

AN EXPERIMENTAL STUDY OF THE
DEVELOPMENT OF TONAL AND RHYTHMIC
CAPABILITIES OF FIRST GRADE CHILDREN

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Richard Vincent DiBlassio

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Author: Richard Vincent DiBlassio

Read and Approved by:

[Handwritten signatures]

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[Handwritten signature]

(Dean of Graduate School)

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CHAPTER I

PURPOSE OF THE STUDY

Introduction

It is a foregone conclusion among musicians and music educators alike that music education in the schools is an essential part of a child's complete education. Such a view, however, is not nationally embraced by school administrators. Indeed, views within the microcosm of one's own school district can show widely divergent thinking in regard to the importance of music in the schools.

Much emphasis throughout the years has been placed upon performance groups, especially at the secondary level, perhaps because such achievement is so apparent. But through the efforts of enlightened researchers, it has become clear that a great deal of emphasis should be placed upon the teaching and learning of music in the lower grades. That appears to be more crucial than ever, especially for the development of music aptitude in young children.

Before the profession came to that conclusion, however a hiatus was witnessed in trying to apply psychology and learning theory to the learning and teaching of music. That situation is particularly "regrettable when one considers the excellent pioneer work done by Seashore and

other psychologists of his day."¹ Educators embraced an eclectic approach to the psychology of learning by adopting general principles of learning, such as motivation, reward, and punishment, and attempted to apply those principles, both in theory and practice, to the teaching of music.

Early efforts to apply the results of experimental research in learning to pedagogy gained impetus through the efforts of Thorndike. The fact that Thorndike crossed from experimental to applied psychology resulted in false expectations on the part of many educators.

Spence clarified his position and that of other experimental psychologists by stating the following: ". . . contemporary learning theories of experimental psychologists have had little, if any, importance as far as educational practice and objectives are concerned."²

Melton also concludes that it is difficult to apply results of learning theory to educational practice. While progress in the psychology of learning was made between 1939 and 1959, there was a definite lack of systematic knowledge which placed limitations on

¹ Charles Leonhard, "Newer Concepts in Learning Theory As They Apply to Music Education," Current Research in Music Education, Bulletin No. 1 (1963), p. 24.

² Kenneth W. Spence, "The Relation of Learning Theory to the Technology of Education," Harvard Educational Review 29 (Spring, 1959), p. 85.

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" . . . ordering our knowledge about learning and the feasibility of communicating that knowledge."³

With the advent of the works of Piaget, Gagné, and Bruner, learning and the teaching of music began to follow new directions. Still, with an abundance of research at our disposal, and with research findings growing quickly and steadily, music educators continued to rely on old fashion methods. Seashore stated over forty years ago that the

" . . . procedure in teaching and learning music is shamefully wasteful because known laws of learning are not applied."⁴

Interestingly enough, the "cultural lag" of applying "known laws of learning" to music education still exists today. More emphasis needs to be placed upon " . . . auditory perceptual learning because music is an aural art. If we are to develop an effective theory of music instruction, we must do so on the basis of data that describe the interactions that take place between the learner and the structure of the event being learned."⁵ In 1937, Mursell concluded that " . . . musicality depends on and consists of

³ Arthur W. Melton, "The Science of Learning, and the Technology of Educational Methods;" Harvard Educational Review 66 (April, 1962): p. 101.

⁴ Carl E. Seashore, Psychology of Music (New York: McGraw-Hill, 1938), p. 149.

⁵ James C. Carlsen, "Auditory Perception: Concerns for Music Learning," in the Documentary Report of the Ann Arbor Symposium: Applications of Psychology to the Teaching and Learning of Music, ed. Rebecca Taylor (Reston, VA: Music Educators National Conference, 1981), p. 3.

an awareness of tonal-rhythmic configurations or tonal patterns and an emotional responsiveness thereto.⁶

What elements, then, become basic to the aural understanding of music and to the development of a sequence of instruction to facilitate and realize objectives? Foremost in answering those questions stands Edwin E. Gordon, who, after much research has stated:

In order to understand music, one must be aware both descriptively and interpretively of its basic aural elements. To achieve this awareness one must have developed a sense of tonality and a sense of meter

A sense of tonality provides one with the ability to hear with understanding, or, to coin a word, to 'audiate,' a piece of music as being, for example, major or minor; a sense of meter provides one with the ability to audiate a piece of music as being, for example, duple or triple.⁷

But how are tonal patterns organized in a piece of music? Quite simply, through rhythm. As Gordon concludes:

Rhythm patterns and tonal patterns are the basis of music. Rhythm patterns provide for meter and tonal patterns provide for tonality, both being crucial to style and form in music.⁸

⁶James L. Mursell, The Psychology of Music (New York: W. W. Norton and Co., Inc. 1937), p. 49.

⁷Edwin E. Gordon, Learning Sequence in Music: Skill Content and Patterns (Chicago: G.I.A. Publications, Inc. 1980), p. 2.

⁸Ibid., p. 88.

