5-2014

Cognitive vs. aesthetic musical experiences : an examination of the relationships between music aptitude and musical preference in third grade students.

Erin Archer Elliott
University of Louisville

COGNITIVE VS. AESTHETIC MUSICAL EXPERIENCES: AN EXAMINATION OF THE RELATIONSHIPS BETWEEN MUSIC APTITUDE AND MUSICAL PREFERENCE IN THIRD GRADE STUDENTS

By

Erin Archer Elliott
B.M.E. The College of Wooster, 2007

A Thesis
Submitted to the Faculty of the
School of Music of the University of Louisville
In Partial Fulfillment of the Requirements
for the Degree of

Master of Music Education

Music Education
University of Louisville
Louisville, Kentucky

May 2014

COGNITIVE VS. AESTHETIC MUSICAL EXPERIENCES: AN EXAMINATION OF THE RELATIONSHIPS BETWEEN MUSIC APTITUDE AND MUSICAL PREFERENCE IN THIRD GRADE STUDENTS

By

Erin Archer Elliott
B.M.E., The College of Wooster, 2007

A Thesis Approved on

April 21, 2014

by the following Thesis Committee:

_____

Thesis Director
Dr. Robert Amchin

_____

Dr. Darcy Walworth

_____

Dr. Douglas Shadle

DEDICATION

This work is lovingly dedicated to the following:

To my parents, Jon and Toni Cook; you provided me with such a rich musical experience as a child that has impacted the direction of my life. You have supported me in all of my endeavors and have always pushed me to the best person possible.

To my Aunt Christine; our conversations and debates about education and educational philosophy, even outside the realm of music, sparked my interest for research and the want to strive to be the best teacher possible.

To my Grandma Cook; thank you for being a source of musical inspiration, encouraging me in my music abilities when I was not the most outwardly excited about music, and for the strength and courage you displayed in your final years. I pray that I can have half of the strength and passion you displayed, and your spirit continues to inspire me.

To my husband, David; without your strength, love, and unending support through past two years, I would not have been able to accomplish what I have been able to do. Because of you, I have become a better researcher, educator, and person.

To my family at Antioch Church; thank you for providing such a wonderful church home for us during these two years. Your spiritual mentorship, beautiful music, and friendship have been a source of strength and has helped me to grow closer to God.

To God be the glory in all that I say and do.

ACKNOWLEDGEMENTS

I would first like to thank my advising committee for their dedication to helping me through the process of completing my thesis. Thank you, Dr. Amchin, for handling my incessant amount of questions and helping me to reign in my thoughts and ideas into something that is (almost) doable. I would like to thank Dr. Darcy Walworth, for her wonderful insight into quantitative research and encouraging me to keep pushing when I faced adversity and issues out of my control. I would also like to thank Dr. Douglas Shadle for his unique perspective as a musicologist and your wonderful editing skills. Also, I give many thanks to Dr. Jill Jacobi-Vessels from the College of Education, who gave me a wonderful SPSS tutorial and provided guidance throughout the data analysis process.

I would also like to express my greatest thanks to Dana Gumm and Shannon Mitchell for allowing me to work with their students and taking time away from their busy schedule. Your dedication to your students and great teaching has not gone unnoticed!

I also want to thank my husband for his unending guidance and for being my rock. This would not have been possible without your encouragement. Lastly, I would like to give many thanks to my fellow graduate students for providing support, inspiration, humor, and friendship the past two years. I am very grateful to have met you all and have loved watching each and every one of you grow these past two years.

ABSTRACT

COGNITIVE VS. AESTHETIC MUSICAL EXPERIENCES: AN EXAMINATION OF THE RELATIONSHIPS BETWEEN MUSIC APTITUDE AND MUSICAL PREFERENCE IN THIRD GRADE STUDENTS

Erin Archer Elliott

April 25, 2014

The purpose of this study was to measure correlations between third grade students' music aptitude and preferences for music. Students ($N = 60$) from two elementary schools in Central Kentucky participated in the study. Students took Gordon's Intermediate Measures of Music Audiation (IMMA) and a researcher-designed test called the Children's Music Preference Index. Correlations between IMMA scores and music preference were tabulated using a two-tail bivariate correlation computing a Pearson's product-moment correlation coefficient. No significant correlations were found between IMMA scores and the overall preference for music ($r = -.018$). There was an apparent weak negative correlation between aptitude and preference for *Rock* music ($r = -.346$). The overall preference score was slightly higher for those with exceptionally high and exceptionally low music aptitude than those with average aptitude. Exceptions of this finding include *Rock* and *Pop,* which showed a negative relationship, but not correlation, between strong preference as aptitude scores decreased, and *Jazz* music, which was rated progressively higher as aptitude scores increased. Suggestions for further areas of research are discussed.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Why do children like certain kinds of music but not others? Children in the elementary years often have strong opinions about the type of music to which they like to listen, but the reasoning behind those opinions are often varied between children and often shift and evolve as children grow older. It would be interesting to find out what kinds or genres of music children like, and how certain variables, such as music aptitude, could be related to that decision. Music teachers are always searching for appealing music of various types to use in their classroom and must often strive to bridge that gap between traditional genres and more "popular" styles in order to reach their students and develop a quality music program. It is also important for teachers to recognize the many variables that can determine how and why a child likes a certain piece of music or a genre in order to best introduce new music and fully engage their students in the music classroom.

It is important to understand what constitutes music preference. Albert LeBlanc's 1982 theory entitled *"An Interactive Theory of Music Preference"* offered a groundbreaking philosophy that has subsequently guided all music preference studies since (LeBlanc, 1982). Many factors and indicators play a role into musical preference in various degrees of importance, including personal characteristics of the listener, characteristics of the music itself, and outside influences on the listener such as music

training and culture. While there has been much research studying some of those variables that play into musical preference, particularly by LeBanc, there has not been much research specifically studying musical aptitude (normally defined by testing audiation), Though LeBlanc does not specifically identify music aptitude as a variable, he does list music ability, which can be interpreted as the ability to learn music (Cheston 1994). What little research that has been done only shows a statistically small but a positive correlation, such as William May's 1985 study titled, "Musical Style Preferences and Aural Discrimination Skills of Primary Grade School Children." May conceded that there is a need for more research in this area.

This study seeks to continue in the understanding of musical preference, specifically with school age children. Specifically, it will be interesting to consider how aptitude and musical preference intersect by investigating correlations between these two variables. My goal is to provide new perspectives on this topic and to begin to fill a gap in research in this particular subject. It is further hoped that this study will shed a new light on the perceptions of elementary age students' listening preferences as it relates to their musical aptitude and general preferences toward specific musical selections.

CHAPTER 2

REVIEW OF LITERATURE

Many people can recall an event in their lives where they were told they were not good at music, whether it stemmed from them singing or playing. Sometimes this comment came from a friend or peer, a parent, or worse, a teacher. Naturally, this can turn a child off from something they were previously passionate about, whether this remark was true or not (Diener & Dweck, 1978). Regardless of the comment's accuracy, Gardner (1983) considers music as one of the multiple intelligences that all humans possess. Starting in utero, all humans strongly respond and react to music (Bentley, 1966). How strong that intelligence is, or how it is manifested through a child's development, is determined by his or her music aptitude.

Defining Music Aptitude

While theories of music aptitude have evolved throughout the 20th century, aptitude can largely be defined as one's capacity to learn, not what has been previously achieved or learned (Gordon, 1987; Lehman, 1968). Boyle and Radocy (1987, 2003) place the term aptitude as a "broader term than 'capacity' and narrower than 'ability'" and is considered a result of a combination both nature and nurture, such as one's musical experiences and background. To develop an assessment for musical aptitude can be difficult because it requires the minimization of musical achievements and specific "facts, skills, appreciations", etc. that must be learned (Gordon, 1967; Lehman, 1968). Examples

would include reading musical notation, playing an instrument, recognizing formal structures, etc. (Radocy & Boyle, 2003).

Since one cannot assess musical aptitude by means of musical achievement, researchers use audiation as the basis for aptitude. Audiation, which can be synonymous with musical or aural imagery, "is the ability to hear and comprehend music for which the sound is not physically present" (Gordon 1987, 1995). Audiation is used in almost all musical activities, including "listening to, recalling, performing, interpreting, creating or composing, improvising, reading, or writing music" (Gordon, 1998). All humans possess the ability to distinguish between subtle sounds, though to varying degrees based upon the strength of her or his musical intelligence (Radocy & Boyle, 1987). The ability to audiate is a prior step to discrimination learning, where students are able to make connections between patterns already learned in previous songs and being able to identify those patterns in other songs (Hodges & Sebald, 2011). Gordon (1998) defines six stages of audiation, which provides further insight into what audiation is and how it is used.

Stage 1—Momentary retention
Stage 2—Imitating and audiating tonal patterns and rhythms
Stage 3—Establishing objective or subjective tonality and meter
Stage 4—Retaining tonal and rhythm patterns in other pieces of music
Stage 5—Recalling tonal and rhythm patterns in other pieces of music
Stage 6—Anticipating and predicting tonal and rhythm patterns

One philosophical issue that musical aptitude has raised is whether or not to separate the various aspects of aptitude, mainly rhythm and tonal questions. Known as the Gestalt-Atomistic controversy, various researchers and philosophers of music aptitude have had very strong and opposing opinions on this subject, often divided into European (Gestalt) and American (atomistic) camps. Carl Seashore, considered the pioneer in music aptitude research, held to the atomistic belief that the various components of music aptitude must

be discussed autonomously in order to accurately describe music aptitude (Gordon, 1987; Whybrew, 1971). H.D. Wing, on the other hand, believed in the Gestalt philosophy of the whole being more important than its parts. Gordon outlines Wing's philosophy as music being best defined by melody, which consists of both tonal and rhythm elements, and therefore music aptitude should reflect the elements combined. Edwin Gordon, a leading philosopher on music aptitude today, holds both Gestalt and atomistic principles in his philosophy. Gordon discovered that both reliability and validity dropped when both rhythm and tonal questions were asked on the same test, and therefore aptitude should be divided into several dimensions, while recognizing that it would be likely standard to combine the various tested attributes into a general depiction of one's musical aptitude (Gordon 1987, 1998).

The Evolution of Music Aptitude

The development of musical aptitude as a theory and the establishment of research largely began with American psychologist Carl Seashore in the early 20th century. Seashore believed that musical aptitude was the "ability to image music, re-live it, to recall, and rearrange in realistic imagination" and could be described by "what can be observed in the objectively in the sound wave," referring to pitch/frequency, loudness/amplitude, time/duration, timbre, and form (Seashore, 1919; Gordon, 1987). The ability to use imagery and memory is essential to one's musical aptitude, which Seashore instead deliberately called "talents." While he believed that everyone possessed musical talent (preceding Gardner's Theory of Multiple Intelligences), it was unequally distributed among humans, and each person had a cognitive limit which could not be expanded through practice (Bentley, 1966; Seashore 1919).

Originally developed in 1919, the *Seashore Measures of Musical Talents* is the first musical aptitude test, a revolutionary work that has had a lasting impact on music aptitude research throughout the past century (Radocy & Boyle, 1987). Twenty years after the original battery was published, Seashore had modified some of his philosophies on musical aptitude and a 1939 revision of the SMMT was published with two different series (Series A and Series B), the first of which is still available today (Gordon, 1987; Whybrew, 1971). One of the major changes was the inclusion of a rhythm battery in the revised test after Seashore had decided that rhythm was an important enough component of musical aptitude to be measured (Gordon, 1987). The revision also refined the questions asked in the original pitch test to better delineate between those scoring high versus those scoring low (Whybrew, 1971). In both the original and revision, a profile of the various batteries is created, rather than an average score, in line with his atomistic philosophy (Radocy & Boyle, 1987).

Though the *Seashore Measures of Musical Talents* was a landmark in music psychology, several persistent problems with the battery have prevented its continued use. Seashore was criticized largely by Gestalt inspired philosophers for the lack of a preference battery, though Seashore did have a related consonance test which was replaced by a timbre test in the 1939 version (Gordon, 1987). Another prominent contention concerned Seashore's position that musical aptitude could not be developed with experience and training. Not only was this philosophy highly debatable, but the design of the test (not including the timbre and rhythm section) was later proven to be geared more towards musical achievement instead as test scores could be raised with instruction (Gordon, 1987; Radocy & Boyle, 1987). Seashore also did not publish any

research regarding the design of the test, reliability, and validity (Whybrew, 1971). Though his test is no longer regarded as a true measure of musical aptitude and some of his personal philosophy is considered outdated, the *Seashore Measures of Musical Talents* is a hallmark in the history of music psychology in that he initiated the beginning of interest in the study of musical aptitude (Gordon, 1987 & Lehman, 1968).

Not long after Seashore's 1939 revision, British psychologist Herbert Wing developed the *Tests of Musical Ability and Appreciation*, which soon evolved into the *Standardized Tests of Musical Intelligence*, first published in 1948. Wing's philosophy differed greatly from Seashore, particularly by placing more importance on preference as a measurement of music aptitude. Not only was music preference an important aspect of measurement, but the stimuli used in the measurement was important. Whereas Seashore used an electronic instrument, Wing used a piano as the sound source (Gordon, 1987). Wing's battery of tests was divided into two sections, non-preferential components and preferential components. Wing's non-preferential components reflected the philosophy that music aptitude was the ability to determine 1) how many pitches are performed concurrently, 2) sameness or difference between two chords and if different, how, 3) sameness or difference between two melodies, and if different, how. The four preferential components focused on the ability to decide the originality between two excerpts in terms of rhythmic accents, harmonization, dynamics, and phrasing (Gordon, 1987). While there are multiple components to Wing's *Standardized Tests of Musical Intelligence*, one overall score is given, aligning Wing with the Gestalt philosophy (Radocy & Boyle, 1987).

Wing's aptitude test, while making up for some of the faults of Seashore's test, is not without its own faults. There have been no validity studies reported, and though Wing maintained a split-halves reliability score of .90, further studies have proved low reliability scores, indicating that it most likely tests music achievement, not music aptitude (Radocy & Boyle, 1987). Secondly, all of the music used in the preference tests was from established composers, and many are of British descent, meaning a listener might be familiar with the music selections, skewing the results (Gordon, 1987).

As interest in the subject of music aptitude grew in the early and mid-20th century, a multitude of aptitude tests were created, though all rooted in a bias towards traditional Western music conventions. While almost all of these are no longer used in research today, they provide a visual of the evolution of the philosophy of music aptitude. The Drake Musical Aptitude Test, for example, developed by Raleigh M. Drake, is comprised of two batteries, a rhythm test and a melodic test. The melodic test asks students to listen to the same melody twice and indicate if either a pitch or rhythm changed, if a modulation occurred, or if no changes happened. The rhythm test, devoid of any tonal element, is a series of clicks followed by silence where the student is asked to audiate how many clicks there would be during that silence (Gordon, 1987). Unfortunately, no independent studies were run to determine reliability and validity (Whybrew, 1971).

The *Kwalwasser-Dykema Music Tests*, developed by Jacob Kwalwasser and Peter W. Dykema, were developed in 1930, before Seashore's 1939 revision. The K-D tests are a battery of ten tests, six of which test for the same aptitudes of the Seashore measures, though the means of testing was not necessarily the same approach as Seashore. For

example, to measure pitch discrimination, participants are asked whether the pitch of the tone changes (different) or remains the same. Though no reliability or validity scores were published with the manual and independent studies found even lower scores than with the original Seashore battery, the K-D tests were often used by music teachers in the United States because the accessibility and shortness made it easy to administrate and receive feedback (Whybrew, 1971).

The *Measures of Musical Ability*, developed by Arnold Bentley, consists of four measurements: pitch, tunes, chords, and rhythm. The battery is designed for children ages seven through fourteen, reaching a younger age than any other previous test. Though Bentley provides reliability and validity scores in his book *Musical Ability in Children and Its Measurement*, further research was never completed, which was particularly needed for the youngest ages (Whybrew, 1971). Regardless, its brevity and ability to test elementary students made it an attractive test for educators (Radocy & Boyle, 1987).

Gordon's Philosophy of Music Aptitude

Today, the most common philosophy of music aptitude is attributed to Edwin Gordon. His research is a blend of several previous philosophies and acknowledges the benefits attributed to each school of thinking. An example of his compromises is the debate between whether music aptitude is gained through nature (genetics) or nurture (environmental influences). While previous philosophers and research had had strong beliefs in both camps, Gordon holds the viewpoint that both nature and nurture play a factor into a person's music aptitude and claims that "music aptitude, of course, can be transmitted through the genes without being strictly hereditary" (Gordon, 1998). Aware of the understanding that there is a need for more experimental research over

philosophical opinion, Gordon recognizes that each child is born with a specific potential that varies person to person (in line with Gardner's theory) but "early environmental experiences interact and contribute in unknown proportions to his [or her] music aptitude" (Gordon 1987, 1967). Regardless of the inborn potential for music in a child, the environmental atmosphere determines whether or not that potential, or aptitude, is developed or actualized. For example, a child born with a strong inclination towards music who is placed in an environment void of rich musical experiences would be unlikely able to develop and recognize that innate ability in music, and may lose some of inborn potential (Bentley, 1966). Conversely, a child without a strong natural aptitude towards music would still benefit from being placed in rich musical experiences, but those experiences would not make up for the lack of inborn potential in that child.

Gordon further defined music aptitude by delineating between developmental and stabilized aptitude. The origin of this concept belongs to American educational psychologist Benjamin Bloom, who theorized that in all areas of academia,

> The first period of elementary school (grades 1 to 3) is probably the most crucial period available to the public schools for the development of general learning patterns. We are inclined to believe that this is the important growing period for academic achievement and that all subsequent learning in the school is affected and in large part determined by what the child has learned by the age of 9 or by the end of grade 3. (Bloom, 1964)

Music aptitude in young children can widely fluctuate depending on his or her informal and formal musical experiences, both in positive and negative ways (Gordon, 1987). Positive involvements, such as formal instruction or informal experiences like listening to music or experimenting with instruments can positively impact any child's aptitude, regardless of that child's inborn potential. Conversely, negative experiences or a lack of

exposure can actually deteriorate a child's overall potential (Gordon, 1998). Once a child reaches age nine, or has completed third grade, however, Bloom and Gordon both agree that a child's aptitude has stabilized and environmental influences no longer play a role in developing a child's aptitude (Bloom, 1964; Gordon, 1987, 1995). That is not to say that a child can no longer learn or gain knowledge about music, but that innate potential, or aptitude (sometimes referred to as the "bowl"), has evened out by age nine.

As stated earlier, developmental music aptitude can greatly vary depending on the experiences the child has received. Research has indicated that early childhood instruction, specifically birth to age nine, is the most crucial to developing the strongest musical aptitude in children (Gordon, 1987). One of the most noticeable differences between developmental and stabilized aptitudes is that ability to concentrate on multiple components of music at the same time. Children in the developmental stage find it difficult to make preference decisions one more than one element of music at a time, and prefer to think of music elements in atomistic terms, whereas children in the stabilized stage are able to combine multiple elements of music together and make decisions in Gestalt terms (Gordon, 1987). In the developmental aptitude stage, children are only able to identify and relate to two non-preference components, tonal and rhythm, whereas in stabilized aptitude, Gordon is able to identify seven separate components of music aptitude. Gordon recognizes the need for more research into why such a stark contrast is evident between developmental and stabilized aptitude, but hypothesizes that the additional components are potentially being internally developed through various musical experiences but do not manifest themselves until the child is older (Gordon, 1987).

With Gordon's philosophy came a necessity for a new battery to test musical aptitude. Taking in consideration the complications of the previous tests, Gordon recognized that his test needed to test true musical aptitude and not musical instruction, and to increase reliability and validity, tonal and rhythm questions should be asked in different tests of the battery (Gordon, 1967, 1987). Gordon also noted that the selections used in the test should be originally composed, particularly in the preference sections, as to not skew results (Whybrew, 1971). Whereas Seashore and Wing both used and tested for musical memory, which they believed to be an aspect of music aptitude, Gordon determined that to be a part of musical achievement and instead relied on the ability to recall music and "discriminate between sounds that vary in subtle ways" (Gordon, 1987; Radocy & Boyle, 1987).

Gordon re-sparked interest in music aptitude research in the mid-20th century, and after nearly a decade of research, published the *Musical Aptitude Profile* in 1965, which could be used to determine stabilized music aptitude. This battery consists of three tests: Tonal Imagery, Rhythm Imagery, and Musical Sensitivity, and scores are calculated for the entire battery, each division, and subjects within each division (Radocy & Boyle, 1987; Whybrew, 1971). Between these three tests, the entire battery consists of 250 questions, and it is recommended that the battery be administered in three fifty-minute periods on three different days (Gordon, 1987). The premise of each test within the battery is to determine sameness or difference, or if the second version is better than the first. A "don't know" answer is provided as an alternative for each question, avoiding the pitfalls of guessing and boosting the reliability of the scores (Radocy & Boyle, 1987; Gordon, 1967).

Though some criticized the MAP to be too long, difficult to use, and too expensive for applicable use, Gordon's tests boast high reliability scores ranging between .90 and .96, depending on the grade level (Radocy & Boyle, 1987; Lehman, 1968). Continued research by Gordon in a three year longitudinal predictive study, as well as outside researchers, has indicated high reliability and validity, and a plethora of follow-up research was published in the decades following the release of the MAP (Whybrew, 1971; Radocy & Boyle, 1987; Gordon, 1967).

The landmark publication of Gordon's MAP as a reliable test for stabilized music aptitude led to the desire to find a better test for developmental aptitude. Before this, only Bentley's *Measures of Musical Ability* had the ability to test children in the developmental stage, but research was never conducted to determine its reliability or validity. Gordon also recognized that the MAP would be ineffective for testing younger children due to its length, complexity of instructions, pace, and evaluation of components of musical aptitude that have not been fully manifested in children in the developmental stage (Gordon, 1987). Charles Harrington attempted to modify Gordon's MAP for use with younger children in the developmental stage. To accomplish this, he modified the procedures and answer sheets and extended the test time, though the content of the questions between the two batteries were identical (Gordon, 1987; Harrington, 1969). Although results of Harrington's primary version of the MAP show scores improve with each grade and satisfactory reliability, he determined that the younger grades, such as kindergarten and 1st grade, still could not handle the simplified version of the text structure, nor were they developmentally ready to handle the overall difficulty of the questions (Gordon, 1987; Harrington, 1969).

