1960), 490-503.

The previous studies were valuable to the present study in establishing the validity of testing internal responses to auditory stimuli. The researchers, using differing methods, established criteria whereby covert reactions could be transferred to an overt state, studied, and evaluated in quantitative terms. The fact that workable procedures had been evolved was supportive of the subject being examined in this research. The next crucial point in testing affective responses to music by students with behavioral problems was the establishing of a valid and reliable format for quantitatively assessing the results of the testing. The studies cited below were of assistance in suggesting methods and procedures which were most relevant to the problem and yielded maximum input for appraisal.

Studies Measuring Affective Responses to Music

A simple form experiment testing affective responses to music was designed by Karowski, Odbert and Osgood.[14] Subjects drew pictures to illustrate definite musical characteristics heard in the music, such as crescendo and diminuendo. Eighty subjects were tested. All subjects interpreted the characteristics differently, but analysis of the drawings revealed easily identifiable similarities of expression.

---

[14] T. F. Karowski, H. S. Odbert, and C. E. Osgood, "The Role of Form in Visual Responses to Music," Journal of General Psychology, 33(1942), 199-222.

Hevner designed experiments which she used to establish affective values of music elements.[15] In her experiment dealing with the affective value of expression in music, a list of 66 adjectives, arranged in 14 related groups, was constructed. While listening to five musical examples the subjects checked adjectives they judged appropriate to the music. By comparing the number of choices made of different adjectives, the meanings or affective characteristics of the compositions were ascertained. Hevner found a high degree of uniformity and consistency in the interpretations.

An identical procedure was followed for testing the affective value of pitch and tempo in music.[16] Hevner found significant agreement among the subjects. The use of adjectives allowed the listener to report interpretations of the music accurately and quickly. The frequency range of adjectival choice enabled the experimenter to make quantitative comparisons both of specific and more general mood effects on the music.

The two Hevner studies were valuable as the use of adjectival selections suggested possible correlative application to the present study. Words have differing connotations but can furnish a basis for quantitative evaluation.

---

[15]Kate Hevner, "Experimental Studies of the Elements of Expression in Music," American Journal of Psychology, 49(1936), 246-249.

[16]Kate Hevner, "The Affective Value of Pitch and Tempo in Music," American Journal of Psychology, 48(1935), 621-630.

Hampton[17] studied the emotional element of music. Affective values in music were investigated. The individual subjective element of musical response presented difficulty to the investigator. The musical experience and background of each subject differed. Therefore interpretation of the emotional effects on the listeners was more difficult. "Respondents did not generally analyze their emotional expressions derived from music in terms of special emotional content but rather in terms of a general tone of pleasure."[18] A percentage of agreement, ranging from 63.4 percent to 80 percent, was found among subjects who recorded pleasant responses to different selections played.

The problem of the nature of musical factors that are responsible for the mood-characteristics of music was studied by Grundlach.[19] He first analyzed reports of 112 subjects upon characteristics expressed by 40 musical phrases selected from orchestral and instrumental compositions. He then chose selections which contained common similarities within compositions in regard to tempo, loudness, orchestration, rhythm, intervals, range, pitch, etc.

Subjects in the Grundlach study were college students in psychology and music and were placed into three groups according to prior musical training. The first group contained 33 subjects who had no training and minimal knowledge of music. Twenty-five subjects who had no

---

[17]Peter J. Hampton, "The Emotional Element in Music," Journal of General Psychology, 33(1945), 237-250.

[18]Ibid., p. 250.

[19]Ralph H. Grundlach, "Factors Determining the Characterization of Musical Phrases," American Journal of Psychology, 47(1935), 624-644.

theoretical or formal training in music but had received instrumental instruction comprised the second group. The remaining 54 subjects included advanced students in music selected from composition and choral classes and comprised the third testing group.

The first measures (a single musical phrase) of 40 compositions were played twice. Each subject was given a list of 17 categories grouped in three sets: (1) dynamics, (2) mood-characteristics or emotionally toned attitudes and (3) attitude of composers. The responses were scored quantitatively. Grundlach found general agreement in the ranking of mood but less agreement in dynamic responses.

Imaginal responses were studied by Weld[20] who measured physical responses to music and recorded concurrent imagery associations. Eight subjects listened to 26 musical selections while attached to instruments which monitored responses of respiration, heartbeat, and the circulatory system. Each listener recorded his imaginal response to each selection. Weld found visual imagery prevailed while little auditory imagery was present. The Weld experiment introduced a question warranting further research; i.e., the role of internal physical reaction to auditory stimuli.

Myers[21] examined impressions and attitudes of subjects to music. There were fifteen subjects (9 male and 6 female), all university graduates or wives of university graduates. Each had a previous history of musical study.

---

[20]H. P. Weld, "An Experimental Study of Musical Enjoyment," American Journal of Psychology, 23(1912), 245-308.

[21]C. S. Myers, "Individual Differences in Listening to Music," British Journal of Psychology, 13(1922), 52-71.

Each was tested individually, in two sessions, listening to three different selections at a session. Upon comparing the written comments subjects made while listening to the musical examples Myers found a high degree of agreement among subjects regarding impressions made by the aural stimuli.

Sopchak[22] disagreed with the practice of isolating individual elements of music for scientific analysis. He chose to emphasize the importance of specific knowledge of the effects of music on the listener. He cited these as being valuable and useful as a social or therapeutic force.

In a study dealing with relationships between personality characteristics and emotional constitution, Sopchak modeled his design on a study previously reported by Campbell.[23] Fifteen musical examples were chosen and arranged by Sopchak in groups titled "classical", "popular", and "folk". A group of 553 sophomore students in elementary psychology classes at the University of Maine listened to the 15 musical compositions. Using a check list containing 48 adjectives, grouped in 12 categories (sorrow, joy, calm, yearning, love, eroticism, jealousy, wonder, solemnity, cruelty, rage, and assertion), the subjects checked the terms they felt most nearly described affective qualities

---

[22]Andrew L. Sopchak, "Individual Differences in Responses to Different Types of Music in Relation to Sex, Mood, and Other Variables," Psychological Monographs, Vol. 69, No. 11(1955), 1-20.

[23]Ivy G. Campbell, "Basal Emotional Patterns Expressible in Music," American Journal of Psychology, 55(1942), 1-17.

they perceived in the examples. The subjects then completed questionnaires indicating their familiarity with the music and their prevailing mood during the testing period.

From the results Sopchak concluded: (1) wide differences existed among subjects as to emotions being expressed in the music, (2) emotional responses to music were not due to the power of music itself, (3) emotional responses to music were the combined result of learning and projection, (4) women did not display a higher degree of emotionalism than men, (5) there was a definite relationship between the subject's statement of his mood and his responses to music, (6) responses were different depending on whether the music was classical, popular, or folk, (7) subjects with the training in music were more responsive to all types of music and to most of the affective qualities, (8) subjects who were familiar with the music responded differently than those who were unfamiliar with it, (9) the study served as a device for better understanding of human personality.

Areas Presenting Troublesome Factors

Examination of the literature demonstrates graphically the difficulties encountered by investigators of affective responses to music. Problems which were identified by the researchers included the subjective element of musical response and the diversity of the subjects' previous musical experiences.

Campbell and Hampton devoted concentrated discussion to salient problem traits. They found some subjects were musically inclined and had previous training in music. Some listeners were receptive to music and endeavored to put themselves into an empathetic frame of mind. Others were recalcitrant and consciously or unconsciously tried to inhibit a free flow of emotions. Not all listeners were equally capable of introspecting, so contamination may have been a factor in interpreting the emotional effects of the music on the listener.

There were variations of mood and temperament among subjects. Some listeners displayed negativism in attitude and response. These discussions were pertinent to the subject under consideration; i.e., response to music by children with behavioral problems.

Especially relevant to the present study were the Sopchak and Hevner inquiries. These investigators demonstrated successful methods for obtaining emotional responses in a form which could be translated into valid and reliable quantitative terms.

