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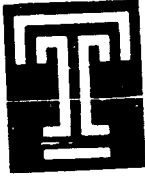
AN INVESTIGATION OF THE HIERARCHICAL NATURE
OF THE STAGES OF TONAL AUDIATION

A Dissertation
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in Partial Fulfillment of the Requirements
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by

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In memory of my grandmother
Elsa Irma Klokner Neubauer,
whose love of education
continues to inspire me.

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CHAPTER ONE

INTRODUCTION AND PURPOSE

Introduction

Audiation is said to be the foundation of music aptitude and music achievement.¹ Consequently, a thorough understanding of the process and types of audiation should be considered essential to the advancement of music education. The writings of Walters and of Gordon contain descriptions of the process and types of audiation.² There is little research, however, that contains objective information about what actually happens when a person audiates as he experiences music.

¹Edwin E. Gordon, The Nature, Description, Measurement, and Evaluation of Music Aptitudes (Chicago: G.I.A. Publications, Inc., 1987), p. 15.

²Gordon describes the process and types of audiation in detail in Learning Sequences in Music: Skill, Content, and Patterns (Chicago: G.I.A. Publications, Inc., 1988) and in The Nature, Description, Measurement, and Evaluation of Music Aptitudes. Walters describes the process of audiation in "Audiation: The Term and the Process," Readings in Music Learning Theory: Theory and Practice, ed. Darrel L. Walters and Cynthia Crump Taggart (Chicago: G.I.A. Publications, Inc., 1989), p. 15.

Although the term audiation, which was coined by Gordon, is coming into common usage, few persons understand what it means. Audiation is the aural equivalent of visualization. One audiates when one hears and comprehends music that is not physically present. The music could have been heard seconds, hours, days, or years before. Also, one audiates when reading music notation, when writing music, or when creating music.

One does not audiate what he hears at the exact moment that it is heard. Rather, he audiates what he perceives a fraction of a second later than it is perceived, as an after-sound.³

Gordon has proposed seven types and six stages of audiation.⁴ The seven types of audiation are descriptions of situations in which audiation occurs. The six stages of audiation are descriptions of how audiation occurs sequentially, including what specifically happens when one audiates. The stages of audiation function within each type of audiation. When one audiates, regardless of the situation, the process of audiation remains basically the same. Whereas it would seem that the types of audiation can

³A more complete description of the process of audiation can be found in Gordon's Learning Sequences in Music, pp. 6-18.

⁴Gordon, Learning Sequences in Music, pp. 10-14.

be deduced easily from logic and observation, the stages of audiation can be validated only through research.

According to Gordon, audiation occurs when one 1) listens to music, 2) reads music notation, 3) writes music from dictation, 4) recalls music, 5) writes music from recall, 6) creates or improvises music, and 7) writes unfamiliar music.⁵ Walters has condensed that list into four types of audiation, each with a different stimulus for initiation and with several different applications.

According to Walters, the four types of audiation are 1) listening to music, which is initiated by the sound of music and can be applied by either thinking about music or writing music through dictation; 2) reading music, which is initiated by the sight of music notation and can be applied by either thinking about music or performing music; 3) recalling music, which is initiated by internal memory traces and can be applied by thinking about music, writing music, or performing music; and 4) creating/improvising music, which is initiated by internal variations on memory traces and can be applied by thinking about music, writing music, or performing music.⁶

Gordon theorizes that stages of audiation are hierarchical. The most skillful audiator will experience all

⁵Ibid. , 10-13.

⁶Walters, "Audiation: The Term and the Process," p. 6.

six stages of audiation, while the least skillful audiator may experience only Stage 1. Also, he theorizes that the stages of audiation occur concurrently within each audiator. Once the audiation process is initiated within a person, all of the stages of audiation of which the person is capable occur simultaneously. The stages, as described by Gordon, overlap; they are discrete only in terms of process, not in terms of time of occurrence.

There is a slight variation in the stages of audiation, depending upon what type of audiation the audiator is engaging. That variation is a result of how the process of audiation is initiated. The stages of audiation are explained here in relation to Type 1 of audiation. A description of how the stages of audiation vary within the types of audiation, however, will follow the explanation of the stages of audiation.

When a person is engaged in Stage 1 of audiation, he is perceiving the music that is in his environment. His perception of that music occurs a fraction of a second after the music actually sounds, because the human ear and brain require time to process the music information that they are receiving. During processing of that information, the music is broken into short patterns of pitches and durations. Those patterns, however, are not understood in terms of tonality or meter. They are given no musical meaning. They

are merely retained as an after-sound in audiation for a short time.