As a result of the success of the MAP and the increased anticipation of developing a means of testing developmental music aptitude, Gordon published the first of three developmental aptitude tests, the *Primary Measures of Musical Audiation*, in 1979. Using his prior research of developmental vs. stabilized aptitude, the *PMMA* only contains a tonal and rhythm test, each of which have 40 test questions, and the only task is a same-different comparison. Appropriate for children ages five through eight, students identify the answers by circling either an icon of two smiley faces or a smiley and frowning face (Radocy & Boyle, 1987). Because both the tonal and rhythm tests are non-preference components of aptitude, they both focus primarily on a student's audiation skills, particularly because the silence between repetitions is not long enough for a child to memorize the first pattern, but enough to be able to audiate it to themselves before the second performance (Gordon, 1998).

Gordon also found that if too many students obtained high scores on the test (half above the 80th percentile), the reliability of the test diminished, so the *Intermediate Measures of Musical Audiation*, or the *IMMA*, was shortly developed and published afterwards (Radocy & Boyle, 1987; Gordon, 1987). While the *IMMA and PMMA* are identical in structure, the *IMMA* is a more advanced version suitable for children grades one through six. Because of the higher difficulty of the test (such as keeping more questions within the same meter), it is easier to measure the musical aptitude of high scoring students, and can even function as a test of stabilized music aptitude as well, though it is not as thorough or difficult as the *MAP* (Radocy & Boyle 1987; Gordon, 1987, 1995).

After completion of either the *IMMA* or *PMMA*, three scores are tabulated: tonal, rhythm, and composite. If a student earns high markings in two or all three categories, they are deemed to have high overall developmental aptitude. Scores for third grade students (which is the focus of this study) are as follows: Tonal-38, Rhythm-37, and Composite-74 (Gordon, 1987). Gordon does indicate that it is not possible to compare a student's scores between the *PMMA* and *IMMA*, but only through multiple administrations of the same test. Despite high reliability in the scores, Gordon believes that scores should still be used subjectively by teachers as an aid "in adapting instruction to the individual musical needs of all students" (Gordon, 1995).

Defining Music Preference

Just as there are many factors that play into the musical aptitude of a person, research has shown that making decisions on music preference is a very complex process and is based on many various factors both conscious and subconscious decisions. There are a multitude of influences that factor in to our daily decisions. The human brain has the ability to sort through these many inputs often subconsciously as to arrive at a conscious final decision, and this includes our preferences in music. Like music aptitude, defining musical preference can be difficult because terminology is often misused in daily conversation. Terms such as taste and attitude toward music reflect more of a mental agreement with others, or "connoisseurship," are related but not as explicit as preference in that "indicating a preference involves choosing, esteeming, or giving advantage to one thing over another through a verbal statement or some other behavioral manifestation" (Radocy & Boyle, 1987; Abeles & Chung, 1996). The 1984 MENC

Convention also delineated between behavior and verbal preference, as the two may not always provide the same results (Abeles & Chung, 1996).

Understanding music preference also comes with a need to understand what makes music "good." Because preference falls under aesthetics, both musical and extra-musical associations and factors can play into the final decision. Radocy and Boyle take this idea further:

> …it may be more fruitful psychologically to study preference in terms of people's expressions of preference, which may be inextricably intertwined with performance. 'Good' music is good because people *desire* it, due to their moods, backgrounds, training experience, prejudices, and beliefs. (Radocy & Boyle, 2003)

Radocy and Boyle (2003) noted that factors outside of the music itself plays an important role in determine preference. Albert LeBlanc, today's leading researcher and philosopher on music preference, developed a hierarchical theory of all of the variables that play into determining music preference. Published in 1982 in the *Journal of Music Therapy*, LeBlanc's landmark theory that is widely used today determines eight levels of decision-making and variables that influence the subconscious judgment of music. One of the criteria for each of these variables is its ability to be isolated and tested in research studies, both in the past and for future studies, though the chart clearly recognizes that all of the variables interact with each other and can be difficult to untangle each variable (LeBlanc, 1987; Cheston, 1996). Because many of these variables can change easily, this model points to the conclusion that the determination of music preference is only at one point in time (LeBlanc, 1987). Within these eight levels are three main categories of variables: the characteristics of the listener, the music stimulus itself, and the cultural

environment of the listener (LeBlanc, 1987; Olsson, 1998; LeBlanc, Colman, McCrary, Sherrill, & Malin, 1988).

Physical Characteristics of Music

The basic elements of music: melody, harmony, timbre, texture, rhythm, tempo, and form, are present in almost all styles and genres of music. They are recognizable fundamentals by both musicians and listeners and contribute to one's judgment on preference (LeBlanc, 1987). Together these elements determine the genre of music. The Preference for Prototypes Theory, otherwise known as PPT, discusses the formation of music preferences through the natural development of schemas. These schemas, or prototypes, are various elements of music (such as rhythm and timbre) that we recognize in music and place into categories. The more a listener hears and recognizes specific prototypes of music, the more natural it becomes for the listener to develop categories of styles, and from there is able to determine a preference for music (Hodges & Sebald, 2011).

One of the most researched elements of music in relation to preference is tempo. Regardless of the genre, listeners, particularly school-aged children, are drawn to music of faster tempi (Montgomery, 1996; LeBlanc, Young, Simpson, Stamou, & McCrary, 1998; LeBlanc, 1981). This preference towards faster music can be seen in quantitative studies as well as in both written reflective comments and physical observation during testing. A LeBlanc et al study (1998) found not only that tempo was the most frequently cited element (accounting for 32% of all comments), but that 91% of comments regarding tempo from an administered preference index claimed they either liked the fast songs because of the tempo or reversely, did not like the slow selections as a result of the

tempo. Montgomery (1996) also noted that tempo becomes a higher priority in preference decisions starting between second and third grade, potentially as a result of the influence of popular music in his or her daily lives.

Timbre, or the tone quality of the music, is an element that is studied in young grades, usually through exploration or learning about specific instruments of the orchestra. Young and Glover (1998) believe that children have exceptionally strong skills at delineating between subtle differences in timbre. Specific instruments and sometimes distortions of those instruments create sounds or prototypes that can signify certain genres (Hodges & Sebald, 2011). One not need more than two measures to hear a twang of a guitar and a fiddle and determine that the song is of the country genre, and the sound of the orchestra is often immediately recognizable as classical. These almost immediate judgments play a strong role in music preference, particularly judgments of genre.

Complexity, which is on Level 8 of LeBlanc's hierarchy, deals with the listener's ability to comprehend and appreciate the difficulty (or simplicity) of the melody, rhythm, and harmony of a piece of music (LeBlanc, 1982). Range, predictability, and intricateness factor into melodic complexity, while rhythmic complexity is determined by the expectedness and "systematic arrangement and design of arranged sounds and silences" (Cheston, 1996; Lipscomb, 1980). Harmonic complexity refers to how the listener interprets the consonances and dissonances between intervals and chords (Lipscomb, 1980). Ethnic culture is also a determinant in complexity, depending on what is considered standard or the norm for melody, rhythm, or harmony (Cheston, 1996). While there is no methodical way to evaluate complexity, listeners overall prefer music of moderate complexity. Music that is too predictable can become redundant and boring,

while music that is too complex can cause frustration, confusion, and sometimes also end in boredom from lack of understanding" (Cheston, 1996; LeBlanc, 1987; and Radocy & Boyle, 2003).

Tempo, timbre, complexity, along with the other variables that constitute LeBlanc's 8th Level come together to form a song's style and determines the performing medium. Style is considered an element of music "because a composer's adherence to a particular one restricts the music devices available at a given point" (LeBlanc, 1981). At an early age, children learn to classify music into specific genres, all which have its own signifiers with the various elements of music. LeBlanc's 1981 study also noted that genre was the strongest variable in determining preference. Music preference studies often have to limit the genres they test which can make understanding a greater picture of preferences more difficult, but generally with children, popular styles such as rock and pop music rank consistently the highest in studies, while classical/art music and jazz are generally disliked (LeBlanc et al., 1988; LeBlanc, Sims, Siivola, & Obert, 1996; May, 1985; LeBlanc, 1979; Ginocchio, 2008). Popular music styles also tend to become more preferred as age increases while preference in non-popular styles tend to decrease, particularly during upper elementary and middle school years (Ginocchio, 2008; Greer, Dorow, & Randall, 1974; Rogers, 1957).

Cultural Environment

Ultimately, it is up to each individual to make a decision regarding his or her preference towards a specific piece of music. However, these decisions are influenced by outside factors, particularly family, peers, education, and the media (Russell, 1998). The means to listening to music have tremendously evolved over the past century. Through

technological advances, humans are able to access a vast variety of music "spanning national, cultural, social, and historical divides" (Russell, 1998). Whereas before the advancement of music technology humans were limited to live performances in social settings, individuals today can choose to listen to recordings of his or her own choice during daily activities (DeVries, 2010). Technology is also rapidly evolving. Though older technologies such as CD's, radios, and television are still used today, accessing music has become not only easier but more individualistic. Internet sites such as YouTube and Pandora, iPods, and smart phones allow people to choose music based on his or her precise mood, and computer algorithm choose music for listening based on previous preferences (DeVries, 2010).

Though music technology supports independence in our musical choices, society still has common preferences known as popular music (Radocy & Boyle, 2003). In some ways, music media serves to reflect the demands and choices of the public. Advertising is tailored to its specific subcultures, and resources are given by demand. However, there is also the belief that music media also serves to "create and shape" tastes as well (Russell, 1998; LeBlanc, 1974). This is particularly seen with the recording industry and music that serves adolescents. Zillman and Gan (1998) recognize that while popular music is often created by adolescents, "the production and distribution of the resulting music recordings—the essential trade item of the music business—are controlled by an industry that answers the dictate of profit maximization." The Billboard 100 and Top 40 charts, for example, dictate airtime on FM radio stations, show up on the homepage of the iTunes store, and get played at the high school prom. Print media, which are widely

accessible online as well, also help determine the success or failure of a composer or musician (LeBlanc, 1987).

While mass media directly influences what music is deemed popular and is most readily available to us, humans still strive to establish personal identity through music. One's personal identity is a combination of background experiences, personality, values, and distinctive traits (Crozier, 1998). During adolescent development, there becomes a need to align one's personal identity with a peer affiliation. This is also seen with specific music choices as the opinions of peers and significant people in one's life influences individual choices in music (Radocy & Boyle, 2003; Zillman & Gan, 1998). Conformity and compliance with a peer group is the aligning of oneself with a "majority view," or allowing a group consensus to represent one's publicly held belief, though one's private opinion may vary. Crozier further discusses this distinction as "it is often easier from the point of view of sustaining the group and one's position in it to remain silent, to 'pay lip service', or to appear neutral concerning a majority view counter to one's own position, and to reserve one's true position for another occasion" (Crozier, 1998). In private and safe settings, students are more likely to be open and honest with his or her personal music choices, compared to public settings amongst peers. Despite the seemingly negativity of peer pressure in determining musical preference, it should be noted that adolescents do have the ability to meaningfully discuss music in terms of preference, judgment, and purpose within peer groups (DeVries, 2010).

Though peer influence gains more importance throughout adolescent development, one cannot dismiss the impact that the role of the teacher and family can play on one's preference. As parents are a child's first teacher, home culture determines

the initial musical experiences. Ethnic culture and the musical background of the parents are also a factor. Nonetheless, music is part of everybody's home life as technology is prevalent in home use, and parents who have a music background are likely to share those experiences with his or her own children (Devries, 2010).

The amount of music that children will listen to outside of the music classroom far outweighs the amount they will listen to and participate in the music class, but the music teacher can still use reinforcement strategies and approvals to positively affect a student's preference towards certain genres (Alpert, 1982; Droe, 2008; Dorow, 1977). Positive reinforcement can also lead students to have a "more enjoyable experience in class" (Droe, 2008). While Alpert recognizes that other factors often outweigh the influence of the teacher, approvals of music performance and listening positively influence preference more so than no approvals, while teacher's disapprovals often negatively affect a student's preference" (Droe, 2008; Dorow, 1977). One area of concern related to a teacher's influence is the often "cultural clash" between what the teacher deems worthy music versus what the students are interested in (Olsson, 1998).

Incidental conditioning, becoming familiar with a piece of music through repetition and knowledge, is also a factor in determining preference. Positive correlations between familiarity and preference have been found in multiple studies (LeBlanc, 1981; Siebenaler, 1999; Larson, 1971; Getz, 1966). As music infiltrates more of our daily lives, we are essentially conditioning ourselves to familiarize ourselves with certain genres of music, which can lead to a greater positive preference. Repetition can be simply listening to the same song in multiple settings without any extra explanation (Larson, 1971). One of the greatest examples of the influence of familiarity comes from LeBlanc's 1981 study

on music preference. Of the genres chosen for the study, LeBlanc chose a band repertoire genre as an experiment. While overall preference for the band genre ranked in the middle, one particular piece, "Barnum and Bailey's Favorite," scored unexpectedly high. Though belonging to a non-popular genre, this particular song he found was used in commercials and marching band shows. This increased airplay led the peer group tested to become more familiarized with the piece and led to a far greater preference for the song than the non-recognized band selection (LeBlanc, 1981). Teachers can use this information to help build music appreciation amongst his or her students. Students should be given the opportunity to listen to the same composition several times, and teachers can start with music students prefer and use this familiarity to bridge gaps to music they may initially dislike (Siebenaler, 1999; Getz, 1966).

Personal Characteristics of the Listener

"Characteristics of the Listener" is listed on the fourth level of LeBlanc's Interactive Theory. These features cannot be influenced or modified and include auditory sensitivity, musical ability, training, personality, gender, ethnic group, socio-economic status, maturation, and memory. While research has been conducted comparing each of these aspects to music preference, only age, learning style/personality, listening skills, and musical ability will be discussed in further detail.

Many studies on music preference also take age or grade into consideration. The age of the listener often determines maturity, the role of peer pressure, and amount of formal and informal musical experiences. Looking at the overall preference of grades kindergarten through 12, a gentle U-curve can be seen wither higher preference found at the youngest and oldest grades and the lowest preference found in middle school

(LeBlanc et al., 1996; LeBlanc, Colman, McCrary, Sherrill, & Malin, 1988). While a downwards trend in preference during early elementary grades can be seen in multiple studies, each study showed dramatic declines in different grades (Siebenaler, 1999; May, 1985). This could be a result of different study designs and focuses, since age/grade is not always the primary emphasis. Of particular notice is the result of Siebenaler's 1999 study of elementary student's song preference which found the biggest drop between grades 3 and 4, possibly indicating the elevated influence of peer pressure. Not only does overall genre preference evolve as children get older, but one of the most noticeable shifts in preference is the increasing fondness towards popular music as children get older (May, 1985). While this evolution is most likely caused by the cultural environment of the listener, it is seemingly almost a rite of passage for every adolescent. Along with an increase of preference towards popular music also comes a decrease of preference towards other genres, specifically classical music in adolescents. Russell (1998) speculates that preference for classical music typically develops later in adulthood because of prolonged exposure having acquired a taste for this genre.

Other characteristics of the listener such as personality and gender can also affect musical preference. While there is an apparent link between gender and music preference, Russell notes that this divide is not as apparent when gender roles appear more blurred than when social groups have distinct gender roles (Russell, 1998). Since our culture continues to blur gender roles with each new generation, it becomes more necessary to look at other aspects of one's personality. One determinant of personality is the spectrum between extraverts and introverts. Kemp (1998) notes that extraverts gravitate towards "solid weighty, vivid, vigorous, emotional, and sensational music" all adjectives that

could describe an extraverted person. Introverts, on the other hand, are generally drawn towards music that is more "intellectually restrained, mystical, deep, and introspective." While there are no solid connections between social groups and one's personality, Kemp recognizes separating social group meanings and personal preference in research can be a cumbersome task" (Kemp, 1998).

Learning modalities also affect how one judges music. Each person can identify with at least one and often two different learning modalities: visual, auditory, and kinesthetic. By having a particularly strong ability to learn in one of these areas, one may be labeled a visual, kinesthetic, or auditory learner. Those who demonstrate the capability to use two or all three modalities can be considered a "mixed modality" learner (Dunn, 2008). While music is traditionally an aural art, one can still move and physically explore music as well as represent music visually which can shape a person's final preference in music (Kemp, 1998). Teachers should be able to incorporate activities that utilize all three modalities. Young and Glover (1998) suggest a combination of an aural and visual approach to listening to music, incorporating drawings and representations to further understand musical ideas. Dunn's 2008 study of learning modalities and music perception noted that each presentation mode (visual, aural, and kinesthetic approaches) led to the children experiencing music in different ways. Students made the most direct comments on his or her music listening experience when it was presented in the aural, or auditory mode, while students were sometimes too caught up in the visual or kinesthetic presentations to make as many remarks about the experiences. However, while the quantity of remarks varied per learning modality, the types of comments had also

changed, showing that presenting music using a combination of all three learning modalities can positively shape a child's experience and preference in music.

Listening attention spans naturally increase with age and appear to have an impact on preference (Greer, Dorow, & Randall, 1974). However, attention spans and the ability to listen to music perceptively are also developed by training. One of the overarching goals of an elementary music education is to instill an understanding for music of various genres and expanding knowledge of those styles (Droe, 2006). Greata (2006) identifies an attentive music listener as one whom

> not only hears the music, but listens with an understanding of the music. He is able to hear, appreciate, and understand the elements of the music. Additionally, the perceptive listener understands how the elements combine to make the music unique.

Music class activities such as listening maps and journals, movement activities, etc. can develop stronger listening skills and help children actively think about and describe music.

A student can learn to enjoy or appreciate any genre of music if the teacher helps develop perceptive listening skills. Young and Glover (1998) suggest choosing a wide range of musical styles spanning various "historical, geographical, and cultural contexts." They also note that young children are more open to listening and responding to less popular styles and genres than adults, so this should be instilled at an early age with the understanding the preference will shift throughout adolescence. Hedden, in his 1981 research comparing listening skills to music preference, noted four strategies in developing perceptive listeners, several which support data provided above:

1. Providing repetition of music selections.
2. Start with using music examples that highlight "liked" elements, such as faster tempo and genres they recognize and create a bridge from the familiar to the new genre or concepts.
3. Use analytical listening in the classroom (though Hedden does acknowledge one study that refutes the effectiveness of this strategy).
4. Use adult approval and positively reinforcement strategies to modify listening preferences.

Formal music instruction, which is most often found in school music classes as well as private lessons, can greatly influence how an adolescent learns to listen to music and how much exposure a child receives in music of various genres.

Musical Ability and Aptitude

It is important to note that LeBlanc also classifies musical ability, or aptitude, as a factor for determining music preference. However, there are misinterpretations as to what ability is and is not. Ability is not synonymous with intelligence; intelligence specifically refers to knowledge received through instruction. Though it is often assumed that there would be a positive connection between general intelligence (or achievement) and preference and attitude, there is not is not enough realistic data to truly support that theory (Getz, 1966; Williams, 1972; Kuhlman, 1995).

Musical ability, then, is defined as the *capacity* to profit from musical instruction and enrichment. Though LeBlanc does not specifically mention musical aptitude in his Interactive Theory of Musical Preference, his definition of ability embodies the parameters of developmental aptitude and the two terms can be considered synonymous (Cheston, 1994). Just as there is a general assumption between intelligence and music aptitude, it is also often assumed that there is a positive correlation between music aptitude and preference. However, there has only been insufficient and sometimes inconsistent evidence and little of this research has been conducted with populations of

young children (May, 1985). Supporting evidence for LeBlanc's theory can be found with Faye and Middleton's 1941 study, Getz's 1966 study, May's 1985 study, and Hicken's 1991 and Cheston's 1994 dissertations.

Faye and Middleton's 1941 study is one of the first to examine the correlations between music aptitude and preference. Conducted during the early days of music aptitude research, Faye and Middleton use the term talent in exchange for preference because they utilized Seashore's Measures of Musical Talent to test for aptitude. Though Seashore's philosophy is somewhat different from what is considered the norm today, Faye and Middleton did find some interesting results. Participants who preferred Romantic classical music over old and modern classical music generally had slightly superior pitch and rhythm scores on the Seashore test. Those who preferred swing over classical music noticeably had lower scores in pitch, rhythm, and time. These results are in line with LeBlanc's theory of the positive correlation between aptitude and preference (Faye & Middleton, 1941; Cheston 1994)

Getz's 1966 study focuses on the correlation between music preference and repetition of listening. Using the Whistler-Thorpe Musical Aptitude test and 40 classical music selections of various tempos, moods, harmonies, etc., Getz discovered that repeated hearings of classical music (familiarity) led to higher preference scores. Along with this discovery, Getz acknowledged a small but statistically positive correlation between music aptitude and preference towards different European classical styles (Getz, 1966).

One of the biggest studies on music preference and aural skills in young children is May's 1983 research study, which also looked at multiple grades, gender, and race.

Because developmental aptitude is tested by aural skills, this study compared music preference to music aptitude. May found that while there was a small, positive two dimensional relationship between a child's preference and aural skills, this relationship only accounted for 26% of the variance and there were too many outside factors to give this correlation any practical significance (May, 1985; Cheston, 1994). May, however, did find some correlations between musical aptitude and preference to specific genres. Adolescents with high tonal audiation skills were more likely to prefer modern art music, country & western and non-western music, while students with high rhythmic audiation skills were more drawn towards gospel and disco genres. (May, 1985).