CHAPTER III

PROCEDURE

Subjects were drawn from a population representing all elementary schools with fifth grade sections in the Lee County, North Carolina, Public Schools. Elementary school principals provided lists of fifth grade classes (all self-contained) in their respective schools. After a total listing of fifth grade classes in all elementary schools was completed, a table of random numbers was employed to select classes to be involved in the study. The self-contained classrooms were heterogeneously grouped in that they included diverse student populations. Students involved in the testing represented families with differing educational, socio-economic, racial, and cultural backgrounds.

Subjects were assigned by classes to an experimental group which consisted of 51 children who were identified by the classroom teachers as students exhibiting behavioral difficulties. Teachers were requested to observe their students in the classroom, on the playground, and in other socially interactive situations, and to identify students whom they judged to be overagressive, passive, hyperactive, or non-communicative with peers. The remaining members of the classrooms (219 students) made up the comparison group.

Response Categories

Three categories were chosen by the researcher to be investigated in testing: (1) feeling-state: responses were to be chosen by each student from a checklist; (2) imagery: responses were to be chosen by each student from a second checklist; and (3) indication of positivism or negativism for each music example: responses were to be indicated on a line scale.

Pilot Study

To obtain terms to be used in the feeling-state and imagery checklists for the main study, a pilot study was conducted, using 53 fifth grade students in two elementary schools. The two pilot study classes (one rural and one urban) were selected to represent a cross section of Lee County students in an attempt to insure heterogeneity of response and to be representative of the sample population.

Eight excerpts from musical compositions were chosen by the researcher. These examples were approximately one and one-half minutes in length. Criteria for selection were as follows: (1) examples containing prominent expositions of musical elements (melody, rhythm, timbre); (2) examples of diverse styles of composition (march, symphony, ballet); (3) examples of differing types of orchestration (band, symphony orchestra, jazz ensemble). The excerpts were taken from the compositions listed below and presented in the following order: Semper Fidelis, Gaité Parisienne, Lohengrin, Mambo Jambo, Bolero, Ain't She Sweet?, Tchaikovsky's Symphony No. 6, and Scotland Forever. (See Appendix A.)

All excerpts were recorded and reproduced on an Akai tape recorder, Stereophonic Model 4000 SD. All equipment was calibrated to maintain midpoints in level of intensity and between bass and treble maximums.

The following form was used in the pilot study for each of the eight musical examples:

FIG.1. PILOT STUDY RESPONSES

When I listen to this music I feel _____.

When I listen to this music I think about _____.

The students were asked to write any term which best described their own feelings and thoughts. The researcher emphasized that any response would be correct. Each musical example was then played twice.

Pilot study responses from both categories of the musical examples were tabulated and frequency of occurrence recorded. The three terms used most often by the comparison group in the feeling-state and imagery sentences were chosen. An identical method of selection was used in determining the three terms used most frequently by the experimental group. These six word choices of the two groups provided the material for constructing the feeling-state and imagery checklists to be used in the final testing form. Different terms were used for each of the categories in describing the eight musical examples. (See Appendix B.)

Subsequent to the pilot test procedure and prior to the actual testing sessions, an instructional session was conducted with all participating teachers to acquaint them

with the problem under investigation in the main study and to clearly define operational criteria for identifying children with behavioral problems. Teachers were cautioned to classify students in terms of behavioral, not learning problems. Presence or absence of mental acuity, it was emphasized, was not the problem under consideration.

Main Testing

The experimental testing was administered in classroom situations during the regular school day in the time allotted for music classes. As the students were most accustomed to working within this environment, it was concluded that this procedure would introduce less bias. A short, standardized explanation was presented by the researcher for purposes of gaining each student's attention and cooperative involvement. (See Appendix C.)

Testing consisted of the presentation of the eight musical examples to all members of each class involved in the study. All musical examples were presented by tape recorder (specifications provided on p. 28) to eliminate possible jeopardization of reliability in performance of the compositions between test administrations. Each example was played twice to allow students sufficient time to respond to the music. Each student was asked not to return to a previous example after music from the next excerpt was being presented.

Upon completion of the testing, a list of students in each class was obtained from teachers. Names of students classified by teachers as having behavioral difficulties had been marked. This enabled the researcher to assign each tested student to the appropriate category.

During the testing session the researcher remained unobtrusive. This reduced the possibility that student choice might be affected by simple movement of the researcher as the selections were played.

Testing Instrument

Three types of affective response (feeling-state, imaginal, and positive or negative reaction to the musical examples) were obtained from each student. A checklist containing six different terms was used to record responses in both the feeling-state and imagery categories. (See Appendix B.)

A horizontal line, 136 millimeters in length, labeled "dislike" at the left extremity and "like" at the right extremity, was drawn on the test form to allow the subjects to indicate the degree of preference for each music example. Each student drew a vertical line which intersected the preferential line at a point to indicate the degree of positivism or negativism with which he regarded the musical excerpt.

FIG. 2. PREFERENTIAL LINE SCALE

Dislike _____ Like

This allowed positive and negative responses of the subjects to be recorded on a continuum from "0" (total negative response) to "136" (maximum positive response). Each subject's response was measured in millimeters from the "0" point to the place where the vertical mark intersected the line.

Data Analysis

All data were collected and frequency of responses in the feeling-state and imagery categories were tabulated. Measurement was made of all responses recorded on the 0-136 continuum. A Chi Square test for variations in frequency distribution was used to examine responses from the questions dealing with feeling-state and imagery. An analysis of variance procedure was used to test for possible differences between preferential responses of subjects designated as experiencing behavioral problems and responses of the other classroom students. The formula used for the analysis of variance procedure allowed for adjustment for unequal sample size between the two groups.[1]

---

[1]Geoffrey Keppel. Design and Analysis: A Researcher's Handbook (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1975), p. 351.

CHAPTER IV

EVALUATION OF THE DATA

Analysis procedures used for evaluating the data included Analysis of Variance procedure, Chi Square, and Spearman Rank-Order Correlation formula. The question under consideration was the presence or absence of musical preferences among children with behavioral disorders.

The results are presented in Table 1 (as listed by example) obtained from the comparison and experimental groups. Mean scores of the positive and negative reactions of the subjests to the eight musical examples are also shown. The possible responses ranged on a scale from 0 (negative response) to 136 (positive response).

It is apparent that both groups indicated a strong preference for example 6 with a mean score of over 117 for both groups. The musical example which rated second highest in mean responses was example 4, followed closely by example 1. All responses by both groups exceeded 100 for each of the cited examples.

The next highest mean response for both groups was example 5, but the degree of positiveness was not as high as the previously discussed examples. Excerpt 2 was rated fifth by both groups and was given a lower mean score. At this point there was a divergence between opinions. The comparison group preferred example 8 while the experimental group showed preference for example 7.

TABLE I

MEAN SCORES OF SUBJECT RESPONSES TO MUSICAL EXAMPLES

Example	Comparison Group	Experimental Group
1. Semper Fidelis	111.10	100.26
2. Gaité Parisienne	94.81	79.24
3. Lohengrin (Overture Act III)	69.23	64.88
4. Mambo Jambo	111.99	106.47
5. Bolero	96.78	80.03
6. Ain't She Sweet?	119.71	117.91
7. Symphony No. 6	77.18	71.71
8. Scotland Forever	88.35	61.73

In comparing group preferences for the musical examples, mean responses show that both groups have identical choices for the first five preferred excerpts. In first position was the Dixieland jazz selection, followed closely by the Antigua steel band song, and the Sousa march. Rated fourth was Ravel's Bolero; in fifth place was Offenbach's Gaité Parisienne.

In comparing these results it is questioned if there is a common element which all five selections share. Most

prevalent in these examples is strong rhythmic involvement which could be termed unceasing and powerful. This rhythmic force serves as a common quality in the five examples of music.

