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The Effect of an Integrated Music Curriculum on
Reading Achievement Outcomes of Kindergarten Students

by

Tracy St. Clair

A Dissertation submitted to the Education Faculty of Lindenwood University

in partial fulfillment of the requirements for the

degree of

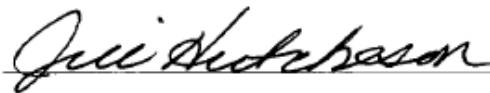
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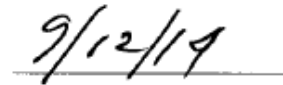
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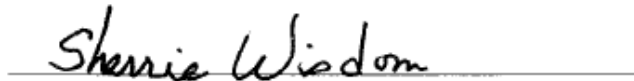
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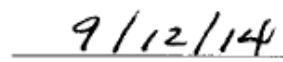
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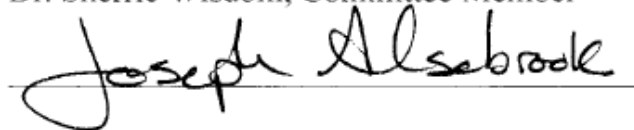
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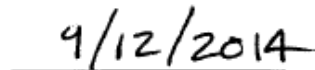
Dr. Sherrie Wisdom, Committee Member



Date



Dr. Joseph Alsobrook, Committee Member



Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

Full Legal Name: Tracy Lynn St. Clair

Signature: Tracy St. Clair Date: 9/12/2014

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Abstract

At the time of this study, school districts in the United States faced challenges relative to educational accountability, especially in the areas of language arts and mathematics. Research suggested that music held the potential to bolster student engagement and academic achievement to improve reading outcomes for students. An integrated music curriculum was designed and implemented by the researcher to support reading achievement in a Midwestern, suburban elementary school. The purpose of this counterbalanced research design was to examine the effect of an integrated music curriculum upon the reading achievement of kindergarten students. The lesson framework included brain-based and active listening warm-ups, the presentation of literature, an Orff-Schulwerk activity and literacy centers. Quantitative methods were used to answer four hypotheses statements including *t*-tests for difference in means, *z*-tests for difference in means, a chi-square tests for difference in variance, and an analysis of variance to determine the effects of the integrated music curriculum.

Although the quantitative results for three of the null hypotheses were not statistically significant, there were observable changes in the children's motivations and attitudes toward reading. Student growth in the content area of music was shown to be significant. The researcher concluded that music as a content area was valuable on its own, but could also make learning more powerful when utilized in reading instruction and other content areas. The new information gained from this study may help readers find effective ways of using music to enhance reading achievement.

Table of Contents

| | |
|---|------|
| Acknowledgements..... | i |
| Abstract..... | ii |
| Table of Contents..... | iii |
| List of Tables | vii |
| List of Figures..... | viii |
| Chapter One: Introduction | 1 |
| Background..... | 2 |
| Purpose..... | 4 |
| Overview of Methodology..... | 5 |
| Hypotheses | 5 |
| Hypothesis Statement 1..... | 5 |
| Hypothesis Statement 2..... | 6 |
| Hypothesis Statement 3..... | 6 |
| Hypothesis Statement 4..... | 6 |
| Limitations | 6 |
| Definition of Terms..... | 9 |
| Conclusion | 15 |
| Chapter Two: The Literature Review | 17 |
| The Common Core State Standards | 17 |
| Brain-based learning | 19 |
| Conclusions derived from neuromusical and neurological research | 19 |
| Implications to music and reading instruction | 22 |

| | |
|--|----|
| Brain-based strategies for educators | 24 |
| Multiple Intelligence Theory | 26 |
| Verbal-linguistic intelligence..... | 27 |
| Musical intelligence | 28 |
| Five minds for the future..... | 28 |
| Best practice in reading instruction..... | 29 |
| Phonics instruction..... | 30 |
| Whole language. | 32 |
| Balanced literacy..... | 32 |
| Music and literacy correlation | 33 |
| Best practice in music instruction | 38 |
| Orff-Schulwerk | 38 |
| Kodály..... | 40 |
| Summary..... | 41 |
| Integration of music and reading | 42 |
| Relevant Studies in Arts Integration | 48 |
| The Well-Tempered Mind. | 49 |
| Opening Minds through the Arts. | 50 |
| The Turnaround Arts Initiative. | 50 |
| Conclusion | 52 |
| Chapter Three: Methodology..... | 53 |
| The Research Site | 53 |
| Research Design..... | 54 |

| | |
|--|----|
| Instrumentation | 54 |
| Data Collection and Analysis Procedures | 57 |
| Null Hypothesis Statement 1 | 57 |
| Null Hypothesis Statement 2 | 58 |
| Null Hypothesis Statement 3 | 58 |
| Null Hypothesis Statement 4 | 59 |
| Participants..... | 59 |
| Development of the Integrated Music Curriculum | 65 |
| Summary..... | 68 |
| Chapter Four: Results | 69 |
| Characteristics of the Sample..... | 69 |
| Data collection and analyses procedures | 69 |
| Results..... | 71 |
| Null Hypothesis Statement 1 | 72 |
| Null Hypothesis Statement 2 | 78 |
| Null Hypothesis Statement 3 | 80 |
| Null Hypothesis Statement 4 | 84 |
| Summary of Results | 86 |
| Chapter Five: Discussion and Reflection..... | 87 |
| Discussion of Results | 87 |
| Hypothesis Statement 1..... | 87 |
| Hypothesis Statement 2..... | 87 |
| Hypothesis Statement 3..... | 88 |