Two more recent dissertations indicate an interest in furthering research in this area. Hicken's 1991 dissertation focus on the relationships between listener characteristics and music preference. Using the Tonal Imagery and Rhythmic Imagery sub-tests of Gordon's Musical Aptitude Profile and the self-created Music Preference and Familiarity Survey, Hicken found a significant positive correlation between tonal aptitude and chamber literature, symphonic, and show-instrumental genres, while weak correlations were found between tonal aptitude and other genres such as jazz, opera, band, show-vocal, rock, and non-western genres. Also interesting was a weak but significant positive correlation between rhythmic aptitude and preference (Hicken, 1991). Cheston's 1994 dissertation which focused on high school students found that seniors with high rhythmic aptitude and composite scores gravitated towards more harmonically complex music than average and the same held true for juniors with the addition of high tonal aptitude scores. No significant correlations were found for freshmen and sophomores. (Cheston, 1994).

Not all research has supported LeBlanc's theory, however. William's 1972 study focuses on the relationship between aptitude, instruction, and social status on attitudes toward music. Though not specifically a preference study, Williams' attitude index was set up as a preference test with two selections each of five different genres (mostly geared towards classical music), and the musical sensitivity section and related subtests from Gordon's Musical Aptitude Profile was also used. Williams found no significant influence on the attitude held on any of the five genres, regardless of high or low aptitude scores (Williams, 1972). Crickmore's 1966 study also found that music intelligence as measured by Wing was independent of music appreciation and stated that "a lack of analytical or practical ability in music need not be judged as a serious obstacle to the development of a lively interest in listening to music.

Because of the complexity of both music preference and aptitude, more research is needed to study the correlations of both the cognitive and affective domains of music behavior (May, 1985). It can be difficult to isolate music ability from the other factors and subconscious decisions that LeBlanc outlines in his interactive theory. There are, however, successful studies that serve as a strong foundation for researching the correlation between music aptitude and preference, and this thesis serves to continue such an inquiry.

CHAPTER 3

METHOD AND MATERIALS

Scope of Study

The purpose of this study was to examine correlations between a third grader's music aptitude to his or her music preferences. Participants in this study took Edwin Gordon's Intermediate Measures of Music Audiation (IMMA) to determine music aptitude, and the research designed Children's Music Preference Index (CMPI) to assess the student's musical preferences to 10 different genres of music. This was a quasi-experimental observational study with a cross-sectional design. Two independent variables were the focus of this quantitative study: music aptitude and music preference.

Research Questions

While this study could consider all possible correlations, it will focus on answering three questions, specifically:

1. What are the general musical preferences of third grade students?
2. Do children with high music aptitude scores prefer a wider variety of music?
3. Do certain children prefer specific genres of music based on his or her music aptitude?

These last two questions examine the role music aptitude and audiation have on a student's musical preference.

Definition of Terms

Audiation - Also known as inner hearing or aural imagery, it is "the ability to hear and comprehend music for which the sound is not physically present" (Gordon, 1987, 1995).

CMPI - Children's Music Preference Index. A 20 question researcher-designed data collection tool that uses a "smiley" Likert scale to indicate a child's preference in 10 different genres of music.

IMMA - Intermediate Measures of Music Audiation. Tests both tonal and rhythmic aptitude for children in grades 1-6. The IMMA has the ability to both test developmental and stabilized aptitude.

Music Aptitude - One's ability or potential to learn music, not what has been previously learned (Gordon, 1987; Lehman, 1968).

Music Preference - The conscious and subconscious decision on whether or not a piece is like. It "involves choosing, esteeming, or giving advantage to one thing over another through a verbal statement or some other behavioral manifestation" (Radocy & Boyle, 1987; Abeles & Chung 1996).

Null Hypothesis

The following null hypotheses were established for this study:

H_0: Third graders will not have a significant preference difference between Traditional genres and Popular genres.

H_1: There will be no significant correlation between music aptitude and his or her music preference for 3rd graders.

H_2: Students with exceptionally high music aptitude as defined by Gordon will not have a difference in preference towards specific genres and overall

preference compared to those with average or exceptionally low music aptitude.

Setting

The study was conducted at two separate elementary schools in the same school corporation in Central Kentucky. The two schools are located in separate communities of the county and have different socio-economic backgrounds, though neither school is predominately Caucasian in race. Participants (N=60) from five classrooms were included in this study, and the students were tested as a full group with the music teacher present in almost all cases. All students have had some formal music instruction in the public school system before taking part in this research study.

Two tests were used for this study. The first is Gordon's Intermediate Measures of Music Audiation (IMMA) to test the student's musical aptitude, which is a standard and well-regarded measurement of developmental and stabilized aptitude in children (Gordon, 1987). However, for musical preference, because music and genres are ever-evolving, there is no widely accepted standard measurement tool, and researchers usually create a test unique and specific to the study. A researcher-designed data collection instrument, called the Children's Music Preference Index, was used to test music preference. Results from the CMPI were analyzed by averaging scores for each genre and counting overall genre likes, while results from the IMMA were calculated according to Gordon's manual and students were grouped according to the student's ability. Correlations between the different groups of IMMA scores and music preference were run with two-tail bivariate correlations using a Pearson's product-moment correlation coefficient.

IRB Approval

The protocol for this study was submitted to the IRB for review and was approved with expedited status. Both parents and participants signed assent forms. All identifying elements of participants in the study were coded to ensure confidentiality in responses. All data was stored in a password protected computer.

Participants

Five intact third grade classrooms at two different elementary schools participated in this study. Both elementary schools were located in the same school corporation in the county, but located in separate communities. Looking at overall demographics of each school, School A was predominately African-American with 76.6% African American, 13.8% Caucasian, and 9.6% other races. School B was more balanced with 30.9% African American, 43.9% Caucasian, and 25.2% other, including a higher population of Asian-American students than School A. School A was located in a high poverty area, which attributes to 88.8% of the student population receiving free or reduced lunch, while School B only had 48% of the student population receiving free or reduced lunch. On average, this 64% of the students in the school corporation were on free or reduced lunch programs.

Table 3.1: Demographics of Schools Involved

	School A	School B
School Rating	Needs Improvement	Needs Improvement
Focus School?	Yes	No
Caucasian	13.8%	43.9%
African-American	76.6%	30.9%
Other Races	9.6%	25.2%
% Free/Reduced Lunch	88.8%	48%

Both schools in this study had a music specialist and students received music instruction throughout their six years in elementary school. There was variability in how the music classes were organized and schedule. Students in School A received music instruction for five days in a row every four weeks. Students in School B received music instruction daily for six weeks in third grade. At the time of the study, each class in School A had received approximately five weeks' worth of formal music instruction throughout the academic year. In contrast, the first class of School B was tested during the middle of their six-week music sequence. The second class of School B previously had six weeks of music at the beginning of the year, but the rotation allowed them to have music for another six weeks at the end of the year. This second class was tested on the first week of the second music sequence.

All participants in this study were third graders. This age was chosen for two reasons. First, general music preference can vary grade by grade, usually with the youngest and oldest grades having the highest overall preference and middle school students having the lowest overall preference (LeBlanc, et al., 1996; LeBlanc et al. 1988).

However, the biggest general drop is found between 3rd and 4th grade (Siebenaler, 1999). This change is often attributed to peer pressure and cultural and media influences. Because of this change, the researcher felt that it was necessary to avoid these outside stimuli attributed to preference studies in 4th graders and older. Secondly, Gordon (1987) defines two types of music preference: developmental and stabilized. Stabilized music aptitude general appears at age 9, or approximately 3rd grade. Since most of the participants have arrived at stabilized aptitude, they are at an optimal position to take the IMMA, and can listen to the music in the CMPI at a greater depth.

Procedure and Timeline

During the fall of 2013, twelve schools throughout the particular large metropolitan school district in Central, Kentucky were contacted and invited to participate in this study. All schools had either a dedicated music program or arts and humanities class. Two schools responded that they would be interested in participating. Through communication with both music teachers, it was determined that it would be best to conduct the study during the final two weeks of January 2014, with a class at School A and School B being studied that first week, with two more classes at School A being studied the second and third week of that month. Another class from School B later decided to participate in March. In the beginning of January, teachers received parental consent forms to be distributed to parents, and the teachers were in charge of collecting them as students returned them.

The original intention was for each class of students to be visited three times in one week in their music classroom, with the student consent form signed and tonal portion of the IMMA taken on a Tuesday, the rhythmic battery of the IMMA on

Thursday, and the CMPI on Friday. Unfortunately, several external influences outside of the researcher's control affected the testing scheduling, and as a result, no two classes had the exact same test schedule. Adverse weather caused the condensing of the original testing schedule for the first class of School A. The IMMA-R cassette tape broke before a testing session as well. Because of the delay in obtaining a replacement CD and scheduling issues, two classes from School A finished testing in the library or art classroom two weeks later in the middle of February. The first class from School B completed the final test in the music room four weeks later in the end of February. These scheduling differences were an unforeseen variable in the data collection.

On the request of both music teachers, the IMMA and CMPI were given to the entire class on each testing day. Students who did not have a parental consent form were invited to fill out the sheets in order to keep them occupied but those student's scores did not count in the overall data and the data collection sheets were properly discarded and never examined. Students not wanting to do the test were asked to stay quiet during the testing period and drew on the back of the testing sheets. Most children who did not have a parental consent form did not want to feel left out and at least attempted to fill out the forms, particularly the CMPI. This helped with classroom management since the music teacher could keep focused on the majority of the students, help answer questions, and replace broken or dull pencils during the testing time. The testing was presented at the beginning of the lesson and the students knew to get a book or clipboard as well as a pencil. The researcher followed the script provided by Edwin Gordon in delivering the IMMA, and wrote a script to deliver for the CMPI. During the testing, the music teacher (or other specials teacher) helped with classroom management and was present the entire

time. Particularly for the CMPI, students were discouraged from making any extraneous sounds or movements in the classroom, so as not to distract his or her peers and cloud personal judgment. At the end of each testing session, students who behaved exceptionally well were invited to help collect the various data sheets, pencils, and books/clipboards.

Tests

Two tests were used for this study: The Intermediate Measures of Music Audiation (IMMA) and the researcher-developed data collection instrument Children's Music Preference Index (CMPI). The IMMA is developmentally age appropriate for students in grade one through six. Depending on the age of students, this test can be used for examining both developmental and stabilized music aptitude. Though it only tests rhythmic and tonal aptitude and is not as thorough or difficult as Gordon's Musical Aptitude Profile (MAP), the IMMA does provide an accurate basic view of a student's stabilized music aptitude (Radocy & Boyle, 1987; Gordon, 1987, 1995).

The second test, CMPI, was a researcher-designed confidential self-report index, looking at the preferences among ten different genres of music. Because music genres, styles, and preferences rapidly evolve over time, it was deemed appropriate to develop a researcher-designed test. The researcher looked at many preference studies before designing the CMPI. An explanation of the development of this test is described below.

Developing the CMPI

Like similar preference tests, it was determined that creating a confidential self-report index would be satisfactory for examining a child's preference (LeBlanc, 1981). Through discussions with a music history professor, ten genres were chosen for this

study. Genres were intentionally left broad, as personal definitions can vastly vary between people, especially with the evolution of sub-genres and blended genres (Ginnochio, 2008). The genres chosen were: *Classical, 20th Century Art Music, Mainstream Pop, Rock, Country, Traditional Folk, Jazz, Dance/Techno, R&B*, and *Non-Western*. Many preference studies combine popular styles such as *Mainstream Pop, Rock*, and *Country* into the same genre, but for this study, it felt necessary to separate them into ten unique genres (Ginnochio, 2008). This was similar to the work of LeBlanc (1979), who preference data collection tool was different because the selections used traditional, contemporary, and experimental genres such as ambient sound and avant-garde.

From this list of genres, the researcher listened to music representative of those genres. For more contemporary styles, such as *Mainstream Pop, Rock, Dance/Techno, R&B*, and *Country*, the researcher looked at top 100 lists from Billboard.com and as LeBlanc (1981) did for his studies, "examples were chosen according to the way style projected aurally as opposed to relying on the most typical stylistic associations of performers." For traditional genres such as *Classical, 20th Century, Traditional Folk, Jazz*, and *Non-Western*, the researcher relied on music chosen from previous studies and the advice from music professors who are knowledgeable about those particular genres.

It was a difficult task to choose preliminary songs for the CMPI. Songs for the contemporary styles were chosen on several criteria. First, songs had to be performed by artists that were representative of the genre, having had singles break into the top charts of the specific genre or have had significant radio time. Secondly, the specific songs chosen for this study must not have been released as a single or played on a Top 40 or country radio station to avoid incidental bias which could artificially boost preference in

some students, creating a halo effect (LeBlanc, 1981; Siebenaler, 1999; Larson, 1971; Getz, 1966). It was also preferred that songs chosen were of moderate to fast tempo since students are typically more responsive to new genres of music if first presented through fast or moderate music (Montgomery, 1996; LeBlanc et al., 1998; LeBlanc, 1981). That being said, that vast majority, but not all songs chosen for this study were of fast or moderate tempo. The four *R&B* song choices were generally slower than other selections. Lastly, songs had to have appropriate lyrics. Though students only listened to short segments, to prevent any possibility of stumbling across music at a later time, an earnest effort to choose topically appropriate music was made. This was the most difficult with the *R&B* genre.

Four selections per genre were initially chosen (see Table 2) with the intention of narrowing them down to two songs per genre. It was important to have more than one selection per genre represented in this study as to prevent preference being determined by the musical qualities found in one particular selection rather than the general attributes of the genre (LeBlanc, 1979). However, because of time constraints and the attention span of the participants, it was decided by the researcher that more than two selections per genre might produce too long of a test. The selections were edited into clips ranging from 30 and 40 seconds (average 34.35 seconds), similar to previous preference studies (LeBlanc, 1981; Ginocchio, 2008; May, 1985). Two music graduate students, two musicologists, and two music librarians were asked to listen to all 40 selections. Within each genre, they were asked to rank each song in terms of appropriateness of content and lyrics and the representativeness of the genre, with 4 being the highest and 1 being the

lowest. Participants were also invited to provide comments and advice if they felt it was necessary.

Table 3.2: Original CMPI Song Choices

Classical Richard Wagner: "Arrival of the Guests"* Antonin Dvorak: Slavonic Dance No. 5 Op. 46 G.F. Handel: Suite in D Major "Water Music" W.A. Mozart: Symphony 41 4th mvt.	**Folk** Judy Collins/Pete Seeger: "Turn, Turn, Turn" Woody Guthrie: "Hard Travelin'" Peter, Paul, and Mary: "Stewball" Peter, Paul, and Mary: "If I Had a Hammer"
20th Century Art Music Joan Tower: *Silver Ladders* John Adams: *A Short Ride in a Fast Machine* Sofia Gubaidulina: *Stimmen…Verstummen* John Corigliano: *Tournaments*	**Traditional Jazz** Charlie Parker: "Koko" Dizzy Gillespie: "Night in Tunisia"* Duke Ellington: "Take the "A" Train"* Benny Goodman: "Jersey Bounce"
Mainstream Pop Sixpence None the Richer: "A Million Parachutes" Kelly Clarkson: "Don't Let Me Stop You" Maroon 5: "Nothing Lasts Forever" Phillip Phillips: "Tell Me a Story"	**Dance/Techno** Gat Décor: "Passion (Original Mix)" Floorplan: "Never Get Old" Moby: "After" Boys Noize: "& Down"
Classic Rock AC/DC: "Stormy May Day" Journey: "City of Hope" Alabama Shakes: "I Ain't the Same" Weezer: "Turning Up the Radio"	**R&B** Aaliyah: "Let Me Know (At Your Best)" Ciara: "I'm Sorry" Anthony Hamilton: "Pass Me Over" Usher: "Stranger"
Country Brooks and Dunn: "White Line Casanova" The Band Perry: "Quittin' You" Trace Adkins: "Once Upon a Fool Ago" Reba McEntire: "I Want a Cowboy"	**Non-Western** Ravi Shankar: "Tabla Tarang" Pinpeat Orchestra: "Sathouka" (Gamelan) Los Indios: "El Condor" (Peruvian Panpipes) Traditional S. African: "Tshwane"

* Used in a study cited in Review of Literature

The comments provided valuable feedback, and helped to strengthen the content of the CMPI. In one case, it was pointed out that the highest rated *Mainstream Pop* selection had in fact been released as a single and was overlooked by the researcher. It was difficult to find an alternative song by the same artist that met the same qualifications, so an alternative song by a similar artist was chosen. Another listener also

mentioned concern over the appropriateness of the lyrics in all of the *R&B* selections. After reexamining the two highest ranked songs, it was decided that one of them should be replaced and an alternative song by a different artist was found. In *Mainstream Pop* and *Country*, both of the highest ranked artists were of the same gender. The researcher felt for these genres that it was important to include both genders to best represent the genre, so the next closest artist of the opposite gender was chosen. In both cases, the score of the 3rd choice artist was only one point behind the 2nd choice artist so the researcher felt that this would be acceptable.

Table 3.3: Final CMPI Song Choices

Classical W.A. Mozart: Symphony No. 41 4th mvt. Richard Wagner: "Arrival of the Guests"	**Folk** Woodie Guthrie: "Hard Travelin'" Peter, Paul, and Mary: "Stewball"
20th Century Art Music Sofia Gubaidulina: *Stimmen…Verstummen* John Adams: *Short Ride in a Fast Machine*	**Jazz** Duke Ellington: "Take the "A" Train" Bennie Goodman: "Jersey Bounce"
Mainstream Pop Sixpence None the Richer: "A Million Parachutes" Train: "All I Hear"	**Dance/Techno** Gat Décor: "Passion (Original Mix)" Floorplan: "Never Get Old"
Classic Rock AC/DC: "Stormy May Day" Journey: "City of Hope"	**R&B** Toni Braxton: "Hero" Anthony Hamilton: "Pass Me Over"
Country Brooks and Dunn: "White Line Casanova" Reba McEntire: "I Want a Cowboy"	**Non Western** Ravi Shankar: "Tabla Tarang" Traditional S. African: "Tshwane"

Once the forty songs were narrowed down to twenty, a data collection tool was created. It was determined that using a confidential self-reported index is an appropriate way of determining preference (LeBlanc, 1981). Using the theme of faces from the IMMA, a "smiley" Likert scale was used for participants to rate preference. LeBlanc, Sims, Siivola, and Obert (1996) found that while both a pictorial and verbal scale produced similar answers, the pictorial scale using faces was not only found to be more

reliable, but was largely preferred by participants. Previous preference studies using Likert scales used between three and seven categories, though the one study using seven categories was the only study looked at that was not pictorial (LeBlanc, 1981; Brown, 1978; May, 1985; Montgomery, 1996; LeBlanc et al., 1996). For this thesis, five categories were chosen with simple cartoon faces representing varying degrees of preference. Verbal classifications were added on top of the chart for further guidance ranging from "absolutely dislike!" to "absolutely love!" Unlike the IMMA, each question is labeled with a corresponding number, rather than a picture. These were later coded 1-5 for computational purposes, with 1 corresponding to "Absolutely Dislike!" and 5 corresponding to "Absolutely Love!" This is similar to the rating scale provided by Alpert (1982), with the exception of the addition of the exclamation points. On the backside of the CMPI sheet is a background information page, where students can write his or her name and school. It also asks questions about the student's background with music, such as if they play a music instrument, or if the family makes music together in the home.

Presentation of Song Order

Using the twenty excerpts, three CD's were created for administrating the test. While the excerpts chosen were present on all three CD's in a specified order, each one began on a different track. Because of test scheduling, School A Class 1 and 3 listened to the first CD. School A Class 2 and School B Class 1 listened to the second CD. School B Class 2 listened to the third CD. The presentation order and number of students who listened to each CD can be found in table 3.4.

Table 3.4: CD Song Orders

CD 1	CD 2	CD 3
School A Class 1 & 3 (N=22)	**School A Class 2, School B Class 1 (N=27)**	**School B Class 2 (N=19)**
Mozart	Gat Décor	John Adams
Sixpence None the Richer	Toni Braxton	Reba McEntire
AC/DC	Ravi Shankar	Peter, Paul, and Mary
Gubaidulina	Wagner	Bennie Goodman
Brooks and Dunn	Train	Floorplan
Woodie Guthrie	Journey	Anthony Hamilton
Duke Ellington	John Adams	Tshwane
Gat Décor	Reba McEntire	Mozart
Toni Braxton	Peter, Paul, and Mary	Sixpence None the Richer
Ravi Shankar	Bennie Goodman	AC/DC
Wagner	Floorplan	Gubaidulina
Train	Anthony Hamilton	Brooks and Dunn
Journey	Tshwane	Woodie Guthrie
John Adams	Mozart	Duke Ellington
Reba McEntire	Sixpence None the Richer	Gat Décor
Peter, Paul, and Mary	AC/DC	Toni Braxton
Bennie Goodman	Gubaidulina	Ravi Shankar
Floorplan	Brooks and Dunn	Wagner
Anthony Hamilton	Woodie Guthrie	Train
Tshwane	Duke Ellington	Journey

Analysis

Once all the data was collected, the researcher organized the data on excel and SPSS. From there, averages of the two songs were created to determine an overall preference for that particular genre. A score of 3.5 or higher was needed in order for a genre to be considered liked by a participant. The number of genres liked by each participant was tallied into three categories: *Traditional Music Likes, Contemporary Music Likes, and Total Music Likes*.

Once the IMMA scores were tabulated, percentiles were generated according to Gordon's IMMA manual. In tonal aptitude, rhythmic aptitude, and composite (total) aptitude, students were grouped into three categories according to Gordon's manual: Top 20th Percentile, Middle 60% Percentile, and Bottom 20th Percentile. Gordon indicated that

students scoring in the top 20th percentile in his or her grade level were considered to have exceptionally high musical aptitude in that respective area, while students scoring in the bottom 20th percentile of his or her grade level were considered to have low musical aptitude in that respective area. Because the bell curve of scores for the participants in this study did not match the overall bell curve in Gordon's percentile (the overall average for the IMMA was noticeably lower), and because there were fewer participants in the 20th percentile than the other two, the researcher also looked at the overall correlation between students aptitude and preference without dividing students into groups by his or her IMMA scores. With these sub-groupings, averages of *Traditional Music Likes, Contemporary Music Likes, and Total Music Likes* were calculated and compared for analysis. Correlations between the different groups of IMMA scores and music preference were tabulated with two-tail bivariate correlations using a Pearson's product-moment correlation coefficient.