Another element appears in the choices made by the two test groups in the final three examples. The comparison group's sixth choice was the bagpipe and drum selection. This has a pulsating, repetitive rhythmic quality. However, the experimental group placed example 8 last in the list of choices. This clearly was the example the experimental members liked least.

Questions emerge as a result of the subjects' responses to the musical examples. Why do members of the experimental group find the bagpipe and drum selection unpleasing? The most apparent quality of the musical example is the different timbre. Dislike of the example is reflected by the affective qualities the experimental members associated with example 8.

The experimental group placed number 7 in sixth position, number 3 in seventh position, and assigned number 8 to last place. The comparison group placed number 8 in sixth position, number 7 in seventh place, and number 3 in last position. Examples 7 and 3, selected by the experimental group to precede example 8, are more subtle rhythmically while being melodically strong. The selections placed by the experimental subjects in the first five positions all have

repetitive, short-phrased melodies. The melodies in number 7 and number 3 have definite melodic motivic development. The development is fragmented, motivic expansion as opposed to the strictly repeated sections found in examples 6, 4, 1, 5, and 2. It is possible that subjects in the experimental group preferred the more easily identified repeated melody rather than the sectional expansion type of development.

Comparing mean responses derived from the preferential line scale revealed a subgrouping of scores. The 11.17 point spread between the sixth and seventh place mean scores divides ranking scores into two preferential subscores. Examples 6, 4, 1, 5, and 2 comprise subgroup number one, and example 8, 7, and 3 make up subgroup number two. The mean scores of the first five choices of the control group were separated by 24.90 points and the latter three by 19.12 points. The total difference in means between the eight choices exceeds 50 points.

Scores of the experimental group fall into two subcategories also, but the selections in each subgrouping differ from those of the comparison group. Experimental subjects showed strong preference for grouping examples 6, 4, and 1 with a mean score range of 17.65 points. The latter subgroup comprised of examples 5, 2, 7, 3, and 8, covers a mean score range of slightly less than 19 points (18.30).

The overall range of mean score responses for the comparison group's eight musical examples was 50.48 while the experimental group's range was 56.18.

Arranging the choices in rank order and comparing the rank order by use of the Spearman Rank-Order Correlation method shows that rho = .5 (not significant at the .05 level).

TABLE 2

PREFERENTIAL RANKING OF MUSIC EXAMPLES

Comparison Group	Experimental Group
Example 6	Example 6
Example 4	Example 4
Example 1	Example 1
Example 5	Example 5
Example 2	Example 2
Example 8	Example 7
Example 7	Example 3
Example 3	Example 8

The most obvious difference in the rankings by the two groups is the parallel response pattern interrupted by the abrupt and opposite placement of example 8. This indicates a diverse reaction to the music by the two groups.

Analysis of variance was used to test the difference of the degree of preference by the two groups. The results are presented in Tables 3 through 10.

TABLE 3

ANALYSIS OF VARIANCE, EXAMPLE 1 - SEMPER FIDELIS

Source of Variance	df	MS	F
Comparison	1	831.86	N.S..
Error	269	1276.87	

TABLE 4

ANALYSIS OF VARIANCE, EXAMPLE 2 - GAITÉ PARISIENNE

Source of Variance	df	MS	F
Comparison	1	6618.48	4.00*
Error	269	1654.80	

*Significant at .05 level

TABLE 5

ANALYSIS OF VARIANCE, EXAMPLE 3 - LOHENGRIN

Source of Variance	df	MS	F
Comparison	1	504.65	N.S.
Error	268	2142.54	

TABLE 6

ANALYSIS OF VARIANCE, EXAMPLE 4 - MAMBO JAMBO

Source of Variance	df	MS	F
Comparison	1	831.86	N.S.
Error	269	1276.87	

TABLE 7

ANALYSIS OF VARIANCE, EXAMPLE 5 - BOLERO

Source of Variance	df	MS	F
Comparison	1	7654.02	4.20*
Error	269	1820.61	

*Significant at .05 level

TABLE 8

ANALYSIS OF VARIANCE, EXAMPLE 6 - AIN'T SHE SWEET?

Source of Variance	df	MS	F
Comparison	1	86.39	N.S.
Error	268	1365.18	

TABLE 9

ANALYSIS OF VARIANCE, EXAMPLE 7 - SYMPHONY NO. 6

Source of Variance	df	MS	F
Comparison	1	817.44	N.S.
Error	269	2621.60	

TABLE 10

ANALYSIS OF VARIANCE, EXAMPLE 8 - SCOTLAND FOREVER

Source of Variance	df	MS	F
Comparison	1	18826.40	9.04**
Error	266	2082.11	

**Significant at .01 level

Test results of examples 2, 5, and 8 reveal there are significant differences present. The obtained F score of Table 3 (3.05) approaches significance at the .05 level and indicates that further investigation of obtained data would be warranted.

Musical Elements in Significant Musical Examples

The three musical examples shown by analysis to have significance in mean differentiation have two dominant musical elements, rhythm and melody. All other examples (excluding number 1) had a predominance of either melody, rhythm, or timbre, but there was no strong juxtaposition of the two. Example 1 had the same melodic/rhythmic interweaving prominent in examples 2, 5, and 8, and it was the only other example whose *F* ratio approached the level of significance.

Term choices for each example reflected the affective qualities which the subjects attributed to the musical examples in the categories of feeling-state and imagery. Example 1 (*Semper Fidelis*) was thought to be "cheerful" by 59 percent of the comparison subjects and 62 percent of the experimental subjects. No members of the comparison group found the selection to be "sad," but nine percent of the experimental group judged it to be so. Summing responses for the similar terms "cheerful" and "happy," the percentage of choices by members of the comparison group was 91 percent. Experimental subjects who judged it to be either "cheerful" or "happy" totaled 74 percent.

Thoughts associated with three terms "circus," "marching," and "parades" totaled 93 percent of the responses of the comparison group. Three percent of the comparison members responded "band" in contrast to 26 percent of the

experimental members who chose the term. Seventy-four percent of this group responded "circus," "marching," and "parade." No subjects in either category selected the term "singing."

Example 2 (Gaité Parisienne) had more heterogeneous responses by both groups in the feeling-state and imagery categories. This response may indicate ambivalence among the subjects in decision making about this selection. This view is supported by the observation that there were numerous erasures on the test forms of both groups, with initial responses being replaced by second or third choices.

Responses from the comparison group in example 3 (Lohengrin) were centered around "dreamy" with 38 percent of the subjects choosing this term and 24 percent selecting "bored." There was more variance among the responses of the experimental group members, with three terms, "dreamy," "bored," and "gay" chosen by a total of 26 percent of the group.

The comparison group's imaginal category was dominated by 50 percent of the respondents' choice of the term "orchestra." In contrast, 35 percent of the experimental group indicated "orchestra." But 32 percent selected "movies." Twenty one percent indicated the different response "war" best expressed their imagery state.

The terms "funny," "crazy," and "happy" were the choice of 36 percent, 31 percent, and 23 percent, respectively,

of the comparison group. These same terms were chosen by 27 percent, 30 percent, and 27 percent of the experimental subjects. In addition, 15 percent of the experimental subjects indicated they felt "dumb" while listening to the example.

The individualistic rendition by the Antigua Steel Band of Mambo Jambo (Example 4) elicited associations with distant places for both comparison and experimental group members. Forty five percent and 30 percent of the comparison subjects were reminded of Hawaii and Africa while 39 percent and 30 percent of the experimental respondents associated these locations with the music. A majority of subjects in the experimental group chose the term "jungles." Four percent of the total responses of the comparison group included "clowns" and "oceans," but none of the experimental members selected these terms.

Responses of the two groups to both categories of example 5 were varied. They not only represented a broad range of term selections but also an evenly distributed number of choices as well.