The ability to perceive rhythm as accurately as possible is an important ingredient in the learning of music. Theories of rhythm and ideas about rhythm are as diverse as ever. While arguments often have overlapping tendencies, differences of opinions are noted.

Cooper and Meyer, for example, view meter as " . . . the measurement of the number of pulses between more or less regularly recurring accents."⁹ Creston subdivides beats as being either "regular" or "irregular." Any subdivision which corresponds to the meter signature is referred to as regular. Conversely, any subdivision which is not suggested by the meter signature is called irregular.¹⁰ Mursell's contribution consists of defining two characteristics of rhythm as the "phrase rhythm" and the "underlying beat."¹¹

The above mentioned examples are different, yet somewhat traditional in content. Until recently, nearly all views of rhythm have been alike. But again, Gordon's view is both striking and novel:

- Rhythm has three fundamental elements. They are macro beats, micro beats, and melodic rhythm Consider a

⁹Grosvenor Cooper and Leonard B. Meyer, The Rhythmic Structure of Music (Chicago: University of Chicago Press, 1960), p. 4.

¹⁰Paul Creston, Principles of Rhythm (New York: Franco Columbo, 1964), pp. 34-43.

¹¹James Mursell, Psychology of Music (New York: W. W. Norton and Company, 1937), pp. 177-200.

continuum of beats, that is, a series in which none of the beats is accented. Because of the necessity to perceive categorically, a listener will subjectively accent every other beat so that the beats are audiated in pairs, each beat being of equal temporal length and the accents being dynamic and not agogic. These beats are called macro beats. They are fundamental to micro beats and melodic rhythm in that micro beats and melodic rhythm are superimposed upon macro beats. Macro beats alone have no meter Micro beats which are shorter than macro beats, are derived from the equal temporal division of macro beats Melodic rhythm is the rhythm of the melody or the text of a piece of music. It is superimposed upon micro beats, which are superimposed upon macro beats.¹²

Within the sequential development of music learning, Gordon asserts:

With formal instruction beginning at the aural/oral level of learning, the child develops a sense of tonality and a sense of meter through structured singing and rhythm activities The basic units of music are tonal patterns and rhythm patterns (not individual tones or notes); after a sense of pitch center and a sense of consistency of tempo are developed, one listens to specific tonal patterns and rhythm patterns and then performs them with neutral syllables, possibly in the form of echoes. Through performance . . . one begins aurally to memorize and recognize tonal patterns in a variety of keys and tonalities, and rhythm patterns in a variety of tempos and meters

¹²Gordon, Learning Sequences in Music: Skill, Content and Patterns, pp. 88-90.

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By recall, one becomes able to discriminate among them, and thereby acquires a vocabulary of tonal patterns and rhythm patterns and a more sophisticated sense of tonality and meter.¹³

In The Study of Music in the Elementary School: A Conceptual Approach¹⁴ it is suggested that children be exposed to both rhythmic and tonal concepts in the general music curriculums. In "Concepts about Rhythm"¹⁵ the editors suggest that children should be exposed to music written in usual,¹⁶ unusual,¹⁷ and mixed meters.¹⁸ In "Concepts about Melody,"¹⁹ it is further suggested that children be exposed to tonal²⁰ and nontonal²¹ music. It would seem appropriate, therefore, that music educators teach children to understand the broad aspects of rhythmic and tonal characteristics of music.

¹³Ibid., pp. 14-15.

¹⁴The Study of Music in the Elementary School: A Conceptual Approach (Washington, D.C.: Music Educators National Conference, 1967), pp. 11-65.

¹⁵Ibid., pp. 11-50.

¹⁶Duple and triple meter.

¹⁷Meter signatures written with a 5, 7, 9, or 11 as the upper numeral...

¹⁸The use of triplets and duplets.

¹⁹The Study of Music in the Elementary School: A Conceptual Approach, pp. 51-65.

²⁰Music in a major or minor mode.

²¹Music which suggests several pitches as its tonic, or possibly no pitch at all as a tonic.

Still, the tonal content of songs found in first grade music texts is primarily limited to duple meter and major mode. Just why there is such a scarcity of songs in mixed and unusual meters, so few in unusual modes,²² and practically no nontonal songs is unknown. Perhaps music educators believe children should first learn to perform usual meter and tonal songs before they learn to perform unusual meter, mixed meter, and nontonal songs. Or, maybe music educators believe that songs in mixed and unusual meters, unusual modes, and nontonal songs are too difficult for young children to learn. Meyer, however, possibly challenges those assumptions by stating the following: "The human mind is capable of maintaining many different and even contradictory behavior systems simultaneously and of bringing these into play at appropriate times."²³

Pfeiffer states, "Between [ages] two and six the cortex completes the major part of its growth, a fact that jibes nicely with theories concerning the importance of early childhood experiences."²⁴

Meyer continues:

Insofar as serial music is perceptually highly complex and irregular, it is

²² Music written in dorian, phrygian, lydian, or mixolydian.

²³ Leonard B. Meyer, Music, The Arts, and Ideas: Patterns and Predictions in Twentieth Century Culture (Chicago: University of Chicago Press, 1967), p. 276.