Gordon theorizes that the tonal dimension and the rhythm dimension of music are audiated separately, but concurrently within each stage of audiation.⁷ It is possible that the auditor rapidly and unconsciously alternates between the tonal dimension and the rhythm dimension of music as he audiates, depending upon what he is perceiving as essential at that time.

In Stage 2 of audiation the patterns that are perceived in Stage 1 of audiation are given meaning in terms of pitch center and the placement of the macro beats in the music.⁸ On the basis of the pitch center and the placement of the macro beats, the patterns of pitches and durations are organized by the auditor into a smaller number of patterns of essential pitches and durations. Essential pitches and durations in a pattern are those pitches or durations that

⁷Gordon, Learning Sequences in Music, p. 15.

⁸The macro beat is often referred to as the "big beat" in music. Gordon defines macro beats as "The fundamental beat in a rhythm pattern. The following are examples: In usual duple meter with the measure signature 2/4, quarter notes are the performed or implied macro beat. In usual triple meter with the measure signature 6/8, dotted quarter notes are the performed or implied macro beats. . . ." Edwin Gordon, "Reference Handbook for Using Learning Sequence Activities," Jump Right In: The Music Curriculum (Chicago: G.I.A. Publications, Inc., 1985), p. 102.

are used to define the function of that pattern.⁹ Different audiators will organize the tonal patterns and rhythm patterns into different patterns of essential pitches and durations, but the pitch center and the macro beat placement of the patterns will be recognized or identified as being the same among all listeners who are capable of Stage 2 of audiation.

In Stage 3 of audiation the audiator continues to perceive the patterns and to organize them into patterns of essential pitches and durations. He also continues to audiate those patterns in relation to a pitch center and the placement of the macro beats in the music. In addition, he places those patterns in the context of a tonality, which is decided upon the basis of resting tone, and a meter, which is decided upon on the basis of the placement of the macro beats and the micro beats. The audiation of patterns that have been perceived and then organized previously may have to be reorganized on the basis of the audiation of tonality and meter that occurs at Stage 3 of audiation. In other words, there is a constant interplay between the audiation of tonality and meter and the audiation of essential pitches and durations of the patterns. Most persons capable of Stage 3

⁹The function of a tonal pattern might be, for example, tonic, dominant, or subdominant. The function of a rhythm pattern might be, for example, macro beat, micro beat, or division.

of audiation probably audiate a common tonality and meter, given the same set of patterns.

In Stage 4 of audiation the auditor retains patterns of essential pitches and durations from within a piece of music and uses those patterns to better organize the remainder of the patterns of pitches and durations that he has heard and will hear within that same piece of music. He also solidifies and restructures his audiation of tonality and meter and of essential pitches and durations based upon the patterns of essential pitches and durations from the music that he is retaining in audiation. In Stage 4 of audiation, the relationship of patterns to one another within a piece of music is recognized for the first time. Therefore, in Stage 4 of audiation, musical form generates musical meaning.

In Stage 5 of audiation the auditor compares the patterns of essential pitches and durations that he is audiating with the patterns of essential pitches and durations that he recalls from audiating them in other pieces of music. He uses his audiation of those recalled patterns to better organize the patterns that he is currently perceiving, and in turn, he uses the audiation of the patterns that he is currently perceiving to reorganize the patterns that he is recalling from past audiation experiences. The more music that he has previously audiated, the larger his vocabulary of patterns of essential pitches and durations will be, and therefore, the better he will be

able to engage in Stage 5 of audiation. The auditor is concurrently audiating at Stages 1, 2, 3, and 4 while he is audiating at Stage 5.

Stage 6 of audiation can best be described in terms of prediction. Based upon what he is audiating at present and what he has audiated in the past, the auditor predicts what essential patterns of pitches and durations he will be audiating next in the music. Gordon writes the following.

The more accurate our predictions, the better we understand the music. If our predictions are not borne out in the music that we are hearing, we will encounter some difficulty in understanding the music. If only a few of our predictions are inaccurate, we will continue the cyclic process of audiation and make only simple alterations in our further prediction. Should our predictions be grossly inaccurate or should we make no predictions at all, the audiation process will revert to and probably remain at Stage 1, and the music will cease to have musical meaning for us.¹⁰

Stage 1 of audiation exists within each type of audiation, but the type of music impression that is processed at Stage 1 varies depending upon the type of audiation in which the auditor is engaged. That is because a description of Stage 1 of audiation necessarily involves a discussion of the stimulus that initiates the process of audiation, and that stimulus varies among the types of audiation. The stimulus that initiates Types 1 and 3 of audiation is the sound of music in the environment. Therefore, Stage 1 of