Example 6 (Ain't She Sweet?), the selection most preferred by both groups, had a high degree of homogeneity in the responses of both groups. Forty five percent of the members of the comparison group and 47 percent of the experimental subjects stated they found the music to be "funny." The highest percentage of intergroup agreement to the terms

appeared in responses from the imagery category of number 6. The term "olden days" was circled by 61 percent of the comparison group and 56 percent of the experimental group.

Example 7, one of the less preferred musical examples, evoked a strong agreement among subjects in both groups. "Sleepy" was the choice of 42 percent of the comparison group members and 39 percent of the experimental group who regarded it as best exemplifying the affective quality of the music. The feeling-state represented by the term "sad" was a secondary selection representing 42 percent of the comparison population and 39 percent of the experimental subjects. The imagery term "love" was the most popular response given by 40 percent of the regular classroom students and 36 percent of the students designated by the teacher as having behavioral problems.

The level of agreement in the feeling-state category among all students was high for example 8. Forty-three percent of the comparison population and 35 percent of the experimental group indicated they felt "far away" while listening to the bagpipe and drum selection. "Scotland" was circled by most students as the musical excerpt was played. A high percentage, 59 percent, of the experimental group circled this term, as did 45 percent of those tested in the comparison population. "Bagpipes" was also highly favored by 38 percent of the comparison students.

Responses received from examples 2 and 5 were the most generally distributed of the eight selections. Examples 2 and 5 both had F ratios (4.00 and 4.20) that were significant at the .05 level.

The highest responses by both groups in the feeling-state and imagery categories were given in example 6. This example had the lowest F ratio of the eight examples. The largest F ratio was that derived from the data of example 8, (significant at the .01 level). This selection was the most controversial of the musical examples, ranked sixth by the comparison group and eighth by the experimental group. This variance in opinion is reflected in the wide deviation in mean scores.

The frequency distribution of the terms reflecting affective qualities perceived in the musical examples by the subjects covered a wide range. The apparent deviation from a theoretically expected frequency was tested for possible significance by use of Chi Square.

Once frequency tabulations were completed, data were evaluated at the .05 level of probability to determine if results could have occurred due to a real deviation in subject response. Table 11 presents the results from both the comparison and experimental groups in the feeling-state and imaginal categories.

TABLE 11

CHI SQUARE RESULTS OF FEELING-STATE AND IMAGERY RESPONSES

	Comparison Group		Experimental Group	
Example	Feeling-State	Imagery	Feeling-State	Imagery
1	193.17**	49.55**	50.71**	17.88*
2	33.96**	39.22**	6.24	10.43
3	61.74**	143.91**	13.65	23.18**
4	93.15**	121.91**	19.18**	28.27**
5	35.83**	93.13**	8.27	29.88**
6	106.17**	211.85**	24.59**	37.25**
7	113.23**	88.09**	24.64**	16.27*
8	89.18**	157.39**	15.76*	48.94**

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

It should be recognized that all results from the comparison group are significant at the .01 level. However, results obtained from example 2 and the feeling-state category of number 5 from the experimental group did not exceed the .05 level. Data which have been examined in the feeling-state and imaginal categories, derived from experimental responses to examples 2 and 5 have demonstrated there is a deviation in responses contained in the results. The obtained Chi Square values of these two examples support this.

A phenomenon which appears in responses from the experimental subjects deals with the choice of terms which are strikingly different from other terms selected in the same category. An example of this occurs in example 1. Nine percent of the experimental subjects circled the term "sad" which is diametrically opposed to the large majority of subjects in both groups who chose either "cheerful" or "happy." In example 3, 21 percent of the respondents in the experimental group selected "war" which was in large contrast to the terms "orchestra" and "movies" chosen by a plurality of subjects of both groups. Again there is a recurrency of this action in example 4. Seventy percent of the subjects in both test groups favored either the response "Hawaii" or "Africa." But 25 percent of the subjects in the experimental group chose "jungles." Example 8 contains

another occurrence of this unique outcome. Over 70 percent of the subjects in both groups selected "Scotland" or "bagpipes," but 15 percent of the experimental population chose "marching."

Sexual Composition of Test Groups

A classification of the experimental and comparison groups by sex showed the experimental group contained 13 girls and 38 boys while 124 girls and 95 boys comprised the comparison group. One hundred thirty seven girls and 133 boys were involved in the experiment. While the testing population is 51 percent female and 49 percent male, the percentage of boys in the experimental group far exceeds the percentage in the comparison group. The sexual composition of the experimental group is 75 percent male and 25 percent female. In contrast, 43 percent of the comparison population is male and 57 percent is female.

Comparisons of musical preferences of the two populations grouped by sex provide additional information. The mean responses of the comparison group and the experimental group are presented in Table 12.

TABLE 12

MEAN SCORES OF RESPONSES TO MUSICAL EXAMPLES
CLASSIFIED BY SEX OF SUBJECT

	Comparison Group		Experimental Group	
Example	Males	Females	Males	Females
1	111.42	110.86	102.88	94.00
2	87.15	100.71	87.63	45.90
3	58.72	77.32	71.70	49.20
4	110.27	114.60	109.13	100.10
5	107.63	88.41	87.00	63.30
6	109.77	118.26	122.48	107.40
7	66.02	85.77	70.75	74.00
8	88.40	91.47	68.48	46.20

The data show the most positive responses were those of the girls in the comparison group (98.42) followed by those of the boys in the comparison group (91.71). The overall mean responses of the boys in the experimental group totalled 90.04, differing only 1.67 points from the mean of the responses of males in the comparison group. There is a wide variation between the mean responses of females in the experimental group (72.51) and those of females in the comparison group (98.42), a difference of 25.91 points. The females in the experimental group were the most negative of all groups in their responses.

A review of the initial data revealed a type of ambivalence among the experimental subjects. Male responses contained 13 individual responses of "0," but there were only four responses of (0) by female subjects. The overall responses of the female members of the experimental group were more generally negative.

Arranging the mean responses of contrasting groups (male and female experimental subjects and male and female control subjects) in order of preference provides a graphic statement of the sharply contrasting differences in reactions to the musical examples. The results are presented in Table 13.

TABLE 13

PREFERENTIAL RANKING OF MUSIC EXAMPLES
BY SUBJECTS GROUPED BY SEX

Comparison Group		Experimental Group	
Males	Females	Males	Females
Example 1	Example 6	Example 6	Example 6
Example 4	Example 4	Example 4	Example 4
Example 6	Example 1	Example 1	Example 1
Example 5	Example 2	Example 2	Example 7
Example 8	Example 8	Example 5	Example 5
Example 1	Example 5	Example 3	Example 3
Example 7	Example 7	Example 7	Example 8
Example 3	Example 3	Example 8	Example 2

The males in the control group chose example 1 as their first preference in contrast to example 6 selected by the other three groups. Examples 6, 4, and 1 were selected by all groups as one of their first three choices. Examples 8 was ranked fifth by the girls and boys in the control group. Example 8 was ranked in eighth place by males in the experimental group and seventh by female experimental subjects. Example 7 was selected by the girls in the experimental group as the fourth choice; number 7 was placed seventh by the other groups. These three examples vary widely in subject reaction.

Comparison of mean responses among the four groups, using the Spearman Rank-Order Correlation method, yielded the following results:

TABLE 14

PREFERENTIAL RANKING OF MUSIC EXAMPLES COMPARED BY PAIRING MALES AND FEMALES WITHIN GROUPS

Pairing	rho
Experimental and Comparison Males	-.12
Experimental and Comparison Females	.52
Comparison Males and Females	.19
Experimental Males and Females	.50
Comparison Males and Experimental Females	.21
Comparison Females and Experimental Males	.55

The data show a high rate of agreement among experimental subjects contrasted with a lack of agreement among comparison group members. Diametrical placement on a rating scale points to the homogeneity of opinion among experimental subjects versus the wide divergence of choices among comparison subjects. This finding supports quantitatively the premise that children with behavioral disorders possess and display preference for selected musical stimuli.