²⁴ John Pfeiffer, The Human Brain (New York: Pyramid Publications, 1962), pp. 42-43.

difficult for children, and perhaps even adults, to bring relevant sensory-motor behavior into play. On the other hand, since it is also clear that the human mind is capable of astonishing feats of learning, the point at which complexity and irregularity inhibit or thwart learning must be left open.²⁵

Perhaps music educators today initially learned to teach tonal music in usual meters, thus they find it difficult to perform music in mixed and unusual meters, in unusual modes, and music which is nontonal. Such a view is upheld by Meyer who writes, "The formation later in life of new channels and pathways in the brain deep and clear enough to insure new modes of perception and cognition is not an impossible task, but certainly it is a formidable one."²⁶

Music educators certainly agree that young children should learn the broad aspects of rhythm and tonality. Little or specific insight, however, is provided by them in to how and when children best develop those understandings. Mursell, for example, states, "Musical growth turns upon a progressive and continuously developing realization of what music actually is. Therefore at least a dawning realization should come from the earliest years."²⁷

²⁵ Meyer, p. 276.

²⁶ Ibid, p. 275.

²⁷ James L. Mursell, "Growth Processes in Music Education," Basic Concepts in Music Education, ed. Nelson B. Henry (Chicago: University of Chicago Press, 1958), p. 157.

It is evident that there is a need for more objective information which is pertinent to appropriate sequential instructional procedures, or as Mursell states:

In introducing significant musical concepts, there is not any need to wait for a supposititious moment when children will be "ready" to deal with them. They can occur in immature form very early indeed . . . an authentic feeling for the difference between major and minor can be established almost from the beginning Instead of teaching the minor tonality at some one predetermined point, it is, so to speak, spread out through a number of years. So also with all other musical concepts.²⁸

With this in mind, Edwin E. Gordon stands alone in developing sequential tonal pattern and rhythm pattern instruction in the different tonalities and meters. Through three consecutive research studies,²⁹ Gordon has determined the difficulty levels of the patterns and the order in which students should be taught the patterns. The easy patterns should be taught first, then the moderate patterns, and finally the difficult patterns, depending upon students' music aptitudes.

²⁸ Ibid., pp. 158-159.

²⁹ Edwin E. Gordon, "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 Psychology of Music 9 (1974), pp. 39-232; Gordon, Tonal and Rhythm Patterns: An Objective Analysis (Albany, NY: State University of New York Press, 1976); and Gordon, A Factor Analytic Description of Tonal and Rhythm Patterns and Objective Evidence of Pattern Difficulty Level and Growth Rate (Chicago: G.I.A., 1978).

Because tonal patterns and rhythm patterns are fundamental in music literature, Gordon's taxonomies of tonal and rhythm patterns gives the music educator the opportunity to make them functional.³⁰ In other words, since it is the musical content of the program that determines the presentation of musical concepts, Gordon gives the music educator an opportunity to select patterns for study " . . . primarily on the basis of objectives associated with learning sequence levels and difficulty levels"³¹

The tonal pattern and rhythm pattern taxonomies developed by Gordon provide a firm foundation to aid the music educator in facilitating the teaching and learning of music.

Purpose

Music educators must explore ways to obtain more insight into how one best learns music. Such exploration can expediate the learning process and give it increased efficiency. That is particularly important because it has been discovered that music aptitude stabilizes in young children at approximately age nine. The purpose of this study is to investigate different types of tonal and rhythm instruction to discover which type of instruction might best affect a child's developmental musical aptitude.

³⁰For the "Taxonomy of Tonal Pattern Difficulty Levels," see Gordon's Learning Sequences in Music: Skill, Content and Patterns, see pp. 142-160; and for the "Taxonomy of Rhythm Pattern Difficulty Levels," see pp. 164-174.

³¹Ibid., p. 139.

Problem of the Study

The problem of the proposed study is twofold. 1) To determine which, if any, of four methods of tonal pattern instruction has the greatest effect on developmental tonal aptitude and 2) To determine which, if any, of four methods of rhythm pattern instruction has the greatest effect on developmental rhythm aptitude.

CHAPTER II

REVIEW OF RELATED STUDIES

Introduction

How children learn music is becoming a concern to the music education profession. Methods have been developed which are directed toward improving curriculum content in music for elementary school children. Various studies have been designed, for example, to determine an appropriate sequence of melodic concepts. One such study is a sequence of instruction for young children based on musical creation.¹ Another study was designed to apply Piagetian concepts to music in order to determine the chronological ages when children acquire tonal concepts.² Still another study was completed to investigate the nature of the concept of tonality and its development being dependent upon the singing of songs and scales during the elementary years.³

¹Gladys Moorhead and Donald Pond, Music of Young Children (Santa Barbara, CA: Pillsbury Foundation for Advancement of Music Education, 1978).

²Marilyn Pfleiderer, "How Children Conceptually Organize Musical Sounds," Council for Research in Music Education 7 (1966): pp. 1-12.

³Sylvesta Wassum, "Elementary School Children's Concept of Tonality," Journal of Research in Music Education 28 (1980): p. 18.