Other correlations were computed, including the impact of playing instruments (particularly piano) and an actively musical family on musical preference. A comparison of musical preference and music aptitude between the two schools were made as well.

CHAPTER 4

RESULTS

Students from five classes in two different elementary schools in the same district took part in the study, resulting in a total of 60 participants. Each participant completed the Intermediate Measures of Music Audiation-Tonal (IMMA-T), Intermediate Measures of Music Audiation-Rhythm (IMMA-R), and the Children's Music Preference Index (CMPI), though three students were absent the day the IMMA-R was administered, leaving 57 students who completed the entire study. Scores on the IMMA were recorded on the provided data collection sheet, graded, and then participants were placed in one of three groups for tonal, rhythm, and composite music aptitude: Top 20th Percentile (high), Middle 60% Percentile (average), and Bottom 20% Percentile (low), in accordance to Gordon's percentile norms (Gordon 1986).

CMPI scores were translated from the smiley-face Likert scale to a numerical Likert scale, with 1= "Absolutely hate!" and 5= "Absolutely love!" The scores of the songs were averaged out by genre and a genre average was calculated. Mean scores could range from 1 to 5. It was determined that an average of 3.5 or higher would be interpreted as "liked" by the participants. The number of genres liked by a participant was grouped together by *Traditional Music Likes* (comprised of *Classical, 20th Century, Jazz, Folk, and Non-Western*), *Contemporary Music Likes* (comprised of *Pop, Rock, Country, R&B, and Techno*), and *Total Music Likes*.

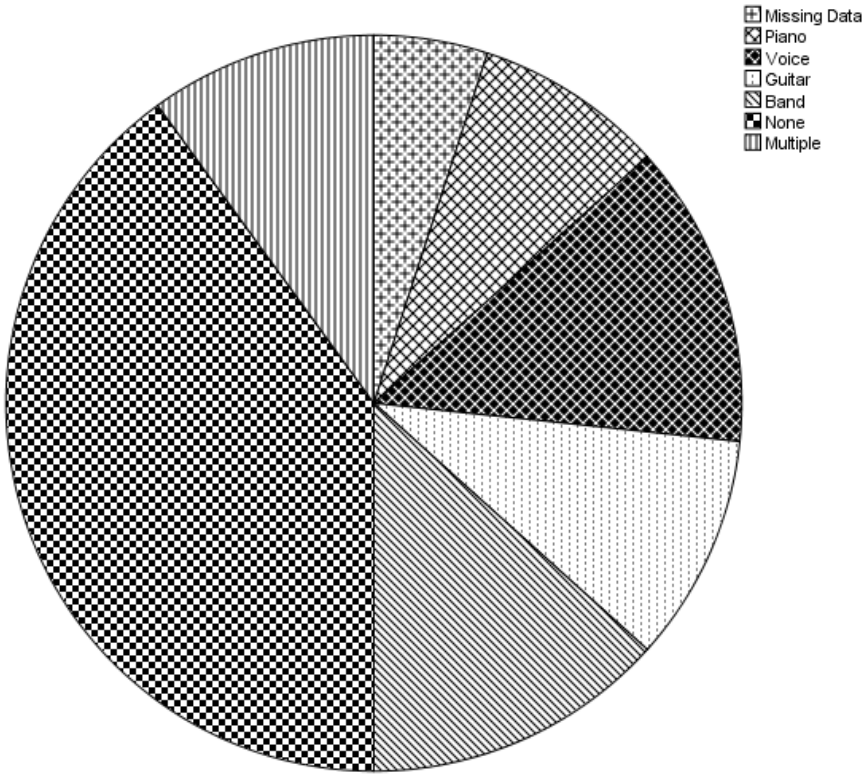
Together, the number of likes was analyzed for each of the three percentile groups and the two average score groups. Correlations between the different groups of IMMA scores and music preference were tabulated with two-tail bivariate correlations using a Pearson's product-moment correlation coefficient.

Demographics

The participants (*N*=60) were students located at two schools located in the same school corporation but in different communities in Central, Kentucky. While the general racial makeup and socio-economic status of the two schools were discussed earlier in Chapter 3, these were not considered as variables for this particular study. Though three classes were tested in School A, only two classes were tested in School B. However, the number of participants with returned parental consent forms were nearly even, with 31 participants from School A and 29 participants in School B. Between the two schools, there were 26 males and 34 females, and the average age was 8.47 years.

A number of children played a musical instrument and/or were a part of actively music-making families. Twenty-six participants (43%) responded that his or her family actively played music together as a family in some capacity, while 31 participants (52%) did not. Three participants (5%) did not respond. It was not asked how long or in what capacity the students played the respective instrument(s), and as a result, a couple of the responses were surprising, such as one third-grader who responded that he played the tuba. Slightly over half of the participants, 55%, responded that they played at least one instrument, including piano, guitar, percussion, various band instruments (piccolo and tuba), and voice. These findings are outlined in Figure 4.1.

Figure 4.1: Subject Participation in Musical Activities



Music Aptitude

All students took the IMMA. Between the two schools, there was a considerable difference in results. Out of a perfect score of 40, School A's IMMA-T average was 31.84 (*SD* = 4.974) while School B's IMMA-T average was 34.79 *(SD* = 2.769). School A's average was lower and standard deviation was higher because of three students whose scores did not meet the minimum of the percentile norms as defined by Gordon. These outliers affected the standard deviation of scores on the IMMA. For the rhythm portion of the IMMA, the scores were considerably lower. Out of a perfect score of 40, School A's IMMA-R average was 28.28 (*SD* = 5.182) while School B's IMMA-R average was 31.79 (*SD* = 3.086). Though Gordon does take into account that scores are generally slightly lower, there were four students from School A who were in the

negative percentile, while there were none from School B. Out of a perfect score of 80, School A's IMMA-C average was 59.55 (*SD* = 9.018), while School B's IMMA-C average was 66.50 (*SD* = 4.55). Individual scores between the IMMA-T and IMMA-R were more consistent for students in School B. Overall, the students from School B as a whole performed within the mean score reported by Gordon, while students from School A as a whole performed below that mean score. These data are outlined in Table 4.1 and 4.2.

Table 4.1: Mean Scores of Participants on the IMMA, School A

	School A Overall Average *(SD)*	**School A Class 1 10 Students *(SD)***	**School A Class 2 13 Students *(SD)***	**School A Class 3 7 Students *(SD)***
Tonal	31.84 *(4.974)*	31.18 *(5.231)*	31.46 *(5.651)*	33.57 *(3.101)*
Rhythm	28.28 *(5.182)*	28.70 *(3.743)*	27.83 *(5.67)*	28.43 *(6.68)*
Composite	59.55 *(9.018)*	58.40 *(7.706)*	59.08 *(10.783)*	62.00 *(8.226*

Table 4.2: Mean Scores of Participants on the IMMA, School B

	School B Overall Average *(SD)*	**School B Class 1 11 Students *(SD)***	**School B Class 2 18 Students *(SD)***
Tonal	34.79 *(2.769)*	36.00 *(1.732)*	34.06 *(3.058)*
Rhythm	31.79 *(3.086)*	31.10 *(3.479)*	32.17 *(2.875)*
Composite	66.50 *(4.55)*	67.00 *(4.57)*	66.22 *(4.647)*

Figure 4.2: Distribution of IMMA-T Scores by School

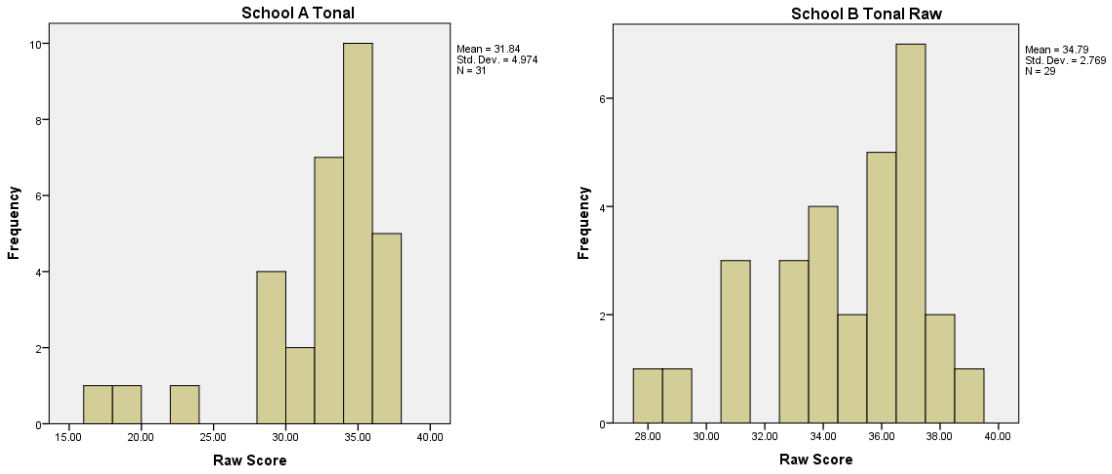


Figure 4.3: Distribution of IMMA-R Scores by School

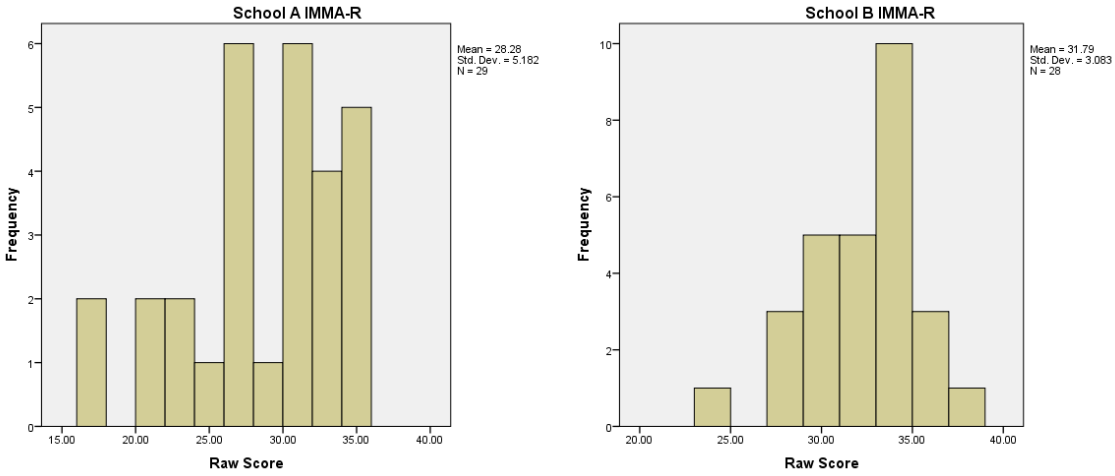
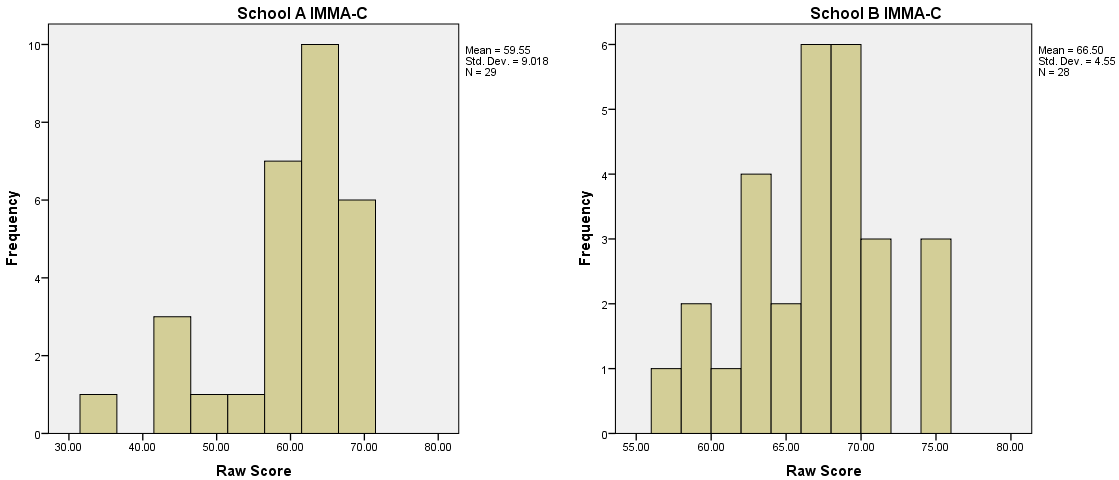


Figure 4.4: Distribution of IMMA-C Scores by School



Combined, the mean scores of the IMMA-T score was 33.27 (*SD* = 4.294), which is considered well below average for third grade, approximately in the 38th percentile. The mean IMMA-R score was 30 (*SD* = 4.598), again below average for third grade, in the 30th percentile. The mean IMMA-C score was 62.96 (*SD* = 7.933), placing the average test taker in approximately the 20th percentile for third grade. These are summarized in Figures 4.5 through 4.7. Because the distribution of scores is considerably lower than the percentile norms indicated by Gordon, the number of participants in the 80th percentile or above (meaning exceptionally high aptitude) in tonal, rhythm, and especially the composite areas were less than anticipated.

Figure 4.5: Overall Distribution of IMMA-T Scores

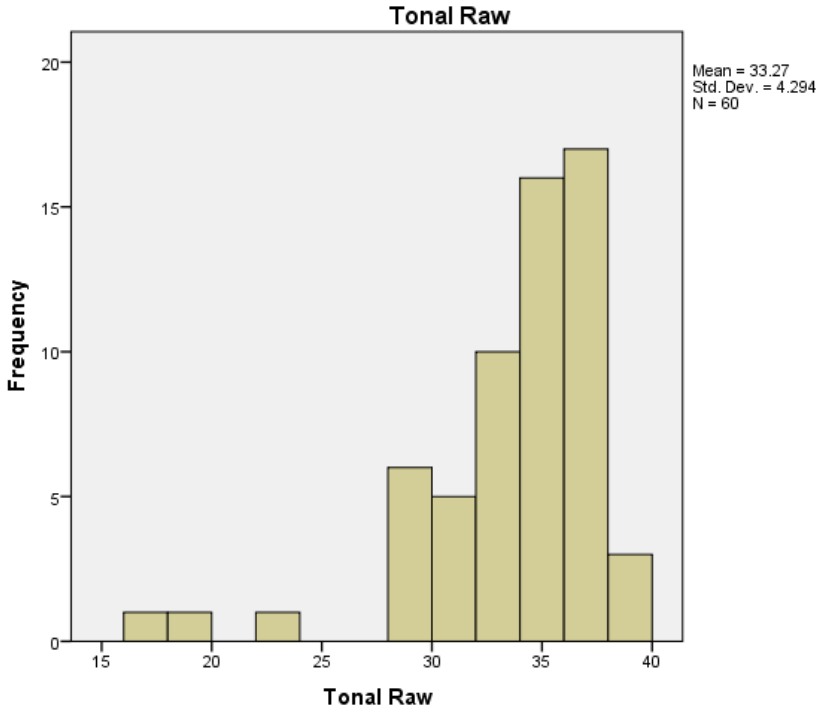


Figure 4.6: Overall Distribution of IMMA-R Scores

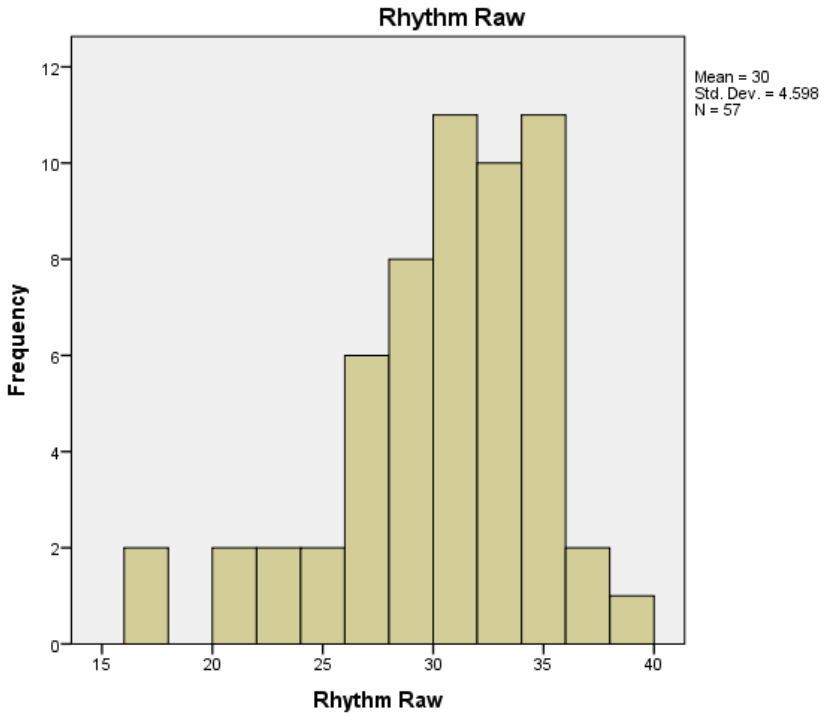
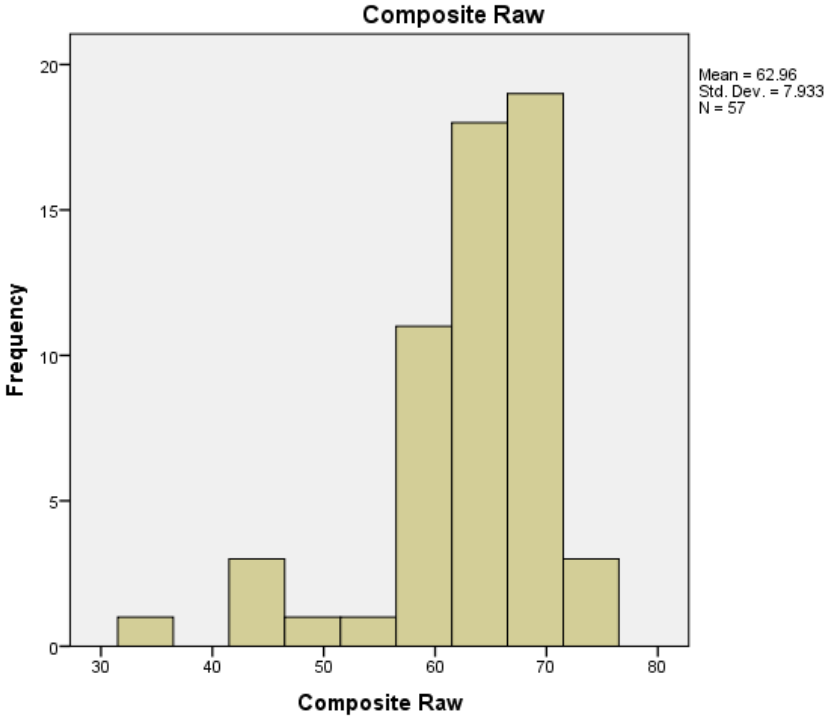


Figure 4.7: Overall Distribution of IMMA-C Scores



Music Preference

The distribution of scores varied widely by genre. *Classical* music (*M* = 3.017) had the most evenly distributed scores. The mode of scores on this genre was a 3, but there was no overall general consensus as the distribution was wide, as suggested by the standard deviation. 20th but the mode was a 2. *Pop* music (*M* = 3.833) tended to be evenly distributed among the participants. While it received an overall positive rating, participants either loved or disliked the selections, with little room for middle ground resulting in a bimodal distribution. *Classic Rock* (*M* = 3.412) preferences were not consistent, with the most common scores being a 5 and a 3. *Country* (*M* = 3.833) was heavily favored among participants. While it received the exact same rating as *Pop*, the scores were heavily skewed towards the right, with the mode a 5. *Folk* music (*M* = 2.567) was the least liked genre, and though the most common average was a 3, the scores are skewed to the left. *Jazz* (*M* = 3.808) was also very well-liked by the participants. The scores were heavily skewed to the right with the most common ratings received were 4.5, 4, and 3.5 respectively. *Techno/Dance* music (*M* = 4.392) was the most liked genre by both classes. It received a rating of 5 by 30 participants, by far the most of any other genre. *R&B* (*M* = 4.183) was the second most favored genre by the participants. While not quite as strong as *Techno/Dance*, the scores were again heavily skewed to the right. *Non-Western* (*M* = 2.942) was the 2nd least liked genre by the participants. Scores were inconsistently dispersed with the two most common ratings tied at 2 and 3. These data are outlined in Figures 4.8 through 4.17.