Racial Composition of Test Groups

In an attempt to gather as much information as possible from the data, additional subgrouping of the subjects was studied. Grouping of the students by race showed that the experimental group contained five white and eight black girls and 21 white and 19 black boys. The comparison group was comprised of 84 white girls, 32 black girls, 73 white males and 17 black males. There were eleven children (six girls and five boys) whose racial heritage was varied (Indian, Spanish surname, Oriental). These students were grouped together and placed in a category entitled "other." All students in the category labeled "other" were members of the comparison group.

The racial makeup of the total testing population was 67 percent white, 29 percent black, and 4 percent classified as "other." Fifty one percent of the experimental group was white and 49 percent black, while the comparison group was composed of 72 percent white children and 23 percent black

students. (The remainder comprised the "other" category.)

Comparisons were made of musical preferences of the two populations grouped by race. The mean responses of the comparison group and the experimental group are found in Table 15.

Black members of the comparison group responded most positively to the musical examples (97.86), followed closely by white students in the comparison group (94.36). The overall responses of black members averaged 88.10, contrasting with the total mean responses of white members which totaled 90.15, a variation of 2.05.

It was apparent that, while black comparison members were most positive in their responses, black experimental members were least positive, showing a difference of 19.53 between mean responses of the two. This wide diversity of opinion suggests that reaction to music among black students is not identical nor is response to music dictated greatly by racial heritage.

Arranging the mean responses of the four groups (black and white comparison subjects and black and white experimental subjects) in order of preference produces revealing alignments of musical choice. The results are presented in Table 16.

TABLE 15

MEAN SCORES OF RESPONSES TO MUSICAL EXAMPLES
CLASSIFIED BY RACE OF SUBJECT

	Comparison Group		Experimental Group	
Example	Black	White	Black	White
1	105.35	111.07	92.00	106.36
2	91.70	92.97	57.50	98.79
3	86.14	62.27	50.14	75.74
4	118.08	109.46	108.63	94.67
5	105.66	95.44	69.66	78.22
6	115.40	120.69	122.62	102.52
7	83.97	75.83	71.42	70.74
8	76.55	86.68	54.69	60.38

TABLE 16

PREFERENTIAL RANKING OF MUSIC EXAMPLES
BY SUBJECTS GROUPED BY RACE

Comparison Group		Experimental Group	
Black	White	Black	White
Example 4	Example 6	Example 6	Example 1
Example 6	Example 1	Example 4	Example 6
Example 5	Example 4	Example 1	Example 2
Example 1	Example 5	Example 7	Example 4
Example 2	Example 2	Example 5	Example 5
Example 3	Example 8	Example 2	Example 3
Example 7	Example 7	Example 8	Example 7
Example 8	Example 3	Example 3	Example 8

Comparison of mean responses among the groups, using the Spearman Rank-Order Correlation formula, yielded the results shown in Table 17.

TABLE 17

PREFERENTIAL RANKING OF MUSIC EXAMPLES COMPARED BY PAIRING BLACKS AND WHITES WITHIN GROUPS

Pairing	rho
Comparison and Experimental Blacks	-.14
Comparison and Experimental Whites	-.36
Comparison Blacks and Whites	-.14
Experimental Blacks and Whites	.21
Comparison Blacks and Experimental Whites	.57
Comparison Whites and Experimental Blacks	.19

Musical Study of Test Groups

One of the most impressive findings derived from further subgrouping of data appeared when subject responses were categorized by previous music study. Sixty-three subjects (45 girls and 18 boys) indicated they were currently involved in some type of musical study (piano, violin, guitar) or musical activity (choir). All of these subjects were members of the comparison group. No member of the experimental

TABLE 18

MEAN SCORES OF RESPONSES TO MUSICAL EXAMPLES CLASSIFIED BY PREVIOUS MUSIC STUDY OF SUBJECT

	Comparison Group		Experimental Group	
Example	Males	Females	Males	Females
1	114.67	107.79	(No members of the experimental group had studied music previously or were involved in musical activities.)	
2	100.00	95.95		
3	97.67	68.32		
4	91.67	105.05		
5	130.33	77.89		
6	131.00	102.21		
7	104.00	74.05		
8	116.00	93.05		

group was involved musically other than in classroom music which is a regularly scheduled and mandatory portion of the school curriculum.

There was great discrepancy shown in musical preference, but in all cases the students with previous musical experience responded more positively to the musical examples than did those who had no previous musical study. While the overall mean response for the total comparison group was 96.14, students with prior music training averaged 100.60. This is supportive of an observation made by Sopchak that students with previous training in music are more responsive to all types of music. (This is discussed on page 24 of this paper.) The greatest contrast occurs within the group where a greater degree of positivism is shown by males (110.67) than by females (90.53). This variation of 20.14 is quite large and reflects the general pattern encountered in this study where male positivism is found in all male/female comparisons.

Male and female preferences for the musical examples clearly differ, and comparison of placement shows that students with musical training may have more individual preferences and may be less subject to peer opinion. The results of music preference comparisons are contained in Table 19.

TABLE 19

PREFERENTIAL RANKING OF MUSIC EXAMPLES
BY SUBJECTS GROUPED BY
PREVIOUS MUSIC STUDY

Comparison Group		Experimental Group	
Males	Females	Males	Females
Example 1	Example 6	(No members of the experimental group had studied music previously or were involved in musical activities.)	
Example 4	Example 5		
Example 6	Example 8		
Example 2	Example 1		
Example 8	Example 7		
Example 5	Example 2		
Example 7	Example 3		
Example 3	Example 4		

It may be helpful to music educators to gain additional information about the subject regarding musical training outside the academic structure and its possible relationship to behavior. Questions deserving further investigation are as follows: (1) Is music study supportive of acceptable classroom behavior? (2) If a relationship exists between music study and behavior, how can the interrelationship be investigated as a means for modifying behavior? (3) Do students with behavioral problems voluntarily reject music study and accompanying participation?

Responses to aural stimuli differed between the comparison and experimental groups. The comparison group contained an easily observed consensus of opinion, while members of the experimental population were most polarized in individual responses. Comparison group subjects varied on an individual basis from selection to selection.

Observations of Major Findings

The following observations were derived from the data:

1. Subjects from both the comparison group and the experimental group preferred music containing strong rhythmic pulsations.
2. Subjects from both the comparison group and the experimental group preferred repetitive melodic patterns.

3. Children with behavioral problems were generally more negative in their responses than were the regular classroom students.
4. Children with behavioral problems exhibited a more heterogeneous range of responses in affective values associated with musical examples than did the regular classroom students.
5. Children with behavioral problems tended to reject music containing unfamiliar timbres.
6. Girls with behavioral problems were more negative in their responses than were boys with behavioral problems.
7. Black male subjects were generally more positive in their responses than were the other racial groupings.
8. Students with previous music experience were more positive in their reactions to all the musical examples.
9. Subjects who had prior musical experiences were not found in the group categorized as students with behavioral problems.

These observations are by-products of the main focus of the study but they provide subjects for further investigation.

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction and Procedures

The purpose of this study was to investigate differences which may exist between responses to aural stimuli by children classified as possessing behavioral problems (aggressive behavior, passive conduct, hyperactivity and lack of peer communication) and those in a nonbehavioral problem category. It was hypothesized that significant differences existed in the musical preferences of the two groups.

Two hundred seventy subjects were drawn from a population representing all fifth grade sections in the Lee County, North Carolina, Public Schools. Experimental and comparison groups were employed in the study design.

A pilot study was conducted to obtain adjectives to be used for response items in the test forms and to establish testing and evaluative procedures. Eight musical examples were employed in the study as a source for assessing degree of music preference. Three types of affective response (feeling-state, imaginal, and positive or negative response to the musical examples) were obtained from the students. Checklists and a preferential line scale were used to record the choice of each student in each musical example. Student choice was compared statistically, using a Chi Square test

for variations in frequency distribution and analysis of variance procedure to test for possible difference between responses of subjects designated as children having behavioral problems and the other classroom students.

