FORM IV

TEMPLE UNIVERSITY GRADUATE BOARD

Title of Dissertation: AN INVESTIGATION OF SAME AND DIFFERENT AS MANIFESTED IN THE DEVELOPMENTAL MUSIC APTITUDES OF STUDENTS IN FIRST, SECOND, AND THIRD GRADES

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Date submitted to Graduate Board: 2/10/95

Accepted by the Graduate Board of Temple University in partial fulfillment of the requirements for the degree of **Doctor of Philosophy.**

Date 5/15/95 .....

(Dean of Graduate School)

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A Dissertation
Submitted to
the Temple University Graduate Board

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in partial fulfillment
of the Requirements for the Degree
DOCTOR OF PHILOSOPHY

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by
Beth M. Bolton
May 1995

ABSTRACT

AN INVESTIGATION OF SAME AND DIFFERENT AS MANIFESTED IN THE DEVELOPMENTAL MUSIC APTITUDES OF STUDENTS IN FIRST, SECOND AND THIRD GRADES

by Beth M. Bolton
Doctor of Philosophy
Temple University, 1995

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The problems of the study were to determine whether the option responses same and different function in a similar manner on the Primary Measures of Music Audiation and the Intermediate Measures of Music Audiation and to investigate the item difficulty and discrimination, comparative difficulty, and validity of the tests.

Three hundred twelve students in first, second, and third grades participated in the study. Both the Primary Measures of Music Audiation and the Intermediate Measures of Music Audiation were administered to all students.

Very few same or different factors and several mixed factors emerged in the factor analyses. Item difficulty levels became progressively higher for older students. Items for which the correct answer is different were more difficult for students of all ages than items for which the correct answer is same. Concurrent validity estimates were low.

It may be concluded that 1) sameness and difference in music function in a manner similar to that in language; the distinction between sameness and difference becomes less and less extreme as children get older, 2) regardless of the age of the student in elementary school, the concept of difference is more difficult to comprehend than the concept of sameness, and 3) it is important to administer the Primary Measures of Music Audiation before the Intermediate Measures of Music Audiation as recommended in the test manual.

It may not be concluded on the basis of the data derived from this study that the two tests account for a substantial portion of the reason why some elementary school children are successful in school music activities.

ACKNOWLEDGMENTS

The writer gratefully acknowledges the scholarship and careful guidance of Dr. Edwin E. Gordon in this research endeavor. Many thanks to members of the dissertation committee, Dr. Roger Dean, Dr. Matthew Colucci, Dr. Stephen Willier, and Dr. Cynthia Folio and to Jeanine Bozzelli and her students. Two others, Edward Harris and Alexander Harris, have continued to be a source of support in this and other professional endeavors. Their encouragement is greatly appreciated. Finally, personal thanks to my children, Stephan, Barbara, and Elisabeth. Their support has been limitless throughout the course of this research.

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CHAPTER ONE

SURVEY OF THE LITERATURE, PURPOSE, AND PROBLEMS

Introduction

Music is not a language because it has no grammar. Both music and language, however, have syntax. Initially, we learn music and language in the same way. Both are aural arts.[1] Through experience in music and language each one of us develops a personal listening vocabulary that comprises all the sounds, words, phrases, inflections, timbres, and registers that we have heard. It is early listening experience with music and language that forms the foundation for further learning. It is what we have heard that creates in each of us the vocabulary to eventually speak, sing, and chant, and to hear and understand complex forms.

With language, parents are patient and loving teachers. They do not expect an infant to begin to speak language immediately after birth or to speak in imitation immediately after exposure to specific words or phrases. Parents speak to and for their children from the moment of birth forward throughout infancy, toddlerhood, and beyond. Parents seem to have an innate understanding that they should speak to and for their infant, even though the infant does not speak back in language for several months, or perhaps, for a year or more. It is parent-speech and the social interaction

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[1] Gordon, Edwin E. (1993). Learning sequences in music: Skill, content, and patterns. Chicago: GIA, 13-14.

involved in language play between parent and child that creates the child's language listening vocabulary and gives the child the readiness to speak. When the child has physical readiness and listening readiness to begin to speak language, he does. The words spoken by the child are the ones that he has heard. His listening vocabulary is reflected in his speaking vocabulary.

With music, parents may also be patient teachers, but they may not understand how or what to teach a child. Since music and language are both learned aurally, perhaps parents should "speak" to their children in music as they do in language. Ideally, parents should sing and chant to and for their children musically just as they speak to and for them in language. It is the listening and interacting experience that builds a child's listening vocabulary in music that will eventually enable him to perform music and to understand and comprehend music.

According to research in language acquisition and performance, children appear to understand words long before they begin to use them in speech.

> Virtually all the facts and characteristics of early language acquisition and the inferences about children's early meanings have been based on what children say, not what they understand. Yet inferences based on what they say may give a distorted picture of what children's meanings for particular words are. Recent research reveals an asymmetry between comprehension and production in early language, an asymmetry akin to that found in adult speakers as well.[2]

Perhaps this is due to the development of a rich listening vocabulary in language combined with parent/child interaction. It would seem that

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[2] Clark, Eve. V. (1983). Meanings and concepts. In Paul Mussen (Series Ed.) and John H. Flavell & Ellen M. Markman (Vol. Eds.), Handbook of child psychology: Vol. 4. Cognitive development (4th Edition, 809). New York: Wiley.

children learn meaning in language through experience before they speak words.