Figure 4.8: Distribution of Classical Scores

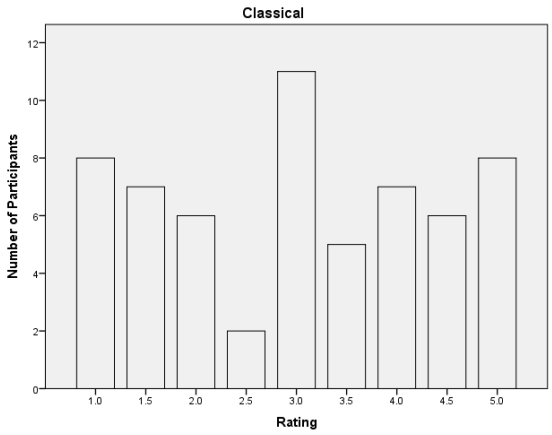


Figure 4.9: Distribution of 20th Century Scores

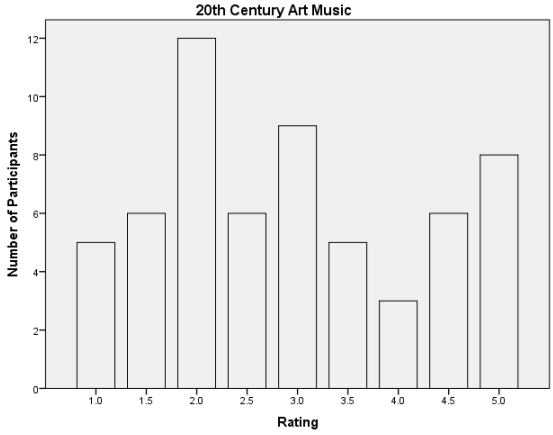


Figure 4.10: Distribution of Pop Scores

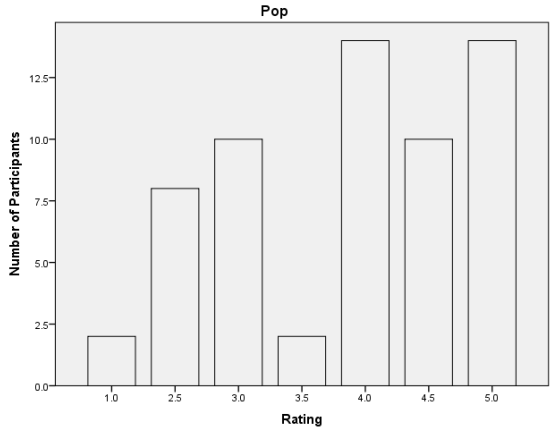


Figure 4.11: Distribution of Rock Scores

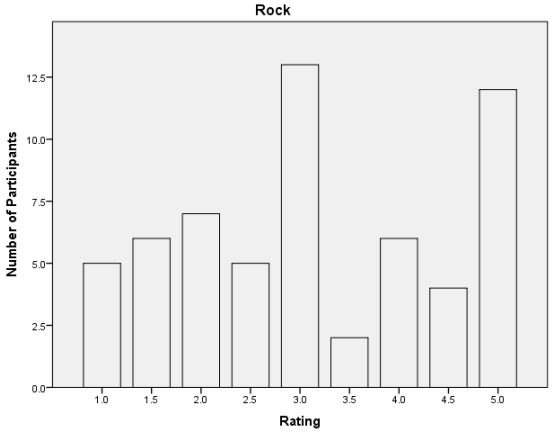


Figure 4.12: Distribution of Country Scores

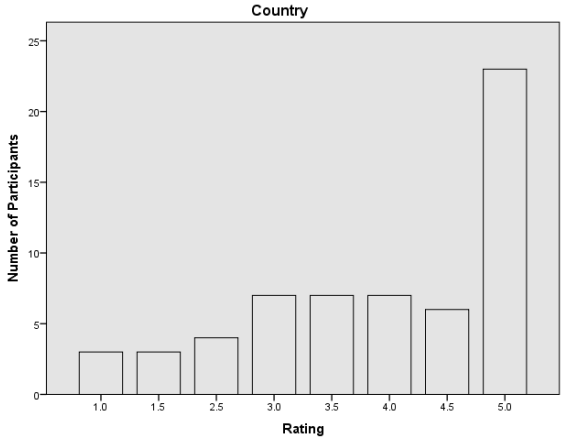


Figure 4.13: Distribution of Folk Scores

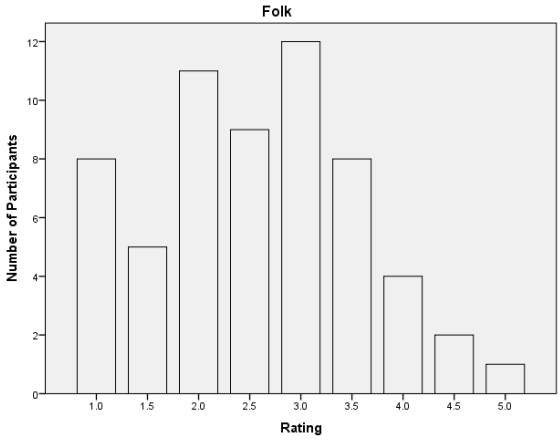


Figure 4.14: Distribution of Jazz Scores

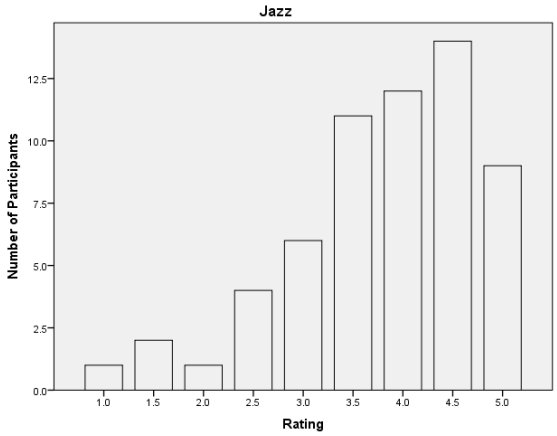


Figure 4.15: Distribution of Techno Scores

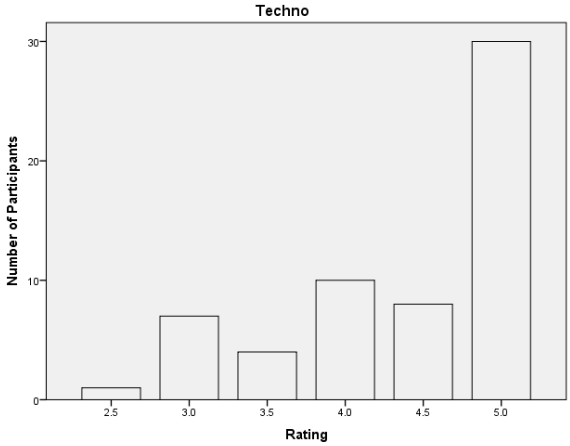


Figure 4.16: Distribution of R&B Scores

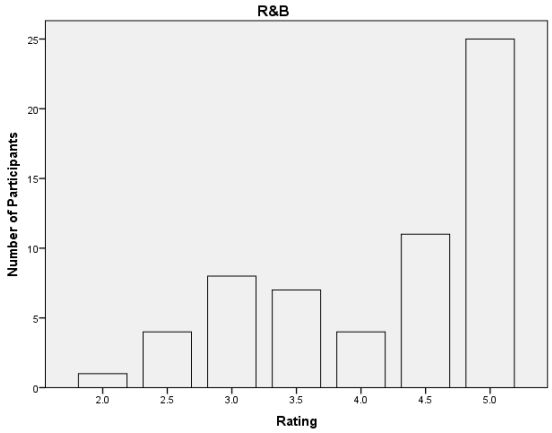
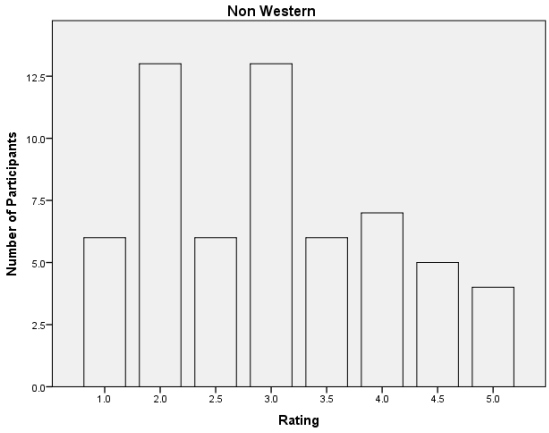


Figure 4.17: Distribution of Non-Western Scores



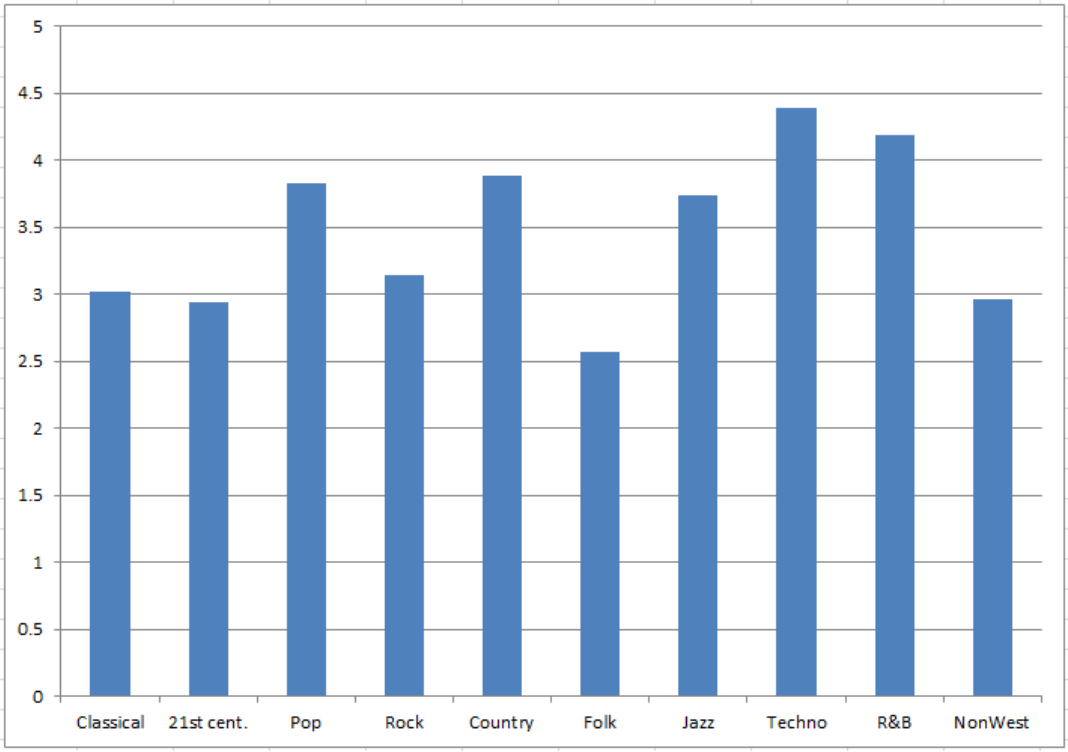
There were a few noticeable variations between the two schools regarding preference. *Dance/Techno* and *R&B* music were the top two selections by both schools. However, School A had a much higher preference for *Pop* music than School B, a difference of .8 on a 5 point scale. School A ranked *Pop* music as 3rd, while School B ranked *Pop* music as 5th. *Classical* music was also ranked very differently between the two schools, at No. 6 (M = 3.433) for School A, and No. 9 (M = 2.586) for School B, a difference of .857 on a 5 point scale. Preference to *Non-Western* music was interesting. While the scores were nearly identical between the two schools, the genre was ranked

considerably higher in School B (6th) over School A ranked (9th). Another interesting note was *Classic Rock*, which scored lower than anticipated. While ranked 7th in both schools, the scores were noticeable different, with an average of 3.417 at School A and 2.793 for School B, a difference of .624 on a 5 point scale. It is also noted that on average, participants at School A rated music higher in general than School B. School A averaged a 3.6 per genre, while School B averaged a 3.34. Distributions of preference scores are outlined in Figure 4.18. Table 4.3 summarizes these data.

Table 4.3: Ranking of Genres by School and Overall

	School A 31 Students		**School B 29 Students**		**Total**	
	Genre	**Mean *(SD)***	**Genre *(SD)***	**Mean *(SD)***	**Genre *(SD)***	**Mean *(SD)***
1.	Dance/Techno	4.37 *(.730)*	Dance/Techno	4.46 *(.743)*	Dance/Techno	4.39 *(.748)*
2.	R&B	4.23 *(.907)*	R&B	4.19 *(.880)*	R&B	4.18 *(.907)*
3.	Pop	4.25 *(.751)*	Jazz	4.00 *(.791)*	Pop (tie)	3.83 *(1.020)*
4.	Country	4.08 *(1.107)*	Country	3.71 *(1.320)*	Country (tie)	3.83 *(1.216)*
5.	Jazz	3.65 *(1.076)*	Pop	3.45 *(1.097)*	Jazz	3.81 *(1.031)*
6.	Classical	3.43 *(1.375)*	Non Western	3.00 *(1.225)*	Rock	3.14 *(1.328)*
7.	Classic Rock	3.42 *(1.204)*	Classic Rock	2.79 *(1.373)*	Classical	3.02 *(1.353)*
8.	20th Century	3.08 *(1.197)*	20th Century	2.72 *(1.320)*	Non Western	2.96 *(1.121)*
9.	Non Western	2.95 *(1.037)*	Classical	2.59 *(1.233)*	20th Century	2.94 *(1.279)*
10.	Folk	2.53 *(1.05)*	Folk	2.57 *(.992)*	Folk	2.57 *(1.006)*

Figure 4.18: Overall Mean Preferences for Genres



Comparing Aptitude to Preference

Gordon identifies three aptitude labels for all three categories, high, average, and low. While Gordon does ideally recommend that "percentile ranks be interpreted in terms of local terms," the norms provided in Part five of the manual are perfectly acceptable to use if local terms are not available (Gordon, 1986). The IMMA-T scores were divided into three group, high aptitude (top 20th percentile), average aptitude (middle 60th percentile), and low aptitude (bottom 20th percentile) using the percentile norms provided by Gordon. From there, the numbers of genres liked and genre preferences were calculated for each group. The same condition was applied to the IMMA-R and the IMMA-C. These are outlined in Table 4.4 below.

Table 4.4: IMMA-T Percentiles to Preference

	Top 20th Percentile 12 Students *(SD)*	Middle 60th Percentile 36 Students *(SD)*	Bottom 20th Percentile 14 Students *(SD)*	Overall Preference *(SD)*
Overall Likes	6.25 *(1.658)*	5.22 *(2.153)*	6.14 *(1.875)*	5.63 *(2.017)*
Traditional Likes	2.33 *(1.231)*	2.08 *(1.36)*	2.29 *(1.49)*	2.17 *(1.342)*
Popular Likes	3.92 *(.793)*	3.14 *(1.417)*	3.86 *(.864)*	3.47 *(1.255)*
Classical	2.83 *(1.557)*	3.01 *(1.317)*	3.00 *(1.373)*	3.02 *(1.353)*
Twentieth Century	2.46 *(1.305)*	3.06 *(1.241)*	3.04 *(1.293)*	2.94 *(1.279)*
Folk	2.63 *(.908)*	2.57 *(1.008)*	2.68 *(1.17)*	2.57 *(1.006)*
Non Western	2.88 *(1.208)*	2.93 *(1.077)*	3.14 *(1.247)*	2.96 *(1.121)*
Jazz	4.42 *(.469)*	3.53 *(1.042)*	3.54 *(1.232)*	3.81 *(1.031)*
Pop	3.96 *(.722)*	3.60 *(1.126)*	4.18 *(1.103)*	3.83 *(1.020)*
Rock	3.00 *(1.523)*	2.97 *(1.281)*	3.71 *(1.122)*	3.14 *(1.328)*
Country	4.46 *(.753)*	3.67 *(1.254)*	3.89 *(1.274)*	3.83 *(1.216)*
Dance/Techno	4.54 *(.620)*	4.29 *(.831)*	4.54 *(.571)*	4.39 *(.748)*
R&B	4.38 *(.608)*	4.15 *(.984)*	4.07 *(.958)*	4.18 *(.907)*

Because the distribution of scores for the IMMA-T creates a normal bell curve, there are an uneven number of participants in each category which makes it difficult to determine correlations between aptitude and preference. Keeping this in mind, it is still possible to make some inferences regarding differences between the two. A one-way analysis of variance (ANOVA) procedure was performed to compare the IMMA to each of the genres as well as number of likes, and only one genre, *Jazz*, showed a significant variation between the three groups. While receiving a favorable rating from all three

groups, Jazz was more well-liked by the Top 20th Percentile group. Furthermore, it was found that the Top 20th Percentile (N = *7)* and the Bottom 20th Percentile (N = 21) had a slight increase in Overall Likes as well as preferences for both the traditional and popular music. However, this may also be attributed to the smaller number of participants in the Top 20th and Bottom 20th Percentile groups, since individuals within a smaller sample size have a greater influence over the mean and standard deviation. Preference averages for *Pop* and *Rock* genres were unimodal and skewed towards the Bottom 20th Percentile, showing a slight negative relationship between music aptitude and preference towards those genres. These results are outlined below in Table 4.5.

Table 4.5: IMMA-R Percentiles to Preference

	Top 20th Percentile 7 Students *(SD)*	**Middle 60th Percentile 29 Students *(SD)***	**Bottom 20th Percentile 21 Students *(SD)***	**Overall Preference *(SD)***
Overall Likes	5.83 *(2.483)*	5.24 *(1.806)*	5.73 *(2.208)*	5.63 *(2.017)*
Traditional Likes	2.67 *(1.506)*	2.00 *(1.195)*	2.00 *(1.447)*	2.17 *(1.342)*
Popular Likes	3.17 *(1.329)*	3.24 *(1.272)*	3.73 *(1.386)*	3.47 *(1.255)*
Classical	2.67 *(1.252)*	2.95 *(1.416)*	2.98 *(1.443)*	3.02 *(1.353)*
Twentieth Century	3.00 *(1.612)*	2.83 *(1.466)*	3.18 *(1.03)*	2.94 *(1.279)*
Folk	2.58 *(1.656)*	2.50 *(1.044)*	2.50 *(.900)*	2.57 *(1.006)*
Non Western	2.83 *(1.125)*	2.71 *(1.04)*	2.93 *(1.188)*	2.96 *(1.121)*
Jazz	4.17 *(.408)*	3.55 *(1.137)*	3.86 *(.978)*	3.81 *(1.031)*
Pop	3.25 *(.612)*	3.72 *(1.049)*	3.93 *(1.015)*	3.83 *(1.020)*
Rock	2.25 *(1.541)*	2.81 *(1.305)*	3.41 *(1.436)*	3.14 *(1.328)*
Country	3.92 *(1.32)*	3.72 *(1.353)*	3.84 *(1.117)*	3.83 *(1.216)*
Dance/Techno	4.17 *(.816)*	4.41 *(.720)*	4.39 *(.830)*	4.39 *(.748)*
R&B	4.42 *(.665)*	4.17 *(.909)*	4.23 *(.922)*	4.18 *(.907)*

The distribution of the IMMA-R scores into the three groupings was very different than the IMMA-T. Only seven students received scores in the Top 20th Percentile, while 29 students were in the Middle 60th Percentile, and 21 students in the Bottom 20th Percentile. Like the IMMA-T distribution, preference scores for the Middle 60th Percentile was noticeably lower than the outer groups. Again, because the number of students in the Top 20th Percentile is much lower than the number of students in the bottom two groups, it is difficult to identify true correlations. An ANOVA procedure was computed for each genre as well as the number of genres liked using the SPSS statistical software. No statistically significant correlations were noted among the three groups. However, looking at the raw scores, there were some differences in the results. Like the IMMA-T, there is a noticeable decline of overall preference among the Middle 60th Percentile group. Students in the top 20th Percentile group had a slightly higher preference for the traditional genres as a whole, while the popular genres tended to be slightly liked higher in the Bottom 20th Percentile over the Top 20th Percentile group. Again, *Jazz* tended to be slightly more highly favored by the Top 20th Percentile, while *Rock* and *Pop* were slightly more highly favored by the Bottom 20th Percentile. Due to the small and uneven sample size, no statistical conclusions can be ascertained. These results are shown in Table 4.6.

Table 4.6: IMMA-C Percentiles to Preference

	Top 20th Percentile 6 Students *(SD)*	**Middle 60th Percentile 25 Students *(SD)***	**Bottom 20th Percentile 26 Students *(SD)***	**Overall Preference *(SD)***
Overall Likes	6.33 *(2.338)*	5.29 *(1.732)*	6.00 *(2.276)*	5.63 *(2.017)*
Traditional Likes	2.50 *(1.643)*	2.17 *(1.129)*	2.13 *(1.517)*	2.17 *(1.342)*
Popular Likes	3.83 *(3.83)*	3.13 *(1.262)*	3.87 *(1.254)*	3.47 *(1.255)*
Classical	2.75 *(1.369)*	3.06 *(1.346)*	3.26 *(1.389)*	3.02 *(1.353)*
Twentieth Century	2.33 *(1.033)*	3.02 *(1.456)*	3.15 *(1.182)*	2.94 *(1.279)*
Folk	2.58 *(1.242)*	2.54 *(1.073)*	2.63 *(.869)*	2.57 *(1.006)*
Non Western	3.17 *(1.033)*	2.90 *(.989)*	3.04 *(1.215)*	2.96 *(1.121)*
Jazz	4.17 *(.516)*	3.65 *(1.220)*	3.74 *(.964)*	3.81 *(1.031)*
Pop	3.67 *(.816)*	3.52 *(1.027)*	4.15 *(1.016)*	3.83 *(1.020)*
Rock	2.83 *(1.329)*	2.77 *(1.335)*	3.57 *(1.282)*	3.14 *(1.328)*
Country	4.50 *(.632)*	3.52 *(1.379)*	4.15 *(.959)*	3.83 *(1.216)*
Dance/Techno	4.33 *(.516)*	4.50 *(.707)*	4.46 *(.706)*	4.39 *(.748)*
R&B	4.17 *(.683)*	4.23 *(.897)*	4.13 *(1.014)*	4.18 *(.907)*

The IMMA-C results were further skewed to the left, with only six students receiving scores in the top 20th percentile, while 25 participants were placed in the middle 60th percentile and 26 in the bottom 20th percentile. Again, because of the variance in numbers between the Top 20th percentile and the other two, correlations cannot be made, but inferences are worth noting. An ANOVA test was performed and no category had showed any apparent significance. However, there were some interesting trends to note. Like the previous two tables, preference as a whole was slightly lower for the Middle 60th Percentile group compared to the outer two groups. For *Overall Likes*, students in the top

20th percentile had a slightly higher tendency for liking different genres than the other two groups. *Classical* and *20th Century* music were both slightly higher in the Bottom 20th Percentile group. *Jazz* was again slightly rated higher among the Top 20th Percentile over the other groups, while *Rock* and *Pop* were rated slightly higher among the Bottom 20th Percentile. These data are shown below in Table 4.7.