Conclusions

The null hypothesis upon which the present study is based is stated: Children with behavioral disorders do not possess or display preference for selected musical stimuli. Examination and evaluation of the data showed that significant differences did exist in responses of the comparison group and in the responses of the experimental group with the exception of the feeling-state and imaginal categories of example 2 (Gaité Parisienne) and the feeling-state category of examples 3 ("Overture to Act III" of Lohengrin) and 5 (Bolero).

The most popular of the musical excerpts among students of both groups (Ain't She Sweet?) was performed by a Dixieland jazz combo and centers around a simple, repeated melody orchestrated with emphasis placed on percussive expansion of the duple rhythm. Especially prominent are the clarinet and tuba parts which are aurally appealing. During the playing of this example much physical movement of the subjects was observed by the researcher. It was evident by the number of overt responses from the students that there was definite positive reaction to the music. Data support this observation. Responses of both groups exceeded 117 points on the preferential scoring line where "0" represented extreme dislike and "136" maximum preference.

Study of the data revealed that mean responses from the comparison group were 1.8 points more positive than those of the experimental group. The same pattern emerged in comparing scores of the remaining compositions. While both groups displayed identical choice in ordering five of the eight examples preferentially, the comparison group invariably showed a more positive response.

The selection placed in second position of preference by the subjects in both the comparison and experimental groups (Mambo Jambo) also contained prominent rhythmic and melodic characteristics. One prominent aspect was the original instrumentation. The sound of the steel drum, while less familiar, immediately evoked student response. During the playing of the selection, smiles, toe tapping, and hand movements were observed by the researcher. Comparison group mean responses were 15.57 points higher than the mean responses of the experimental group.

The Sousa march (Semper Fidelis) was the third choice of both groups. The mean responses of both the comparison and experimental groups exceeded 100 points on the preferential line scale. The same characteristics prevalent in the first two choices are found in this selection, and the same type of unrestrained physical response by the students was observed during the testing sessions. There was a 10.84 difference in line scale mean responses between the comparison and experimental groups, with the comparison group again showing the greater degree of positiveness.

Example 5 (Bolero) was in fourth place preferentially in the rankings of both groups and was the first example to fall below mean responses of "100." While placed in fourth position, there was a wide range between the mean responses of this example and the mean responses of the third most popular example. The comparison group had a difference of 14.32 points and the experimental group, 20.23 points. This was the largest spread in mean differences to occur between any other example preferentially placed by either group. The most prominent element of the example is the rhythmic/melodic ostinato figure which is constantly developed by enlargement of the orchestration. This ever-increasing introduction of differing instrumental timbre not only enlarges the total sound but complements the pervasive rhythmic/melodic figure. Overt student response was not as pronounced as that observed in response to the previously discussed examples. Reactions to the pulsating rhythmic development of the musical excerpt were limited to slight movement of heads and hands.

In fifth place was example 2 (Gaité Parisienne). In terms of mean responses it was scored only 2.0 points less than Bolero in student preference of both groups. The selection has a fast tempo and contains a repeated melodic development. Limited and restrained student responses were observed.

The last three selections (in terms of preference) were Tchaikovsky's Symphony No. 6, the "Overture to Act III" of Lohengrin, and Scotland Forever. Both groups agreed on

preferred placement of examples 6, 4, 1, 5, and 2, but there was disagreement between the groups in the placement of the three examples least favored. The comparison group placed example 8 (Scotland Forever) in sixth position, selected example 7 (Symphony No. 6) as seventh choice, and relegated example 3 ("Overture to Act III," Lohengrin) to last place. Example 7 was the sixth choice of the experimental group, and examples 3 and 8 were placed in the last positions by members of this group.

Scotland Forever, performed by a pipe and drum corps, was placed in sixth position by the control group and ranked last in preference by the experimental group. The most prominent characteristic of the musical example is the timbre. Comparison group members scored the selection 88.35 on the preferential line scale and experimental members rated it 61.73 points in mean responses. The 26.62 difference in mean responses between groups is the widest found in any of the eight examples.

The Tchaikovsky and Wagner examples (Symphony No. 6 and "Overture to Act III" of Lohengrin) were the selections which could best be described as "absolute music." While melodic motifs were prominent, rhythm did not figure as noticeably in the compositional structure. Feeling-state and imaginal responses convey student perception of and reaction to these selections. Example 3 ("Overture to Act III") and example 7 (Symphony No. 6) were described as "dreamy" and made the students feel "bored" and "sleepy." These are passive terms which suggest lack of involvement.

Example 2 (Gaîté Parisienne) responses were the most heterogeneous in both the comparison and experimental groups in the feeling-state and imagery categories. There was not only a large difference of opinion between groups but also among individual subjects.

Example 3 ("Overture to Act III" of Lohengrin) was the least popular of all musical examples, placed in last position of preference by the comparison group members and seventh position by students in the experimental group. Student response in feeling-state and imagery categories can be described as mixture of ennui and fantasy with a total of 62 percent of the subjects expressing reactions of "bored" and "dreamy."

Ravel's Bolero (example 5) represented the fourth choice of the two groups for the eight examples, but feeling-state and imagery responses were varied. Student selection of descriptive terms represented a wide range of reaction with an evenly distributed number of individual choices.

Responses in the feeling-state and imaginal categories revealed definite discrepancies in musical preferences between the two groups. The responses of the comparison group were homogeneous while those of the experimental group were polarized, showing greater amounts of negative and positive responses.

Student responses to the musical examples, as expressed in mean responses, divided ranking placement into two preferential subscores. The four examples most preferred by both groups were examples 6, 4, 1, 5, and 2. Examples 3, 7, and 8 were placed in the sixth, seventh, and eighth positions, but in differing order by each group.

Observations

It was found that significant differences in musical preference did exist in responses of the comparison group and in responses of the experimental group with the exception of the feeling-state and imaginal categories of example 2 and the feeling-state category of examples 3 and 5. Comparison of the data using Chi Square formula revealed definite differences in affective response to music existed between the comparison and experimental groups. Employing the data derived from lines drawn on the preferential scale, analysis of variance procedure was used to compare musical preferences of the two groups. Differences in choice of the musical examples were present at a significant level in selections 2, 5, and 8.

Subjects had the most heterogeneous responses to example 2 (Gaité Parisienne). Members of both the comparison and experimental groups responded most differently to this example in the feeling-state and imagery categories. There was not only a large difference of opinion between groups but also among individual subjects. This ambivalence in decision making was observed in the numerous erasures found on the test forms.

Example 3 ("Overture to Act III" of Lohengrin) was the least popular of all musical examples, placed in last position of preference by the comparison group members and seventh position by students in the experimental group.

Ravel's Bolero (example 5) represented a general agreement among subjects in the degree of positiveness for the musical example. However, feeling-state and imagery responses were varied. Student selection of descriptive terms represented a wide range of reaction with an evenly distributed number of individual choices.

Responses in the feeling-state and imaginal categories revealed definite discrepancies in musical preferences between the two groups. The responses of the comparison group were homogeneous while those of the experimental group were polarized, showing greater numbers of negative and positive reactions.

Student responses to the musical examples as expressed in means divide ranking placement into two preferential subscores. Grouping number one contains the five most popular and completely agreed upon musical examples (selections 6, 4, 1, 5, and 2). Examples 8, 7, and 3 (the least popular excerpts) make up subgroup number two.

Additional Findings

Classifications by sex of the subjects presented data which revealed additional information about musical preference of children. Female reaction to music was generally more negative than was that of male subjects. The greatest degree of negativism was displayed by female experimental subjects. Conversely, girls in the comparison group were most positive in their responses. Review of the data revealed a type of ambivalence among the experimental subjects.

There were 13 individual male "0" responses (complete dislike of the musical example) in the experimental group, but only four responses of "0" by female experimental members.