¹⁰Gordon, Learning Sequences in Music, p. 17.

audiation would be the same for Types 1 and 3 of audiation, because the immediate impressions of the patterns being processed in both types are aural impressions as a result of hearing music. The stimulus that initiates Type 2 is the sight of music notation. Therefore, the patterns that are processed in Stage 1 of audiation for Type 2 of audiation are processed as a result of the sight of music notation rather than of the sound of music, and the immediate impressions from that music are visual rather than aural ones. The stimulus that initiates Types 4 and 5 of audiation is internal memory traces of music. Therefore, the immediate impressions of patterns that are processed in Stage 1 of audiation for Types 4 and 5 of audiation are impressions that are recalled in audiation, rather than heard or seen. The stimulus that initiates Types 6 and 7 of audiation is variations on internal memory traces of music. Therefore, the immediate impressions of patterns that are processed in Stage 1 of audiation for Types 6 and 7 of audiation are variations of impressions of patterns that are recalled in audiation.

The stage of audiation that a person achieves is dependent upon two main factors: his music aptitude and his music environment. A person can never audiate at a level higher than that which his music aptitude will allow; his music aptitude limits his audiation achievement. On the other hand, no person develops his audiation potential to the

fullest. There is always the possibility of improved audiation achievement through training.

A person with extremely high music aptitude probably will be able to engage in all six stages of audiation, regardless of the quality of his music instruction. That person, because of his high music aptitude, would be able to draw inferences and teach himself how to audiate music.¹¹ A person with extremely low music aptitude might never reach Stage 6 of audiation, even with extensive music instruction. That person's low music aptitude would prevent him from drawing the necessary inferences for engaging in the higher stages of audiation. A person with average levels of music aptitude will be somewhere between those two extremes, depending upon the quality and the amount of his music training.

A person with extensive music instruction probably will have heard more music than a person with little music instruction. As a result, that person will have developed a larger vocabulary of patterns of essential pitches and durations. He will be able to audiate better at Stage 5 than a person with little music instruction, because he will have more patterns with which to compare the patterns that he is currently audiating. Consequently, he will be able to

¹¹That person, however, would not be able to engage in all of the types of audiation. Unless he was taught to read music, he could engage only in types 1, 4, and 6 of Gordon's types of audiation.

organize the patterns that he is hearing and restructure those patterns that he has heard in other pieces of music better than a person who has the smaller pattern vocabulary. The person who has the larger vocabulary will also be able to make better predictions at Stage 6 of audiation, because he has a larger vocabulary upon which to base his predictions.

Although never labelling them as such, researchers have studied some of the individual stages of audiation.¹² Researchers have also studied audiation in relation to harmony and to creativity and cognitive style.¹³ There is little research, however, concerning whether the stages of audiation exist, and if they do exist, how they relate to one

¹²Zenatti researched a task that relates directly to Stage 4 of audiation. She presented pairs of melodies to a wide range of subjects. The second melody of each pair was like the first, except that one pitch had been changed. The subjects were asked to state which pitch had been changed. Diana Deutsch, The Psychology of Music (Orlando, Fla.: Academic Press, Inc., 1982), p. 420. Dowling and Bartlett researched listeners' ability to recognize excerpts from Beethoven String Quartets as being familiar. Successful performance of that task can be directly related to success at Stage 5 of audiation. W. Jay Dowling and Dane L. Harwood, Music Cognition (San Diego, Ca.: Academic Press, Inc., 1986), p. 140. Carlsen researched expectancy or prediction, which can be directly related to Stage 6 of audiation. J.C. Carlsen, "Some Factors which Influence Melodic Expectancy," Psychomusicology 1 (1981): 12-29.

¹³See Jere T. Humphreys, "Measurement, Prediction, and Training of Harmonic Audiation and Performance Skills," Journal of Research in Music Education 34 (1986): 192-199, and Charles P. Schmidt and Jean Sinor, "An Investigation of the Relationships Among Music Audiation, Musical Creativity, and Cognitive Style," Journal of Research in Music Education 34 (1986): 160-172.

another. If audiation is indeed the foundation for music aptitude and achievement, there is a need for such questions that concern the stages of audiation to be answered. The purpose of this research is to gain more information about the stages of audiation so that it can be used to improve music instruction.

Problems

The following are the specific problems of the study.

- 1) To determine whether the stages of tonal audiation as theorized by Gordon are hierarchical in young children regardless of chronological age.
- 2) To determine the extent to which the tonal music aptitude of young children is related to the stages of tonal audiation.