To look at the overall correlation between a child's aptitude and music preference, two-tailed bivariate Pearson's product-moment correlation coefficient was computed for all categories. No significant correlations were found between a child's tonal aptitude and preference for specific genres. A significant negative correlation was found at the .01 level between a child's rhythmic aptitude and his or her preference for *Rock*, meaning that children less favorably rated *Rock* the higher the rhythmic aptitude score. Children who were rhythmically strong liked rhythmic *Rock* music. A significant negative correlation was also found at the .01 level between a child's composite aptitude and preference for *Rock*, again suggesting that children less likely to rate *Rock* the higher the rhythmic aptitude score. No other significant correlations between aptitude and the favorability of specific genres were found.

Table 4.7: Overall Correlation of Aptitude to Preference

Correlations

		Tonal Raw	Rhythm Raw	Composite Raw	Classical	20th Century	Pop	Rock	Country	Folk	Jazz	Techno	R&B	NonWest
Tonal Raw	Pearson Correlation	1	.434**	.807**	-.031	-.036	-.160	-.203	.069	-.055	.097	-.086	.105	-.021
	Sig. (2-tailed)		.001	.000	.812	.787	.222	.120	.598	.675	.462	.515	.426	.876
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
Rhythm Raw	Pearson Correlation	.434**	1	.862**	-.097	-.144	-.256	-.343**	-.032	.038	-.128	-.071	.051	.029
	Sig. (2-tailed)	.001		.000	.471	.284	.055	.009	.815	.779	.342	.599	.705	.831
	N	57	57	57	57	57	57	57	57	57	57	57	57	57
Composite Raw	Pearson Correlation	.807**	.862**	1	-.071	-.135	-.212	-.346**	.023	-.023	-.013	-.045	.135	.022
	Sig. (2-tailed)	.000	.000		.598	.316	.114	.008	.864	.866	.922	.740	.318	.874
	N	57	57	57	57	57	57	57	57	57	57	57	57	57
Classical	Pearson Correlation	-.031	-.097	-.071	1	.375**	.223	.303*	.037	.323*	.213	.027	.170	.277*
	Sig. (2-tailed)	.812	.471	.598		.003	.086	.019	.777	.012	.103	.838	.193	.032
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
21st cent.	Pearson Correlation	-.036	-.144	-.135	.375**	1	.142	.242	-.135	.155	.059	-.117	.009	.223
	Sig. (2-tailed)	.787	.284	.316	.003		.280	.063	.303	.239	.656	.372	.943	.087
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
Pop	Pearson Correlation	-.160	-.256	-.212	.223	.142	1	.428**	.500**	.106	.219	.120	.313*	.053
	Sig. (2-tailed)	.222	.055	.114	.086	.280		.001	.000	.420	.093	.360	.015	.687
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
Rock	Pearson Correlation	-.203	-.343**	-.346**	.303*	.242	.428**	1	.213	.272*	-.043	.075	.136	.223
	Sig. (2-tailed)	.120	.009	.008	.019	.063	.001		.103	.036	.744	.567	.299	.086
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
Country	Pearson Correlation	.069	-.032	.023	.037	-.135	.500**	.213	1	.273*	.046	.195	.193	.093
	Sig. (2-tailed)	.598	.815	.864	.777	.303	.000	.103		.035	.729	.134	.140	.481
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
Folk	Pearson Correlation	-.055	.038	-.023	.323*	.155	.106	.272*	.273*	1	.201	.291*	.089	.382**
	Sig. (2-tailed)	.675	.779	.866	.012	.239	.420	.036	.035		.123	.024	.501	.003
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
Jazz	Pearson Correlation	.097	-.128	-.013	.213	.059	.219	-.043	.046	.201	1	.099	.040	.185
	Sig. (2-tailed)	.462	.342	.922	.103	.656	.093	.744	.729	.123		.451	.764	.158
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
Techno	Pearson Correlation	-.086	-.071	-.045	.027	-.117	.120	.075	.195	.291*	.099	1	.367**	.232
	Sig. (2-tailed)	.515	.599	.740	.838	.372	.360	.567	.134	.024	.451		.004	.075
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
R&B	Pearson Correlation	.105	.051	.135	.170	.009	.313*	.136	.193	.089	.040	.367**	1	.033
	Sig. (2-tailed)	.426	.705	.318	.193	.943	.015	.299	.140	.501	.764	.004		.804
	N	60	57	57	60	60	60	60	60	60	60	60	60	60
NonWest	Pearson Correlation	-.021	.029	.022	.277*	.223	.053	.223	.093	.382**	.185	.232	.033	1
	Sig. (2-tailed)	.876	.831	.874	.032	.087	.687	.086	.481	.003	.158	.075	.804	
	N	60	57	57	60	60	60	60	60	60	60	60	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

There were several other correlations between genres worth noting. A significant positive correlation at the .01 level was found between the liking of *Classical* and *20th Century* music (r = .375), meaning that students who liked *Classical* were also more likely to favor *20th Century* music. A significant positive correlation at the .05 level was found between the rating of *Classical* music to *Rock* (r = .303), *Folk* (r = .323), and *Non-Western* (r = .277) music meaning that children who like *Classical* music are more likely to like *Rock, Folk*, and *Non-Western* music. A significant positive correlation at the .01 level was found between *Pop* and *Rock* music (r = .428), and between *Pop* and *Country* music (r = .500). A positive correlation at the .05 level was found between *Pop* and *R&B* music (r = .313), meaning that students who preferred *Pop* music were also likely to prefer *R&B* music. A correlation at the .05 level was also found between *Folk* music and *Classical* (r = .323), *Rock* (r = .272), *Country* (r = .273), *Techno* (r = .291), and *Non-Western* (r = .382), though *Folk* was the least liked genre.

Overall Relationship between IMMA and Number of Genres Liked

The relationship between overall number of genre likes and tonal aptitude was examined using a Pearson's product-moment correlation coefficient. There was a very slight negative correlation between the two variables, r = -.047, indicating that this correlation was not of any statistical significance. The same statistical analysis was conducted with overall number of genre likes and rhythmic aptitude. Again, there was a very slight negative correlation between the two variables, r = -.049, indicating that this correlation is not of any statistical significance. This treatment was also applied to the overall number of genres liked to composite aptitude. A very slight negative correlation

between the two variables, r = -.018, but this relationship was not significant. This is shown in Table 4.8.

Table 4.8: Correlation between IMMA Scores and Overall Likes

Correlations

		Tonal Raw	Rhythm Raw	Composite Raw	Overall Likes
Tonal Raw	Pearson Correlation	1	.434**	.807**	-.047
	Sig. (2-tailed)		.001	.000	.720
	N	60	57	57	60
Rhythm Raw	Pearson Correlation	.434**	1	.862**	-.049
	Sig. (2-tailed)	.001		.000	.717
	N	57	57	57	57
Composite Raw	Pearson Correlation	.807**	.862**	1	-.018
	Sig. (2-tailed)	.000	.000		.893
	N	57	57	57	57
Overall Likes	Pearson Correlation	-.047	-.049	-.018	1
	Sig. (2-tailed)	.720	.717	.893	
	N	60	57	57	60

**. Correlation is significant at the 0.01 level (2-tailed).

The relationship between the number of *Traditional Likes* and tonal aptitude was examined using a Pearson's product-moment correlation coefficient. There was a very slight positive correlation between the two variables, r = .001, indicating that there was no clear relationship between these variables. The same statistical analysis was conducted with the number of *Traditional Likes* and rhythmic aptitude. Again, there was a very slight positive correlation between the two variables, r = .084, but these were also not significant. This statistical analysis was also applied to the number of *Traditional Likes* to composite aptitude. A very slight correlation between the two variables, r = .059, was found, indicating that the relationship was also not significant. These correlations are illustrated in Table 4.9.

Table 4.9: Correlation between IMMA Scores and Traditional Likes

Correlations

		Tonal Raw	Rhythm Raw	Composite Raw	Trad. Likes
Tonal Raw	Pearson Correlation	1	.434**	.807**	.001
	Sig. (2-tailed)		.001	.000	.994
	N	60	57	57	60
Rhythm Raw	Pearson Correlation	.434**	1	.862**	.084
	Sig. (2-tailed)	.001		.000	.536
	N	57	57	57	57
Composite Raw	Pearson Correlation	.807**	.862**	1	.059
	Sig. (2-tailed)	.000	.000		.663
	N	57	57	57	57
Trad. Likes	Pearson Correlation	.001	.084	.059	1
	Sig. (2-tailed)	.994	.536	.663	
	N	60	57	57	60

**. Correlation is significant at the 0.01 level (2-tailed).

The relationship between the number of *Popular Likes* and tonal aptitude was examined using a Pearson's product-moment correlation coefficient. There was a very slight negative correlation between the two variables (r = -.077), indicating that there was a slight negative relationship between these variables. Students who had high IMMA Tonal scores did not like these genres as well. The same treatment was conducted with number of *Popular Likes* and rhythmic aptitude. There was a small negative correlation between the two variables (r = -.166) indicating that student with a higher aptitude may have a lesser affinity for popular music. This treatment was also applied to the overall number of genres liked to composite aptitude. A very slight negative correlation between the two variables (r = -.091), was found, but these relationships were not statistically significant. These findings suggest that it is possible that students who had high scores on the IMMA did not like popular music. A larger sample size would be needed to confirm or refute this interpretation. These relationships are outlined below in Table 4.10.

Table 4.10: Correlation between IMMA Scores and Popular Likes

Correlations

		Tonal Raw	Rhythm Raw	Composite Raw	Popular Likes
Tonal Raw	Pearson Correlation	1	.434**	.807**	-.077
	Sig. (2-tailed)		.001	.000	.559
	N	60	57	57	60
Rhythm Raw	Pearson Correlation	.434**	1	.862**	-.166
	Sig. (2-tailed)	.001		.000	.216
	N	57	57	57	57
Composite Raw	Pearson Correlation	.807**	.862**	1	-.091
	Sig. (2-tailed)	.000	.000		.499
	N	57	57	57	57
Popular Likes	Pearson Correlation	-.077	-.166	-.091	1
	Sig. (2-tailed)	.559	.216	.499	
	N	60	57	57	60

**. Correlation is significant at the 0.01 level (2-tailed).

CHAPTER 5

DISCUSSION

The purpose of this quantitative study was to examine any potential correlations between music preference among 3rd graders and his or her musical aptitude. Many studies have been conducted studying the various components of music preference, yet little research has focused specifically on the role that music aptitude or ability plays in a child's preference. This study aimed to fill a gap in this research and provide a deeper understanding of this relationship as originally indicated by LeBlanc. It specifically investigated potential correlations and themes found between preference and aptitude, focusing on the following central questions:

1. What are the general musical preferences of third grade students?
2. Do children with high music aptitude scores prefer a wider variety of music?
3. Do certain children prefer specific genres of music based on his or her aptitude?

From the data collected in this investigation, all of the null hypotheses were accepted except for the third null hypothesis. There were no significant correlations between variables with the exception of *Rock* music and a child's IMMA-R and IMMA-C scores. The following outlines some of the apparent, but weak correlations between aptitude and preference, as well as limitations of the study and areas for future research.

Limitations

Instructional setting.

Despite all efforts to create a sound study, there are several limitations that affected the results. First, it was hoped to have students from several elementary schools, though only two schools responded that they were willing to participate. Due to the various school schedules, it was only possible to conduct the study with five classrooms. Four of the five classes visited had interruptions in the testing, including three classes that had a two to four week wait before taking the IMMA-R, two of whom took the final test outside of the music classroom setting. This may have had an impact on the results, particularly with the second class of School B. In that case, the IMMA-R was administered in the art room with the art teacher present. The art teacher had very poor classroom management skills, which created a rather chaotic setting as soon as the children walked into the room. Several times the researcher had to stop kids from running around and arguing with each other before the testing started. During the testing, the researcher had to stop the CD twice to remind the students that they should not be talking and to stop the children from playing with the pencil sharpeners the teacher had on the table. *Despite that, the researcher found that despite all of the interruptions, the students generally responded well to taking both the IMMA and the CMPI. The students enjoyed the IMMA, though they gave the impression that it was a little too long. The CMPI appeared to be enjoyable to the students. This conclusion was based on the general reaction of students to each listening example. Students' smiles and toe tapping in certain pieces indicated that they appeared engaged in the listening experience. This may be a good tool for educators to assess their students understanding of what their students may*

or may not like. Further investigation of the reliability of this test is deemed necessary for future uses of this instrument.

Socioeconomics and demographics.

Because the students came from only two elementary schools, there was not as much diversity in socio-economics as was initially hoped for. One of the schools was predominately African-American while the other was evenly balanced mostly between African-American and Caucasian children. Neither school was predominately Caucasian or had a high percentage of Hispanic or other racial backgrounds based on the information found on the school district website, which offered the demographic makeup of the schools used in this study. Both schools were labeled as "Needs Improvement" by the Kentucky Department of Education and at least 48% of students at both schools were on either free or reduced lunches. The two elementary schools were located on separate areas of the county, though socio-economic backgrounds varied greatly by community and many were not represented within this study. *Though the demographics were not as diverse as had originally hoped, the researcher feels that the data that was gathered is still valuable for teachers and future researchers. This study raises many other variables that can lay the foundation for future studies.*

As mentioned earlier, LeBlanc defines stabilized music aptitude beginning at age nine. Students in this study were chosen by the class they were in, not specifically by age. Thirty-three students were 8 years old, 24 students were 9, and two students were 10 years old in the classes. The average age was only 8.47 years old. *Because over half of the participants had not yet reached his or her stabilized music aptitude, this could have skewed the results.*

The Intermediate Measures of Music Audiation.

Another limitation was the fact that the students performed lower than anticipated. Gordon suggests that the IMMA be administered if more than half of the children score above the 80th percentile on the tonal, rhythm, or composite of the PMMA. None of the students were originally tested with the PMMA (Gordon, 1987). Since the PMMA is only recommended for children up to age 8, the researcher felt that it was necessary to use the IMMA, which can be used through 9 years of age (Gordon, 1987). Results showed that 7 children had IMMA-T scores below the percentile norms provided by Gordon, as well as 8 children for IMMA-R scores and 6 children for the IMMA-C, mostly from School A. This indicates that the test was potentially too difficult for the group as a whole. This suggests that students were below the national norms for this test. *The decision to choose the IMMA was based on the age range that Gordon indicates for his tests. However, the PMMA might have given more beneficial results in the study.*

Physical reaction.

Though students were asked to remain silent and not make any physical reactions to the music, the students naturally reacted to the music, sometimes verbally but most often physically, which may have influenced the choices of other students due to peer pressure. For example, for *Techno/Dance* music, students could not resist bouncing on the floor, and the students' faces immediately lit up with excitement. Both *Classic Rock*, *Traditional Pop*, and *Non Western* selections caused a wide range of facial expressions and several verbal outbursts. Verbal outbursts were usually negative. Students listening to *Jazz* and *Classical* showed more subdued reactions, if any. One student, however, was not influenced by his peer's reaction to music, but was affected by a classmate who later

joined the classroom near the end of the CMPI test administration. When the entering classmate sat down next to this particular student, the last seven CMPI questions were all answered as "absolutely dislike!" The music teacher explained that the particular student does not get along with the classmate who walked in late. *Though these physical reactions were hoped to be minimized, it was obvious that movement is a natural expression of listening to music. These physical cues, though possibly distracting for some students, could also provide further insights and clues to how children perceive and rate music.*

Creation of the CMPI.

The creation of the CMPI offers limitations worth mentioning. As music genres evolve over time, there is discord over the qualities and definitions of specific genres and subgenres. In all of the preference studies citied in this study, it was noted that each researcher always created his or her own data collection tool with the exception of one study that attempted to recreate LeBlanc's 1979 study with some minor modifications. This may be because certain music styles fall out of fashion, or definitions of genres evolve. With this specific preference data collection tool, the genres and specific songs were chosen by the researcher and several music graduate students, music librarians, and music history professors, who are all older than the participants. This could lead to content validity issues between the adults and participants as to what qualifies specific songs for the various genres chosen, particularly with the more "popular" styles today, such as popular, rock, and country. Another limitation with the CMPI was that the researcher had to find a balance between the number of genres chosen and the number of song excerpts chosen for each genre. It was decided that two songs per genre would be

more appropriate than one. Otherwise, the study would be looking the preference of specific songs, not a genre. However, because of time restraints and the attention-span of the third grade participants, it was decided that adding any more musical examples would be inappropriate. As an alternative, it was observed during testing that students rated the selections often within the first 10 seconds. It would be worth considering shortening each piece by 10-20 seconds as long as it contains all the specific elements that represent that genre. With that adjustment, a revision of the test might include a third example per genre resulting in a 30-item test. *As a first attempt at creating a data-collection tool, the researcher felt that it was effective at determine a child's preference. If this data-tool is to be used for a future study, more refinement would be needed such as shortening the length of song clips, adding a third song per genre, and testing for validity and reliability. Further considerations might be made as to the order of each example.*

Implications

The results of the study suggest that overall there was no significant correlation between a child's music aptitude and preference for specific genres of music or being open to like a wide variety of genres. However, the results did reveal slight differences between a child's aptitude and preference, suggesting that there could possibly be a weak relationship between these variables. *A larger and greater diversified student sample size, fewer testing interruptions, and a refined CMPI are needed to see if similar trends would appear.*

Aptitude.

A significant difference in music aptitude scores were found between School A and School B. Students in School A were noticeably less focused during the testing time,

and because fewer students were actually participating in the study itself, there could have been distractions that affected the IMMA-T and IMMA-R scores. The testing delay between the two batteries could have also been a factor. While every class scored noticeably lower on the IMMA-R compared to the IMMA-T, School A Class 3, which took the final battery in the art room with poor classroom management skills, had the biggest change in score (5.14 points). School B Class 1, which had nearly a month between the two IMMA tests, showed no significant difference between scores compared to the other class at School B. School A also had several students who could be considered outliers as those students' scores were exceptionally low. These outliers had a slight impact on the class mean scores. *It was surprising to see such a stark contrast between the two schools in regards to aptitude. From personal observation of both teachers, all of the students were receiving quality music instruction. It is not known how the testing disruptions and outside variables impacted these results. It would be interesting to see if there were any compounding variables that were not investigated in this study.*

Music preference.

For music preference, there was no general consensus on many of the genres. The ranges spanned from 1 to 5 in all genres with the exception of *Techno* and *R&B*. The lowest rated genre was *Folk*, while the highest rated genre was *Techno*. These were the same for each school as well. While the traditional genres were generally less liked than the popular genres, *Classical*, *20th Century*, and *Non-Western* genres averaged generally at 3, suggesting that children were less decisive and had no strong opinion on those particular examples. *Folk* music was least favored by the participants of this study,

having received only a 2.57 rating. It would be interesting to see how they would rate folk music that they might have previously sung or listened to in class. Conversely, *Jazz* was preferred fairly strongly and higher than anticipated with a 3.81 average, outperforming *Rock*. In previous preference studies, it was found that *Jazz* often performed average to poor (Ginocchio, 2008; LeBlanc, 1981). *Jazz* was ranked 5th for School A and 3rd for School B with a combined ranking of 5th. Neither music teacher noted that they used many jazz materials in the classroom.

Though students were asked not to give any verbal or non-verbal cues during the CMPI testing, it was difficult for students to remain silent and still, particularly when listening to certain pieces. The student's verbal and non-verbal cues were very telling, as observed by the researcher. Students usually had subdued non-verbal reactions to *Classical* and *Folk*, though a few children would give a negative verbal cue before the researcher reminded them not to talk. *Twentieth Century* music provided a wide array of reactions. The Sofia Gubaidulina selection in the *20th Century* music genre caused many looks of confusion in the students over the complexity of the melody and harmony, while the rhythmic *John Adams* piece caused many students to bounce in place, though the increasingly complex harmony did cause some students to stop. Students usually had positive non-verbal cues to *Pop*, *Rock*, and *Country* genres, and the occasional student strummed an air guitar. *Jazz* usually provided subdued reactions as well, though some students choose to sway with the music as they sat on the floor.

Like *Twentieth Century* music, *Non-Western* also provided a wide array of reactions. Some showed looks of confusion, particularly with the Ravi Shankar selection, while some fluidly moved with the music. One student immediate recognized the music

as being Indian and held her thumb and second finger, imitating a yoga mudra. *Dance/Techno* music immediately caused students to smile and bounce in place on the floor, though some showed fatigued at the repetitiveness of the music. *R&B* music spurred an unusual observation. Students remained quiet and inquisitive for the beginning of the selection, probably because the tempo was slower than normal and the vocal track in the selection come halfway through the excerpt. Students would make his or her choice early on, but as soon as the singer entered into the piece, the student's reaction often changed which led to several in each class to frantically erase the original selection and rate the song higher. This could potentially be because they might have struggled to identify or connect to the genre, and once they heard the singer, they were able to recognize the genre as *R&B*.

It was reassuring as an educator that while some genres were overall unfavorably liked, there was not one song or genre that was overwhelmingly disapproved of by the participants. Teachers can expose children to a wide variety of music if they are intentional about how that music is introduced and incorporated into the curriculum. From observing physical cues, children do have the capacity to be inquisitive and reflective about the music they hear.

Music aptitude and preference.

In comparing a child's music aptitude to preferences for certain genres of music, the researcher felt that it was important to divide the students into three groups, those of high music aptitude, average music aptitude, and low music aptitude as indicated by Gordon in the testing manual. Students were divided in this manner for tonal, rhythm, and composite scores and preference averages were compared. While the distribution is

uneven between the groups (meaning that true correlations cannot be drawn), there were some common trends. In general, the Middle 60th Percentile (average aptitude) had an overall lower average for preferences than the Top 20th and Bottom 20th Percentiles (high and low aptitude) when looking at overall preference and many of the genres. This was seen with tonal, rhythmic, and composite scores, regardless of the distribution of the scores. This was particularly noticeable with the overall number of genres liked would could indicate that those with high music aptitude have a slightly greater appreciation for a wider array of genres, while those with an average music aptitude are more influenced by his or her peers and media, which usually limits the varieties of music. It was surprising to see students with low music aptitude to have similar preference scores as those with high music aptitude. This suggests that though the students do not have strong aural skills, they may be less sensitive to the music they hear.