Recent research in music reveals a similar pattern in music acquisition and performance. Children appear to have an understanding of music long before they can perform music accurately. Perhaps this is due to the development of a rich listening vocabulary in music combined with parent/child musical interaction. It is possible that children learn meaning in music through experience before they can sing and chant?

Evaluations of children's language understanding and comprehension that are based solely on language performance are incomplete, yet most education programs and research in language are grounded in children's language performance. Evaluations of children's music understanding and comprehension that are based solely on music performance are also incomplete, yet current trends in music education tend to encourage teachers to determine children's musicianship based primarily on their music performance. Many children are judged as being musical or not based on their music performance, not their musical understanding.

Performance evaluation alone does not provide sufficient information about children's music capacity. Recent research in audiation[3] and music aptitude[4] reveals how children learn music. There exists an imbalance between what children understand and comprehend in music and what they can perform, just as there is an asymmetry between language comprehension and production. What is audiated may be far more important than what is produced. It is innate potential, as it interacts with early musical

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[3] Audiation is to music as thought is to language. Audiation encompasses the ability to understand and comprehend music that is not physically or aurally present.

[4] Music aptitude is the innate potential to achieve in music.

environmental influences and which makes attainment possible, that should be examined.

How do children begin to understand and to produce language? How do children begin to understand and to produce music? How can an understanding of both be measured and evaluated?

In order to begin to develop meaning or understanding in language "children must look for and establish consistencies in adult uses of words to pick out particular conceptual categories--the conventions that govern different words. . . . They must observe the contrasts adults observe. Convention and contrast together rule the whole vocabulary."[5] Sameness and difference govern the initial stages of language learning.

In order to begin to develop meaning or understanding in music, one must be "able to audiate (hear and comprehend) sameness and difference in music."[6] Children must observe similarities and differences in music just as they do in language so that they may begin to develop their own music vocabularies.

Children begin to learn language by assimilating the words they hear into a listening vocabulary. Simultaneously, they develop an informal system of categories to classify what they have observed. Initial category development is based on similarity and difference. The collection of words in all categories in combination with the sounds of language that children hear spoken by adults develops a language syntax that is the basis for learning to speak and for understanding and comprehending language.

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[5] Clark, Eve. V. (1983). Meanings and concepts. In Paul Mussen (Series Ed.) and John H. Flavell & Ellen M. Markman (Vol. Eds.), Handbook of child psychology: Vol. 4. Cognitive development (4th Edition, 798). New York: Wiley.

[6] Gordon, Edwin E. (1993). Learning sequences in music: Skill, content, and patterns. Chicago: GIA, 3.

Children begin to learn music by assimilating the sounds they hear into a listening vocabulary. In music, sounds are grouped together into patterns. "The development of an oral vocabulary (by rote) of significant tonal and rhythm patterns constitutes the experience through which meaning is given to music. . . ."[7] Tonal and rhythm patterns are the musical equivalents of words in language.[8] Initial classification of tonal patterns and rhythm patterns is based on similarity and difference. The collection of patterns and the sounds of music that children hear performed by adults develops a syntax which is the basis for their learning to audiate and to sing, move, and chant.

The listening vocabulary forms the foundation for all other vocabularies in language and music. Without a rich and varied language listening experience, the child would have no basis in thought for learning to speak, read, and write. Without a rich and varied music listening experience, the child would have no basis in audiation for learning to sing, move, and chant, and he would not have the necessary readiness to learn to read and to write music.[9]

"It is through the listening vocabulary that the young child is able to 'break the code' of the adult's tonalities and meters."[10] To break the code young children categorize music sounds in much the same way they

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[7] Gordon, Edwin E. (1971). The psychology of music teaching. Englewood Cliffs, New Jersey: Prentice Hall, 66.

[8] Gordon, Edwin E. (1974). Toward the development of a taxonomy of tonal patterns and rhythm patterns: Evidence of difficulty level and growth rate. Experimental Research in the Psychology of Music: Studies in the Psychology of Music, 9, 9-232.

[9] Gordon, Edwin E. (1993). Learning sequences in music: Skill, content, and patterns. Chicago: GIA, 13-14.

[10] Gordon, Edwin E. (1993). Learning sequences in music: Skill, content, and patterns. Chicago: GIA, 292.

categorize language sounds. They develop basic categories in both language and music that are grounded in the ability to discriminate sameness and difference.

Music Aptitude

Music aptitude is the potential to learn music. Music achievement is what has been learned. Music achievement lives in the present; it provides evidence of what has been learned. Music aptitude looks to the future. It points toward possibility for achievement and enjoyment.

According to Gordon, music aptitude is a product of both nature and nurture. Each child is born with an innate music potential (nature). Each child experiences music in the environment throughout childhood (nurture). Innate potential and music environment interact in unknown, unmeasurable ways to produce music aptitude. Music aptitude is not inherited. It is not possible to predict the level of a child's music aptitude from his ancestry. Although it is not possible to predict exactly the effects of specific music environmental influences, it is theorized that a child must have a rich and nurturing music environment in order to maintain his level of innate potential; that unless a child has favorable experiences in music, his potential will never be reached in achievement; that regardless of the quality or quantity of early music experiences, a child's music potential will never be higher than that with which he was born; and that without a rich and nurturing music environment, the child's level of potential will fall below its birth level.[11]

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[11] Gordon, Edwin E. (1987). The nature, description, measurement, and evaluation of music aptitudes. Chicago: GIA, 8.