Grouping of the students by race made further comparisons of musical preference possible. Black members of the comparison group were most positive in their responses to the musical examples, followed closely by white members of the comparison group. The least positive responses overall to music were those of black experimental group members. This diversity in reaction among black members of the testing population may suggest that reaction to music among black students (as classified in this study) is not simply a factor of racial heritage or cultural bias.

Further grouping of the research data included classification of subjects by previous musical experience. Students were included in this grouping if they had studied or were currently studying piano, guitar, or any other instrument privately or had participated in choral activities outside the school. All students with previous musical experience (as found in preferential line responses) indicated a greater degree of positivism to the musical examples than did those who had no previous musical study. Male and female preferences for the musical examples differed.

Information found in data classified by musical experience disclosed that no members of the experimental group had previous musical study. This question of a possible relationship between lack of musical study and behavioral problems

warrants additional research. If such a relationship is present, many possibilities exist for employing this information in modifying behavioral patterns.

Criteria

Examination of the data suggests the following criteria could be used in identifying music that would be acceptable and appealing to children with behavioral problems:

1. Music containing strong rhythmic pulsations:

   All examples favored by students with behavioral problems contained prominent rhythmic patterns. This element seems of prime importance to students. It prompts overt student involvement.

2. Music containing repetitive melodic patterns:

   The musical excerpts most preferred by students contained easily discernible melodic development.

3. Music containing strong rhythmic/melodic juxtaposition:

   Rhythm and melody comprise the most important elements in the musical examples preferred by students with behavioral problems. However, the presence of strong rhythmic and melodic interweaving seems to greatly enhance the attractiveness of the musical composition.

4. Music containing familiar timbres:

   Musical excerpts with familiar timbres were acceptable to students with behavioral problems, but the presence of unfamiliar and unappealing timbre can negate the influence of rhythm and melody.

Implications

As a result of the findings it appears important to the researcher that additional aspects be considered for

further research. Questions which may be important in related studies are as follows:

1. If strong rhythmic pulsations, repetitive melodic patterns and familiar timbre are appealing to children with behavioral problems, would music containing marked combinations of these musical elements prove to be even more attractive to these children?

2. Would additional listening sessions aid in developing a greater familiarity with musical elements which would have the benefit of making all music more appealing?

3. Do females with behavioral problems generally react more negatively to music?

4. Is there a relationship between private music study and behavioral problems?

5. Are students who study music privately more individualistic in music preference?

These questions indicate that response to aural stimuli by children contains many aspects which were adjacent to the main subject of this paper. While they were not the main focus of the problem under consideration, they deserve further study. Differences do exist in affective responses to music by children with behavioral disorders and in preferential selection and rejection of music by these children. Additional investigation of these questions could be of benefit to all persons who are involved in modifying behavior which is unacceptable in educational situations and to the children whose behavior separates them from the mainstream of classroom activity and intersocial contact with peers.

BIBLIOGRAPHY

Alshuler, Rose H., and Hattwick, La Berta. Painting and Personality: A Study of Young Children. Chicago: University of Chicago Press, 1947.

Alshuler, Rose H.; Anderson, Harold H.; and Bayley, Nancy. Mental Hygiene in Modern Education. New York: Farrar and Rinehart, Inc. 1939.

Andrews, Michael F., ed. Creativity and Psychological Health. Syracuse, New York: Syracuse University Press 1961.

Bingham, W. V. "Studies in Melody." Psychological Monographs, 12(1910): 1-88.

Campbell, Ivy G. "Basal Emotional Patterns Expressible in Music." American Journal of Psychology, 55(1942): 1-17.

Carter, Maurice. The Effect of Music on Paintings. Lawrence: University of Kansas Press, 1955.

Choate, Robert A., ed. Tanglewood Symposium at the Berkshire Music Center: Documentary Report of the Tanglewood Symposium. Washington, D. C.: Music Education National Conference, 1976.

Clifford, Derek. Art and Understanding. Greenwich, Connecticut: N..Y. Graphic Society, Ltd., 1968.

Cole, Natalie. Children's Arts from Deep Down Inside. New York: The John Day Company, 1966.

Cowles, J. T. "Experimental Study of Pairing Certain Auditory and Visual Stimuli." Journal of Experimental Psychology, 18(1935): 461-69.

Danz, Louis. The Psychologist Looks at Art. London: Longmans, Green, and Company, 1937.

Dashiell, J. R. "Children's Sense of Harmonies in Colors and Tones." Journal of Experimental Psychology, 2(1917): 466-75.

Delong, Patrick D.; Thomas, Robert; and Egner, Robert E. Art and Music in the Humanities. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1966.

DeVall, W. Van. Music and Perception. New York: The Macmillan and Co., 1964.

Dewey, John. Art as Experiences. New York: Minton, Balch, and Company, 1934.

Discerns, D. M. The Influence of Music on Behavior. New York: Harcourt, Brace, and Company, Inc., 1926.

Ehrenzweig. A. The Psycho-Analysis of Artistic Hearing and Vision. London: Routledge, Kegan, and Paul, 1953.

Eng, Helga. Psychology of Children's Drawings. New York: Harcourt, Brace, and Company, 1931.

Farnsworth, Paul R. The Social Psychology of Music. New York: The Dryden Press, 1958.

Gaston, E. Thayer. "Expanding Dimensions in Music Education." In Documentary Report of the Tanglewood Symposium. Edited by Robert A. Choate. Washington, D. C.: Music Education National Conference, 1976.

Gaston, E. Thayer, Music in Therapy. New York: The Macmillan Company, 1968.

Gaitskell, Charles D., and Gaitskell, Margaret R. Art Education for Slow Learners. Peoria, Illinois: Charles A. Bennett Company, Inc., 1953.

Gaitskell, Charles D., and Hurwitz, Al. Children and Their Art. New York: Harcourt, Brace, and World, Inc., 1970.

Grundlach, Ralph H. "Factors Determining the Characterization of Musical Phrases." American Journal of Psychology, 47(1935): 624-44.

Hampton, Peter J. "The Emotional Element in Music." Journal of General Psychology, 33(1945): 237-50.

Heinlein, Christian Paul. "The Affective Character of the Major and Minor Modes in Music." Journal of Comparative and Physiological Psychology, 8(1929): 101-42.

Heinlein, Christian Paul. "A New Method of Studying the Rhythmic Responses of Children Together with an Evaluation of the Method of Simple Observation." Journal of Genetic Psychology, 36(June, 1929): 205-27.

Hevner, Kate. "The Affective Value of Pitch and Tempo in Music." American Journal of Psychology, 49(1935): 621-30.

Hevner, Kate. "Experimental Studies of the Element of Expression in Music." American Journal of Psychology, 48(1936): 246-68.

Hevner, Kate. "Expression in Music: A Discussion of Experimental Studies and Theories." Psychological Review, 47(1935): 115ff.

Hindemith, Paul. A Composer's World. Cambridge: Harvard University Press, 1961.

Karowski, T. F.; Odbert, H. S.; and Osgood, E. C. "Studies in Synesthetic Thinking: Part II. The Role of Form in Visual Responses to Music." Journal of General Psychology, 26(1942), 199-222.

Kavolis, Vytautas. Artistic Expression - A Sociological Analysis. Ithaca, New York: Cornell University Press, 1968.

Keppel, Geoffrey. Design and Analysis: A Researcher's Handbook. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1973.

Kohut, H. "The Psychological Function of Music." Journal of the American Psychoanalyst, 5A(1957): 389.

Koslow, Sally Platkin. "New Exciting Direction in Psychiatry: Dance/Music/Art Therapy." Mademoiselle, 82(January, 1967), 106-7+.

Kubie, L. S. Neurotic Distortion of the Creative Process. Lawrence: University of Kansas Press, 1958.

Lindstrom, Miriam. Children's Art. Los Angeles: University of California Press, 1970.

Lipman, Matthew, What Happens in Art. New York: Appleton-Century-Crofts, 1967.

Lowenfeld, Viktor. Creative and Mental Growth: A Textbook on Art Education. New York: The Macmillan Company, 1952.