Scores for many of the genres had a similar unimodal distribution. Again, because there was an uneven distribution among the three groups in tonal, rhythmic and composite, with the top group usually being smaller than the others, it is difficult to make strong inferences about these scores. However, several genres had different patterns that were interesting to note. Averages for *Jazz*, for instance, were consistently higher with children with high tonal, rhythmic, and composite aptitudes than for those who had average and low aptitudes. This should not detract, however, from the fact that on the whole, *Jazz* scored surprisingly high. *Contrary to Rock music, Jazz music seemed to more be favored by those with high music aptitude, though preference was higher than anticipated across the board. This is encouraging for music educators, especially those who direct middle and high school jazz ensembles. It would be interesting to see what*

factors or elements of the music caused the students to rate Jazz music noticeably higher than Rock.

Looking specifically at tonal music aptitude, the average score for *Rock* was slightly higher for those with low aptitude, while it was slightly lower for those with high aptitude. This difference was even bigger with rhythmic and composite scores. This suggests that students who prefer *Rock* music might tend to have lower IMMA-R and IMMA-C scores. A similar trend was seen with *Pop* music, again, particularly with rhythmic and composite scores, indicating that those students with lower IMMA-R and IMMA-C will have a tendency to have a higher preference towards *Pop*.

Looking at the overall correlation between a child's aptitude and preference towards various genres of music, it was found that there was no significant correlation between music aptitude and the number of genres liked. Students on average liked more popular genres than traditional genres. Only a negative correlation at the .01 level was found between a child's rhythmic (r = -.343*)* or composite score (r = .346) and preference towards *Rock* music, meaning the lower a child's aptitude, the higher the preference towards *Rock*. No other correlations between aptitude and the child's liking of other specific genres were found to be strong enough to mention. *A larger sample size or broader demographic sample might have an impact on these results if this study were replicated.*

Correlations between genres of music.

Though there were no significant correlations found between aptitude and music genres besides *Rock*, it was interesting to note that there were a few correlations between specific genres themselves. A positive correlation was found in that children who like

Pop music are likely to also like *Rock* (r = .428), *Country* (r = .500), and *R&B* (r = .313), all genres in the popular genre style. Because there are many crossover artists and media that give much playing time to all of these genres, this correlation is not a surprise. A smaller correlation was found between *Folk* music to *Classical* (r = .323), *Non-Western* (r = .382), *Rock* (r = .272), *Country* (r = .273), and *Techno* (r = .291). Because *Folk* music received the lowest rating for preference, the selection of students who liked *Folk* is smaller, and this might suggest that those who like *Folk* have had exposure to and are open to a wider variety of genres.

T*he data leads to more questions and area for future research. It seems that this may be an area for educators to seek best practices on how to bridge the gap between what is heard in the classroom (oftentimes the Traditional genres) compared to outside the classroom (usually the Popular genres).*

Recommendations to Teachers

As a result of this study, several additional recommendations can be made. First, more time should be spent in music classes exposing children to a wider variety of music, particularly genres that do not get as much exposure in the media today. Young and Glover (1998) identify techniques that teachers can use to introduce music to children, including taking an "investigative approach" in order to encourage "children to bring together a curiosity about how music works and the contexts in which it is made…" Providing context for the music, creating listening maps, and being aware of the time of day and attitudes of the students can also help to familiarize children with other genres of music. Greata (2006) also recommends a "listening station" where students can explore

various genres of music, including recordings of music they have learned, and have room to listen and move freely.

Secondly, it is important that schools provide a rich musical education for its students, including time to enhance tonal and rhythmic audiation potential. Because Gordon indicates that aptitude is a combination of both nature and nurture, music and classroom teachers play an important role in in providing that nurture. A child's developmental aptitude stabilizes around age 9, indicating an importance for a comprehensive music education for early childhood and elementary school-aged children.

Areas for Future Research

Based on the results of this study, there are areas for further research. Because of the limited number of participants in this study, it would behoove future researchers to repeat this study and expand the number of participants to reach more socio-economically diverse groups to gain a more comprehensive understanding of the relationships between music aptitude and music preference. Secondly, expanding the geographical range of participants to other areas of the country would be wise, considering some areas of the country might lean more towards certain genres than others and music curriculums can greatly vary from state to state. Ensuring that all participants are at least nine years old instead of relying purely on the grade would make the results for valid.

One of the concerns of doing any preference test is the selection of the materials and the length of the excerpts of the CMPI. In this study, two selections per genre were chosen, each lasting between 30-40 seconds. However, after consideration, it might be valuable to redesign the CMPI to shorten the length of each selection and add a third song per genre to better represent the categories. In this study, the excerpts were presented in

one of three fixed orders. Future studies might benefit from the songs presented in a randomized order. Though three orders of the music were used, it would be interesting to see if the order influenced the students' responses. Because the order of the songs was predetermined, it would be worth considering creating a fully randomized order of the song selections for the CMPI. Because this data-collection tool was not tested specifically for reliability and validity beyond basing the format off of previous studies, it would be necessary to test the tool for both if used in future studies.

It would also be worthwhile to repeat the study using different data collection tools, such as a Continuous Response Digital Interface (CDRI) dial, and test each student individually, which would give more specific and accurate data in determining music preference. This would also eliminate some of the potential disruption of physical cues and reactions that the researcher was not able to fully prevent. Interviewing students individually would also give the researcher qualitative data and the chance to compare the children's verbal responses to their digital responses.

Epilogue

In the end, it was fascinating to compare these two independent variables. While the researcher did not find a significant correlation between a child's music preference and music aptitude, there are findings that can be important to educators as they attempt to understand the factors that influence student preferences. As with any research, the answers found often lead to more questions, and while this thesis served to bridge the gap in research in this area, it has opened up more questions that give educators and researchers a greater understanding of the role of music aptitude in a child's preference for music

REFERENCES

Abeles, H.F. and Chung, J.W. (1996). Responses to music. In D.A. Hodges (Ed.), *Handbook of Music Psychology*. San Antonio: IMR Press.

Alpert, J. (1982). The effect of disc jockey, peer, and music teacher approval of music on music selection and preference. *Journal of Research in Music Education, 30:3*, 173-186.

Bentley, A. (1966). *Musical ability in children and its measurement.* New York: October House.

Bloom, B.S. (1964). *Stability and Change in Human Characteristics.* New York: Wiley.

Brown, A. (1978). Effects of televised instruction on student music selection, music skills, and attitudes. *Journal of Research in Music Education, 26:4*, 445-455.

Campbell, D. T. & Stanley, J. C. (1966). *Experimental and quasi-experimental designs for research*. Chicago, Ill: R. McNally.

Cheston, S. B. (1994). *Relationships among harmonic complexity preference, musical training and experience, and music aptitude in high school music students*. (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. 9510920, Case Western Reserve University)

Crickmore, L. (1968). An Approach to the Measurement of Music Appreciation (II). *Journal of Research in Music Education*, *16:4*, 291-301.

Crozier, R.W. (1998). Music and social influence. In D.J. Hargreaves & A.C. North (Ed.), *The Social Psychology of Music* (67-83).

Davies, J. & Brember, I. (1994). The reliability and validity of the 'smiley' scale. *British Educational Research Journal, 20:4*, 447-454.

DeVries, P. (2010). What we want: the music preferences of upper primary school students and the ways they engage with music. *Australian Journal of Music Education, 1,* 3-16.

Diener, C.I. and C.S. Dweck. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. *Journal of Personality and Social Psychology 36:5*, 451–62.

Dorow, L. G. (1977). The effect of teacher approval/disapproval ratios on student music selection and concert attentiveness. *Journal of Research in Music Education, 25:1,* 32-40.

Droe, K. L. (2006). Music preference and music education: a review of literature. *Update—Applications of Research in Music Education, 24:2,* 23-32.

Droe, K. L. (2008). The effect of teacher approval and disapproval of music performed in a rehearsal setting on music preferences. *Journal of Music in Music Education, 56:3*, 267-278.

Dunn, R. E. (2008). The effect of auditory, visual or kinesthetic perceptual strengths on music listening. *Contributions to Music Education, 35,* 47-78.

Fay, P. J., & Middleton, W. C. (1941). Relationship between musical talent and preferences for different types of music. *Journal of Educational Psychology, 32*, 573-583.

Gardner, H. (1983). *Frames of mind: the theory of multiple intelligences.* New York: Basic Books.

Getz, R.P. (1966). The effects of repetition on listening response. *Journal of Research in Music Education, 14:3,* 178-192.

Ginocchio, J.F. (2008). Fifth-grader listeners' music style preferences: a ranking of contemporary popular music styles and comparison to leblanc, 1979. *Contributions to Music Education, 35,* 9-21.

Gordon, E. E. (1967). The musical aptitude profile. *Music Educators Journal, 53:6,* 52-54.

Gordon, E.E. (1986). *Primary measures of music audiation and intermediate measures of music audiation: music aptitude tests for kindergarten and first, second, third, and fourth grade children*. Chicago, IL: G.I.A. Publications.

Gordon, E. E. (1987). *The nature, description, measurement, and evaluation of music aptitudes.* Chicago, IL: G.I.A. Publications.

Gordon, E. E. (1995). *Musical aptitude profile.* Chicago, IL: G.I.A. Publications.

Gordon, E. E. (1998). *Introduction to research and the psychology of music.* Chicago, IL: G.I.A. Publications.

Grashel, J. (2008). The measurement of musical aptitude in 20th century united states: a brief history. *Bulletin of the Council for Research in Music Education, No. 176,* 45-49.

Greata, J. (2006). *An introduction to music in early childhood education*. Clifton Park, NY: Thomson Delmar Learning.

Greer, R. D., Dorow, L. G., & Randall, A. (1974). Music listening preferences of elementary school children. *Journal of Research in Music Education, 22:4,* 284-291.

Harrington, C. J. (1969). An investigation of the primary level musical aptitude profile for use with second and third grade students. *Journal of Research in Music Education, 17:4*, 359-368.

Hedden, S. K. (1981). Music listening skills and music listening preferences. *Bulletin of the council for research in music education, No. 65,* 16-26.

Hicken, L. W. (1991). *Relationships among selected listener characteristics and musical preference.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. 9222331, Indiana University).

Hodges, D.A., & Sebald, D.C. (2011). *Music in the human experience: an introduction to music psychology*. New York: Routledge.

Kuhlman, K. (2005). Musical aptitude versus academic ability as a predictor of beginning instrumental music achievement and retention: Research and implications. *Update - Applications of Research in Music Education, 24(1)*, 34-43.

Kulas, J.T., Stachowski, A.A., & Haynes, B.A. (2008). Middle response functioning in likert-responses to personality items. *Journal of Business and Psychology, 22:3*, 251-259.

Larson, P. (1971). The effect of musical and extramusical information upon musical preference. *Journal of Research in Music Education*, *19:3,* 350-354.

LeBlanc, A. (1981). Effects of style, tempo, and performing medium on children's music preference. *Journal of Research in Music Education, 29:2,* 143-156.

LeBlanc, A. (1982). An interactive theory of music preference. *Journal of Music Therapy*, *19:1*, 28-45.

LeBlanc, A. (1987). The development of music preference in children. In J.C. Peery, I.W. Peery, & T.W. Draper (Ed.), *Music and Child Development* (137-157).

LeBlanc, A. (1979). Generic style music preferences of fifth-grade students. *Journal of Research in Music Education, 27:4,* 255-270. *Journal of Research in Music Education, 44:1,* 49-59.

LeBlanc, A., Colman, J., McCrary, J., Sherrill, C., & Malin, S. (1988). Preferences of Different Age Music Listeners. *Journal of Research in Music Education, 36:3,* 156-168.

LeBlanc, A., Sims, W.L., Siivola, C., & Obert, M. (1996). Music style preferences of different age listeners.

LeBlanc, A., Young, C.J., Simpson, C.S., Stamou, L., & McCrary, J. (1998). Pictorial versus verbal rating scales in music preference measurement. *Journal of Research in Music Education, 46:3,* 425-435.

Lehman, P.R. (1968). *Tests and measurements in music*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Lipscomb, S.D. (1996). The cognitive organization of musical sound. In D.A. Hodges (Ed.), *Handbook of Music Psychology*. San Antonio: IMR Press.

Masters, J.R. (1974). The relationship between number of response categories and reliability of likert-type questionnaires. *Journal of Educational Measurement, 11:1,* 49-53.

May, W. V. (1985). Musical style preferences and aural discrimination skills of primary grade school children. *Journal of Research in Music Education, 32:1,* 7-22.

Montgomery, A. P. (1996). Effects of tempo on music preferences of children in elementary and middle school. *Journal of Research in Music Education, 44:2,* 134-146.

Olsson, B. (1998). The Social Psychology of Music Education. In D.J. Hargreaves & A.C. North (Ed.), *The Social Psychology of Music,* Oxford: Oxford University Press.

Radocy, R. E., & Boyle, J.D. (1987). *Measurement and evaluation of musical experiences.* New York: Schirmer Books.

Radocy, R.E., & Boyle, J.D. (2003). *Psychological foundations of musical behavior* (4th ed.). Springfield, IL: Charles C Thomas Publisher, LTD.

Rogers, V.R. (1957). Children's musical preferences as related to grade level and other factors. The Elementary S*chool Journal, 57:8,* 433-435.

Russell, P.A. (1998). Musical tastes and society. In D.J. Hargreaves & A.C. North (Ed.), *The Social Psychology of Music,* Oxford: Oxford University Press.

Seashore, C. E. (1919). *The psychology of musical talent.* Boston, MA:Silver Burdett and Company.

Schmidt, C. P., & Sinor, J. (1986). An investigation of the relationships among music audiation, musical creativity, and cognitive style. *Journal of Research in Music Education, 34:4,* 160-172.

Siebenaler, D. J. (1999). Student song preference in the elementary music class. *Journal of Research in Music Education, 47:3,* 213-223.

Tomei, M. C. (2010). *The relationship between musical aptitude and academic achievement of third-grade students.* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. 1480763, Northern Illinois University)

Williams, R.O. (1972). Effects of musical aptitude, instruction, and social status on attitudes toward music. *Journal of Research in Music Education, 20:3,* 362-369.

Whybrew, W. E. (1971). *Measurement and evaluation in music* (2nd ed.). Dubuque, IA: WM. C. Brown Company Publishers.

Young, S., & Glover, J. (1998). *Music in the early years.* Bristol, PA: The Falmer Press.

Zillmann, D., & Gan, S. (1998). Musical taste in adolescence. In D.J. Hargreaves & A.C. North (Ed.), *The Social Psychology of Music*.

APPENDICIES

Appendix A
CMPI Preliminary Selection of Repertoire

Children's Music Preference Index—Preliminary Selection of Repertoire

You are being invited to participate in selecting music for the CMPI (Children's Music Preference Index) which will be used for my master's thesis. I am asking that you listen to the CD provided of roughly edited clips of the selections that I have chosen and rank the music in each genre. Please consider the typical signifiers of each particular genre and rank the music in terms of what best represents that genre, giving a 4 for the most appropriate selection, and a 1 for the least appropriate selection. Though the song/artist names will appear on iTunes, they are not provided on paper, and I ask that you not use the information in your final judgment, as they will not be given song/artist names in the actual test. If you feel that none of the pieces are not appropriate or representative of a certain genre, you may provide comments at the bottom of the page. All answers should be returned to my office by October 18th 2013.

Name: _____

Classical (C.P. Instrumental)
___ Track 1
___ Track 2
___ Track 3
___ Track 4

20th and 21st Century art music
___ Track 5
___ Track 6
___ Track 7
___ Track 8

Mainstream Pop
___ Track 9
___ Track 10
___ Track 11
___ Track 12

Rock
___ Track 13
___ Track 14
___ Track 15
___ Track 16

Country
___ Track 17
___ Track 18
___ Track 19
___ Track 20

Folk
___ Track 21
___ Track 22
___ Track 23
___ Track 24

Traditional jazz
___ Track 25
___ Track 26
___ Track 27
___ Track 28

Dance/Techno
___ Track 29
___ Track 30
___ Track 31
___ Track 32

R&B
___ Track 33
___ Track 34
___ Track 35
___ Track 36

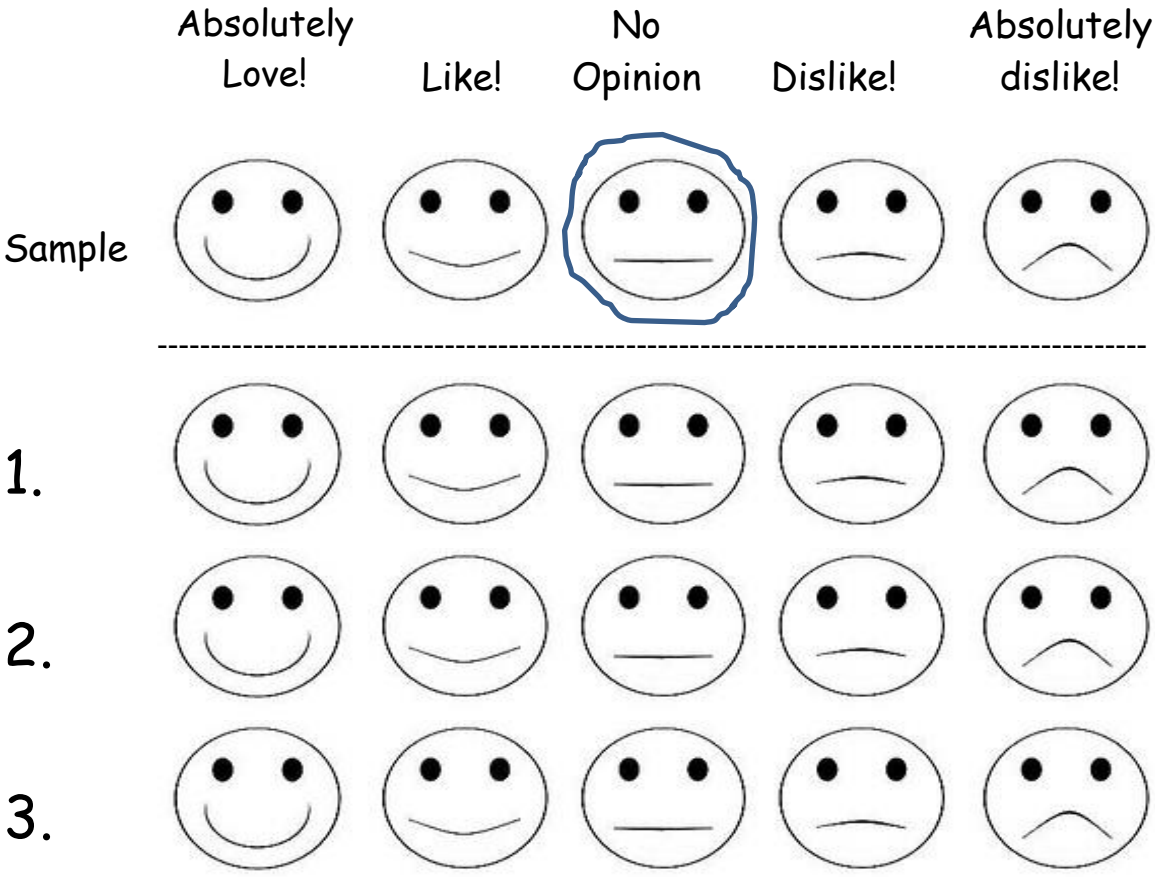
Non-western
___ Track 37
___ Track 38
___ Track 39
___ Track 40

Appendix B
CMPI Test Sheet

Children's Music Preference Index

Instructions

You will listen to 20 different short clips of music. This music represents many different kinds of genres, and there may be some types of music that you have never heard before. For each song, you will be asked to rate how well you like the song by circling only *one* (1) face on the "smiley face scale." You will not be told the names or artists of the songs, and each song will only be identified by its question number. There are no right or wrong answers, but I ask that you be honest and rate the music on how well *you* like it, not anyone else.



4. 

5. 

6. 

7. 

8. 

9. 

10. 

11. 

12. 

13. 

14. 

15. 

16. 

17. 

18. 

19. 

20. 