Mednick, Sarnoff, and Mednick, Martha T. Widening Horizons in Creativity. New York: John Wiley and Sons, Inc., 1964.

Mendelowitz, Daniel M. Children Are Artists. Stanford, California: Stanford University Press, 1963.

Mooney, Ross Lawler. Explorations in Creativity. New York: Harper and Row, 1967.

Myers, C. S. "Individual Differences in Listening to Music." British Journal of Psychology, 13(1922), 52-71.

Naumberg, Margaret. Studies of Free Art Expression of Behavior Problem Children and Adolescents as a Means of Diagnosis and Therapy. New York: Coolidge Foundation, 1947.

Offer, Daniel and Stine, Dianne. "Function of Music in Spontaneous Art Productions." Archives of General Psychology, 3(November, 1960), 490-503.

Orton, Danny E. Development of Criteria for the Study of the Influence of Music on Children's Drawings. Lawrence, Kansas: National Association of Music Therapy, 1953.

Parnes, Sidney Jan, ed. A Source Book for Creative Thinking. New York: Scribner, 1962.

Prinzhorn, Hans. Artistry of the Mentally Ill. New York: Springer-Verlag, 1972.

Read, Herbert. Art and Alienation. New York: Horizon Press, 1967.

Rigg, M. G. "The Expression of Meanings and Emotions in Music." In Philosophical Essays in Honor of Edgar Arthus Singer, Jr. Philadelphia: University of Pennsylvania Press, 1942.

Rubin, Judith A. "On Education: How the Arts Can Help." High Fidelity and Musical America, 25(May, 1975), MA 6-9.

Schaeffer-Simmem, Henry. The Unfolding of Artistic Activity: Its Basis, Processes and Implications. Berkeley: University of California Press, 1948.

Schoen, Max. "The Aesthetic Attitude in Music." Psychological Monographs, 39(1928), 162-183.

Schoen, Max, ed. The Effects of Music. New York: Harcourt, Brace, and Company, Inc., 1927.

Sopchak, Andrew. "Individual Differences in Response to Different Types of Music in Relation to Sex, Mood, and other Variables." Psychological Monographs, 69-11(1955), 1-20.

Spence, Janet T.; Underwood, Benton J.; Duncan, Carl P.; Cotton, John W. Elementary Statistics. New York: Appleton-Century-Crofts, 1968.

Spiller, Jurg, ed. Paul Klee: The Thinking Eye. London: Lund Humphries, 1961.

Tilghman, B. R. The Expression of Emotion in the Visual Arts: A Philosophical Inquiry. The Hague: Martinus Nijhoff, 1970.

U. S. Department of Health, Education, and Welfare. Behavior Patterns of Children in School, United States, Series 11, No. 113 (February, 1972).

U. S. Department of Health, Education, and Welfare. Behavior Patterns in Schools of Youths 12-17 Years, United States, Series 11, No. 139 (May, 1974).

Valentine, C. W., and Danzfusz, K. "The Aesthetic Appreciation of Musical Intervals Among School Children and Adults." British Journal of Social and Clinical Psychology, 6(1933), 190-216.

Viola, Wilhelm. Child Art. London: University of London Press, Ltd., 1945.

Viola, Wilhelm. Child Art and Franz Cizek. New York: The John Day Company, 1936.

Wehner, Walter L. "The Effects of Modern Music on Drawings." Unpublished Article. (Mimeographed), 1975, Greensboro, N. C.

Weld, H. P. "An Experimental Study of Musical Enjoyment." American Journal of Psychology, 23(1912), 245-308.

Woodruff, Ashel D. Basic Concepts of Teaching. San Francisco: Chandler Publishing Company, 1961.

APPENDIX A

SOURCE OF MUSICAL EXAMPLES FOR EXPERIMENTAL STUDY

APPENDIX A

SOURCE OF MUSICAL EXAMPLES FOR EXPERIMENTAL STUDY

Sousa, John Philip	Semper Fidelis	U. S. Army Band
Offenback, Jacques	Gaité Parisienne	Le Ballet Francais Orchestre
Wagner, Richard	Lohengrin (Prelude, Act III)	Columbia Symphony
_____	Mambo Jambo	Steel Band of Antiqua, B. W. I.
Ravel, Maurice	Bolero	New York Philharmonic
_____	Ain't She Sweet?	Dukes of Dixieland
Tchaikovsky, Peter	Symphony No. 6	Chicago Symphony
_____	Scotland Forever	Royal Scots Greys and Gordon Highlanders Pipes and Drums

APPENDIX B

SAMPLE TEST FORM USED FOR EXPERIMENTAL STUDY

APPENDIX B

SAMPLE TEST FORM USED FOR EXPERIMENTAL STUDY

Example 1:

When I listen to this music I feel:

funny happy sleepy cheerful sad hungry

When I listen to this music I think about:

circus marching band singing parade dancing

Dislike_____Like

Example 2:

When I listen to this music I feel:

playful happy warm excited glad joyful

When I listen to this music I think about:

running opera cartoons Christmas instruments jumping

Dislike_____Like

Example 3:

When I listen to this music I feel:

sad scared bold gay dreamy bored

When I listen to this music I think about:

dancing orchestra movies guns Halloween war

Dislike_____Like

Example 4:

When I listen to this music I feel:

serious dumb happy funny crazy light

When I listen to this music I think about:

Hawaii jungles clowns Africa oceans drums

Dislike_____Like

Example 5:

When I listen to this music I feel:

angry fearful sorry cool rich weird

When I listen to this music I think about:

movies war parties drums army animals

Dislike_____Like

Example 6:

When I listen to this music I feel:

wonderful noisy old funny jumpy mature

When I listen to this music I think about:

trumpets olden days television dancing eating hopping

Dislike_____Like

Example 7:

When I listen to this music I feel:

sassy lively proud sleepy curious sad

When I listen to this music I think about:

ballet crying walking dying love friends

Dislike_____Like

Example 8:

When I listen to this music I feel:

mad frightened playful far away shy loud

When I listen to this music I think about:

fun bagpipe fireworks Scotland marching battles

Dislike_____Like

APPENDIX C

STANDARDIZED EXPLANATION

PRESENTED BY RESEARCHER PRIOR TO TESTING

APPENDIX C

STANDARDIZED EXPLANATION
PRESENTED BY RESEARCHER PRIOR TO TESTING

(First the researcher set up all recording equipment. Next, the classroom teacher introduced the researcher to the students. Then test forms were issued to each student. The researcher checked to be sure that each student had a sharpened pencil. Extra pencils were placed on the teacher's desk to be used in the event an additional pencil was needed by a student during the testing period.)

Announcement Made

"Today we will listen to short selections from eight musical compositions. I am interested in knowing what you think and how you feel as you listen to each of the selections. Each of you has received a form to use in sharing your thoughts and feelings. Please write your name at the top right hand corner of the first page. Underneath your name list any instrument, such as piano, guitar, or violin, that you have studied or are now studying. Also write the word 'singer' if you sing in any musical group other than at school.

The form that you received lists eight examples. In each example there are two incomplete sentences. You are to complete the sentence by choosing one of the terms listed

below each sentence. Circle the word that most nearly describes your feelings and thoughts. At the bottom of each example section there is a line drawn from the word "dislike" to the word "like." You are to make a mark at some point on the line to show how much or how little you like the music being played. If you like the music a great deal your mark should be close to the "like" or right end of the line. It you do not like the music your mark should be close to the left or "dislike" end of the line. Your mark should fall somewhere between the two extremes if you do not have a strong opinion about the music. You can mark the line at any point.

Each musical composition will be played twice. As it is played the first time, listen to it. As it is played again circle one of the terms to complete each sentence. Then make a mark on the horizontal line to indicate how much or how little you like the music. Please do not return to a previous musical example once the next selection is being played.

Are there any questions? (Pause for questions and answers.) Then we will begin with Example One."