Background Information

School: _____

Name:_____

Gender: M / F **Age:**_____ **Grade:**____

1. **Do you play a musical instrument at home?** Yes / No (circle one)

2. **If yes, what instrument do you play?** _____ (if none, write N/A)

3. **Do you listen to music at home?** Yes/No (circle one)

4. **Does your family actively play music together at home?** Yes/No (circle one)

Appendix C
Children's Music Preference Index Script

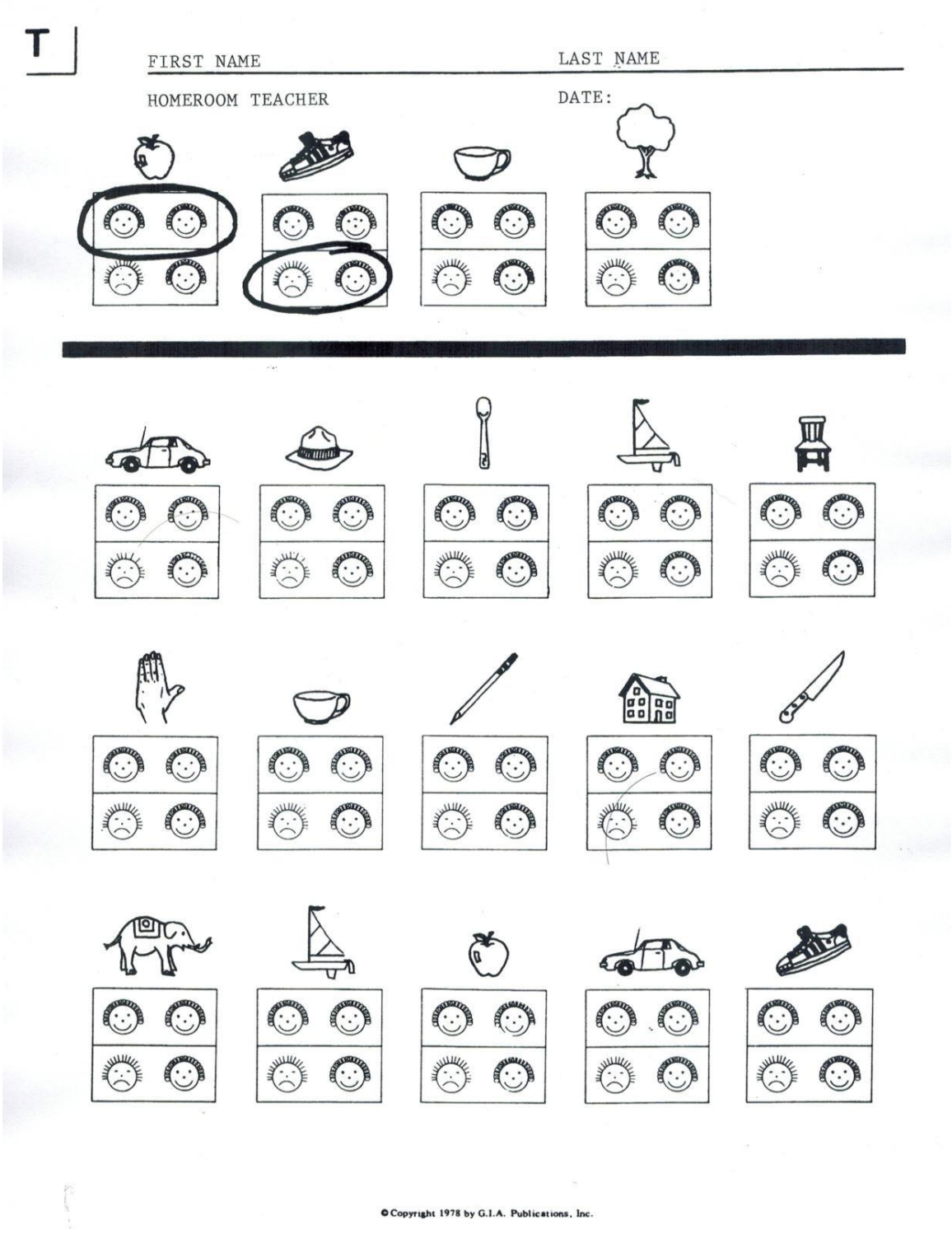
"For this activity, you will listen to 20 different short clips of music. This music represents many different kinds of genres, and there may be some types of music that you have never heard before. For each song, I want you to rate how well you like the song by circling only *one* face on the "smiley face scale." There are five choices. If you absolutely love the song, you'll circle the face with the biggest smile, and if you just like it, you'll circle the face with the smaller smile. If you absolutely dislike the song, you'll circle the face with the biggest frown, and if you just dislike it, you'll circle the face with the smaller frown. If you aren't sure or if you are on the fence about a song, you'll circle the middle face with no smile or frown."

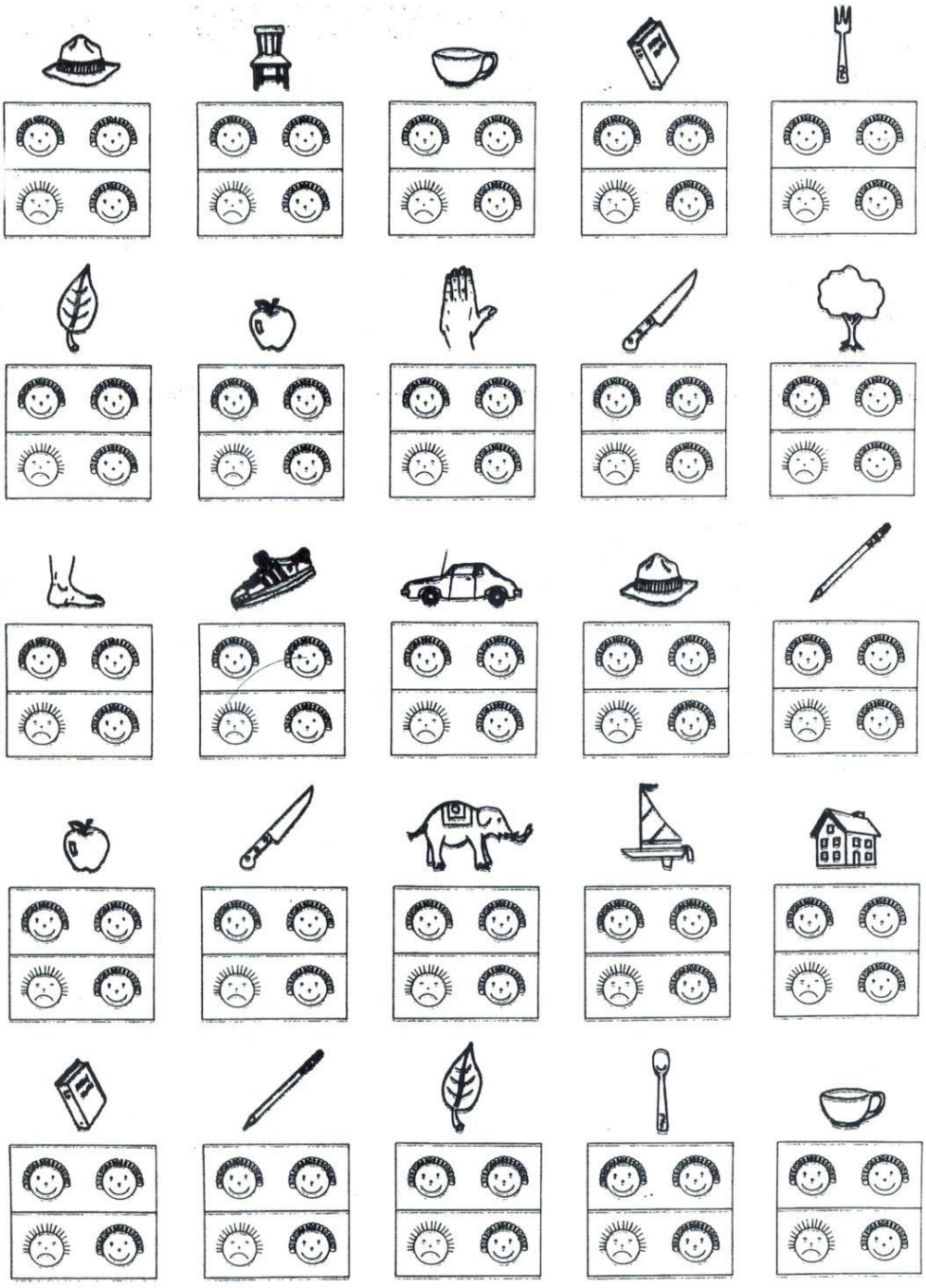
(Ask for any questions)

"When you listen to the music, I'm not going to tell you the names or artists of the songs. You will only know the song by its question number. As you listen to the music, there are no right or wrong answers. I want to know how you, and only you, like the song. When you listen to the music, it might be tempting to want to sing, dance, speak, or make funny faces when you listen to the music. It may be hard, but I'm going to ask you to stay as quiet and still as you can when you listen to the music. It's not that I don't want you to enjoy it, but you may make it hard for your neighbor to listen to the music, and you might accidentally influence your friend's choices. I want you to be honest and rate the music on how well *you* like it, not how your neighbor thinks you should like it."

(Ask for any questions)

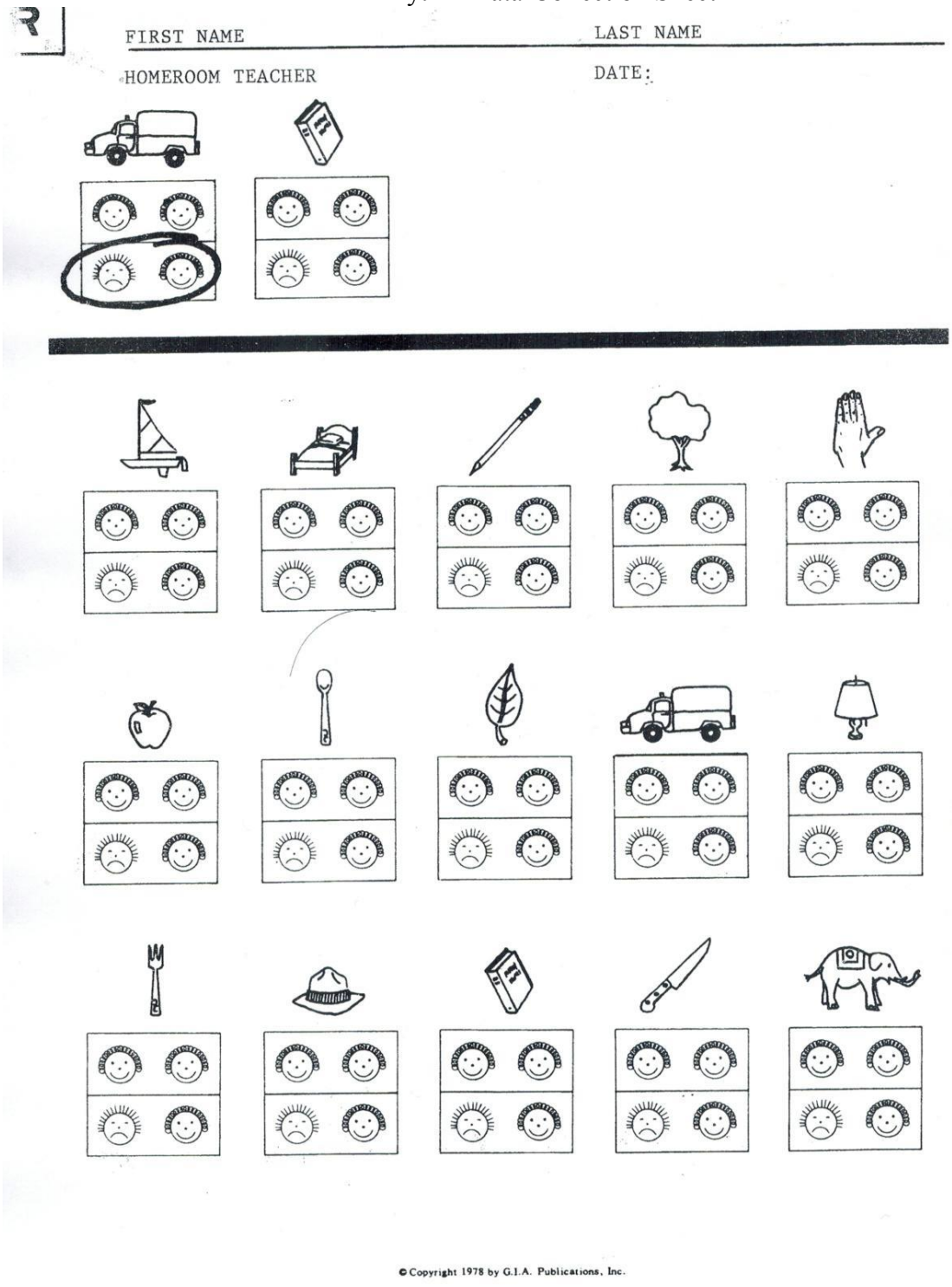
Appendix D
Tonal IMMA-Tonal Data-Collection Sheet

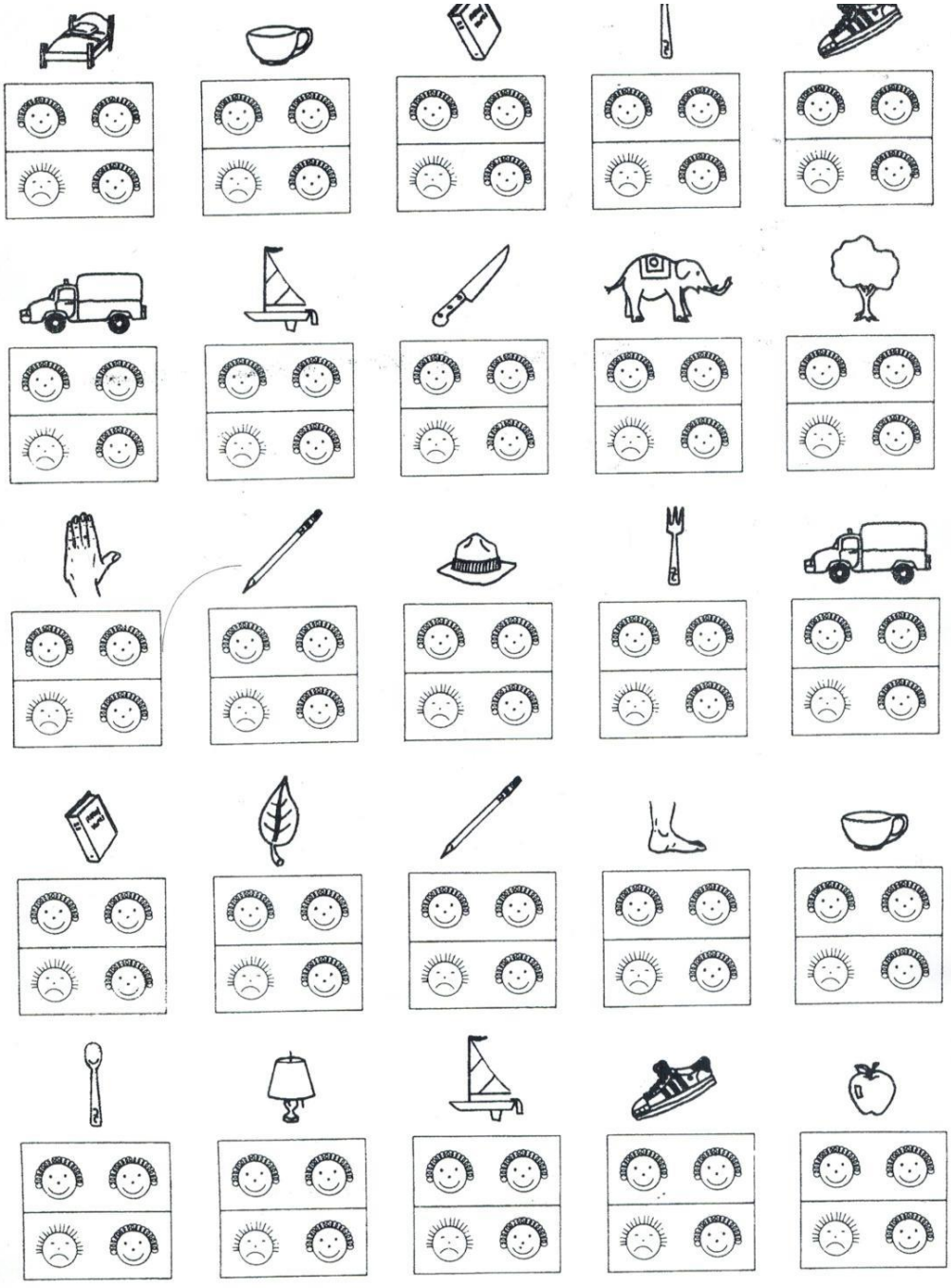




Appendix E

IMMA-Rhythm Data-Collection Sheet





Appendix F
IRB Parental Consent Form

UofL Institutional Review Boards
IRB NUMBER: 13.0680
IRB APPROVAL DATE: 12/10/2013
IRB EXPIRATION DATE: 12/09/2014

Parental Consent Form

Cognitive vs. Aesthetic Musical Experiences: An Examination of the Relationships between Music Aptitude and Musical Preference in Third Grade Students

Investigator(s) name & address: Robert Amchin & Erin Elliott, University of Louisville
Site(s) where study is to be conducted: Jefferson County Public Schools
Phone number for subjects to call for questions: (574) 323-7086

Introduction and Background Information
Your child has been invited to participate in a research study. The study is being conducted by Dr. Robert Amchin and Erin Elliott. The study is sponsored by the University of Louisville, School of Music. The study will take place at your child's elementary school. Approximately 120 subjects will be invited to participate.

Purpose
The purpose of this study is to examine the correlations between a child's music aptitude (their potential to learn) and their preference for various genres of music. Specifically, the following questions will be examined:
1) What are the general musical preferences of third grade students?
2) In what role does music aptitude and audiation have on a student's musical preference?

Procedures
In this study, your child will take two short tests administered on three separate days within a span of two-three weeks, coordinating with the classroom or music/arts & humanities teacher. The first test asks students to listen to pairs of examples and determine if they are the same or different. The test is divided into two short assessments, rhythm and tonal, and each 20 minute segment will be administered on separate days. The second test is a researcher-developed preference test where students will provide a brief background on their musical education, listen to 20 short music examples from 10 different genres and rank their preference on a smiley-face scale. A broad range of genres will be presented. All materials will be school appropriate. Results from the two tests will then be calculated to determine any correlations between a child's music aptitude and their preference for different genres of music.

Potential Risks

There are no foreseeable risks other than possible discomfort in listening to music they might not enjoy.

Benefits
The possible benefits of this study include listening to new styles of music they might enjoy. The information learned in this study may be helpful to others.

Cognitive vs. Aesthetic Musical Experiences: An Examination of the Relationships between Music Aptitude and Musical Preference in Third Grade Students

Confidentiality
Total privacy cannot be guaranteed. Privacy will be protected to the extent permitted by law. If the results from this study are published, names of the students will not be made public. While unlikely, the following may look at the study records:

The University of Louisville Institutional Review Board, Human Subjects Protection Program Office, and Office for Human Research Protections (OHRP)

All answers will be coded and stored in a secure area and password protected computer file. All applications involving provided data will make no mention of names.

Voluntary Participation
Taking part in this study is voluntary. Your child may choose not to take part at all. If your child decides to be in this study they may stop taking part at any time. If your child decides not to be in this study or stops taking part at any time, they will not lose any benefits for which you may qualify.

Research Subject's Rights, Questions, Concerns, and Complaints
If you have any concerns or complaints about the study or the study staff, you have three options.

You may contact the principal investigator at (502) 523-3106.

If you have any questions about your rights as a study subject, questions, concerns or complaints, you may call the Human Subjects Protection Program Office (HSPPO) (502) 852-5188. You may discuss any questions about your rights as a subject, in secret, with a member of the Institutional Review Board (IRB) or the HSPPO staff. The IRB is an independent committee composed of members of the University community, staff of the institutions, as well as lay members of the community not connected with these institutions. The IRB has reviewed this study.

If you want to speak to a person outside the University, you may call 1-877-852-1167. You will be given the chance to talk about any questions, concerns or complaints in secret. This is a 24 hour hot line answered by people who do not work at the University of Louisville.

This paper tells you what will happen during the study if you choose to take part. Your signature means that this study has been discussed with you, that your questions have been answered, and that you will take part in the study. This informed consent document is not a contract. You are not giving up any legal rights by signing this informed consent document. You will be given a signed copy of this paper to keep for your records.

Signature of Subject/Legal Representative Date Signed

UofL Institutional Review Boards
IRB NUMBER: 13.0680
IRB APPROVAL DATE: 12/10/2013
IRB EXPIRATION DATE: 12/09/2014

Cognitive vs. Aesthetic Musical Experiences: An Examination of the Relationships between Music Aptitude and Musical Preference in Third Grade Students

Signature of Person Explaining the Consent Form (if other than the Investigator) Date Signed

Signature of Investigator Date Signed

LIST OF INVESTIGATORS	PHONE NUMBERS
Erin Elliott	(574) 323-7086
Dr. Robert Amchin	(502) 523-3106

Appendix G
Student Consent Form

UofL Institutional Review Boards
IRB NUMBER: 13.0680
IRB APPROVAL DATE: 12/10/2013
IRB EXPIRATION DATE: 12/09/2014

SUBJECT ASSENT

Cognitive vs. Aesthetic Musical Experiences: An Examination of the Relationships between Music Aptitude and Musical Preference in Third Grade Students

I have been invited to be in a research study being done by Professor Robert Amchin and Erin Elliott. When a person is in a research study, they are called a "subject". I am invited because because I am a third grader who has had either elementary general music or arts and humanities and I like to listen to music.

This means that I will take three short tests over the next few weeks. Two of them will test for my aptitude (my potential) to learn music, and the third test will look at what music I like to listen to. No one will see my personal grade except for the researchers of this study. There are no seen risks except for the possibility of discomfort in listening to music I might not enjoy.

This study will last 90 minutes broken down into three sections over a span of several weeks. The benefits to me for participating in this study is are learning more about my potential to learn music and listen to music I may not have ever heard before.

My family, the researchers, my teacher, and my classmates will know that I'm in the study. If anyone else is given information about me, they will not know my name. A number or initials will be used instead of my name.

I have been told about this study and know why it is being done and what I have to do. My parent(s) have agreed to let me be in the study. If I have any questions I can ask Professor Amchin or Erin Elliott. They will answer my questions. If I do not want to be in this study or I want to quit after I am already in this study, I can and will tell the researchers, my teacher, and parents if I want to withdraw from the study. I can tell the researcher and they will discuss this with my parents.

Printed Name of Subject	Signature of Subject	Date Signed

Printed Name of Parent/Guardian

Printed Name of Investigator Erin Elliott	Signature of Investigator	Date Signed

CURRICULUM VITA

NAME: Erin Archer Elliott

ADDRESS: 5717 Southland Blvd.
Louisville, KY 40214

DOB: South Bend, Indiana – July 1, 1984

EDUCATION
& TRAINING: B.M.E., Music Education
The College of Wooster (2007)

Music Certificate, Oboe Performance
Bowling Green State University (2008)

M.M.E., Music Education
University of Louisville (2014)

AWARDS: Tuesday Musical Society Music Education Scholarship
Akron, Ohio (2006)

Daniel and Clarice Parmalee Endowed Prize Fund
The College of Wooster (2007)

EXPERIENCE: The University of Louisville
Louisville, Kentucky
Graduate Teaching Assistant (2012-2014)

Saint Joseph High School
South Bend, Indiana
Music Teacher (2008-2011)

PROFESSIONAL
SOCIETIES: The National Association for Music Education
Kentucky Music Educators Association