| | |
|--|-----|
| Hypothesis Statement 4..... | 89 |
| Limitations Affecting Results | 89 |
| Observations and Personal Reflections..... | 92 |
| Recommendations for Future Integration Programs..... | 94 |
| Recommendations for Future Research | 96 |
| Implications..... | 98 |
| Conclusion | 100 |
| References..... | 102 |
| Appendix A: Study District Music Rubric | 109 |
| Appendix B: Parent Information Letter | 110 |
| Appendix C: Integrated Music Lessons Outline..... | 111 |
| Appendix D: Description of Literacy Centers | 143 |
| Appendix E: List of Children’s Literature and Recordings | 146 |
| Appendix F: Additional Definitions of Terms..... | 148 |
| Vitae..... | 149 |

List of Tables

| | |
|---|----|
| Table 1. Aimsweb Data Letter-Naming Fluency (LNF) Groups 1 and 2 | 70 |
| Table 2. Aimsweb Data Letter-Sound Fluency (LSF) 2013-2014..... | 70 |
| Table 3. Results: LNF Fall Benchmark <i>t</i> -Test | 73 |
| Table 4. Results: LSF Fall Benchmark <i>t</i> -Test..... | 74 |
| Table 5. Results: LNF Winter Benchmark <i>t</i> -Test | 75 |
| Table 6. Results: LSF Winter Benchmark <i>t</i> -Test..... | 76 |
| Table 7. Results: LNF Spring Benchmark <i>t</i> -Test | 77 |
| Table 8. Results: LSF Spring Benchmark <i>t</i> -Test | 78 |
| Table 9. Results: Chi-Square for Difference in Variance | 79 |
| Table 10. Post-to-Post Variance in Student Achievement..... | 80 |
| Table 11. Results: LNF ANOVA..... | 81 |
| Table 12. Results: LSF ANOVA | 82 |
| Table 13. Results: <i>t</i> -Test for Difference in Means..... | 83 |
| Table 14. Results: Vocal Technique Pre- and Post-Assessment <i>z</i> -Test..... | 84 |
| Table 15. Results: Instrumental Technique Pre- and Post-Assessment <i>z</i> -Test | 85 |
| Table 16. Results: Movement Pre- and Post-Assessment <i>z</i> -Test..... | 86 |

List of Figures

| | | |
|---|-------------------------------------|----------|
| Figure 1. Assessment Flow Chart | Error! Bookmark not defined. | 5 |
| Figure 2. Aimsweb Data Letter-Naming Fluency (LNF) 2012-2013 | | 61 |
| Figure 3. Aimsweb Data Letter-Sound Fluency (LSF) 2012-2013 | | 61 |
| Figure 4. Aimsweb Data Letter-Naming Fluency (LNF) 2011-2012 | | 62 |
| Figure 5. Aimsweb Data Letter-Sound Fluency (LSF) 2011-2012 | | 62 |
| Figure 6. Aimsweb Data Letter-Naming Fluency (LNF) 2010-2011 | | 63 |
| Figure 7. Aimsweb Data Letter-Sound Fluency (LSF) 2010-2011 | | 63 |
| Figure 8. Aimsweb Data Letter-Naming Fluency (LNF) 2009-2010 | | 64 |
| Figure 9. Aimsweb Data Letter-Naming Fluency (LSF) 2009-2010 | | 64 |
| Figure 10. Framework for integrated lessons | | 666 |
| Figure 11. Aimsweb Data Letter-Sound Fluency (LSF) Groups 1 and 2 | | 72 |
| Figure 12. Aimsweb Data Letter-Sound Fluency (LNF) 2013-2014 | | 72 |

Chapter One: Introduction

The power of music to support learning has been well documented (Kraus & Banai, 2007; Respress & Lutfi, 2006; Trollinger, 2010), and using music to increase reading achievement is no exception (Bernstorf, 2009; Bidleman, 2013; Cooper, 2010; D'Agrosa, 2008; Darrow, 2008; Dwyer et al., 2011; Hansen & Bernstorf, 2002; Jensen, 2001; Kassner, 2002; McEwing, 2011; Mizener, 2008; Paquette & Rieg, 2008; Perret & Fox, 2006; Robelen, 2011; Ruppert, 2006; Standley, 2008; Telesco, 2010; Tsang & Conrad, 2011; Tucson Unified School District [TUSD], 2014). From the earliest stages of learning, for example, many individuals can recall singing the *Alphabet Song* to remember, retain, and recite in order, the twenty-six letters of the English alphabet. While scholars may not yet fully understand how music aids learning, research has suggested that music holds great potential to bolster student engagement and academic achievement to improve reading outcomes for students (Bernstorf, 2009; Cooper, 2010; D'Agrosa, 2008; Darrow, 2008; Hansen & Bernstorf, 2002; Mizener, 2008; Perret & Fox, 2006; Ruppert, 2006; Telesco, 2010).

To illustrate the marriage between music and reading instruction, a peek inside a kindergarten classroom might reveal students sitting on a carpet eagerly waiting to hear a story. The teacher then holds up a book by Fleming (1995), *In The Tall, Tall Grass*, singing the text and using the solfège pitch series 'sol, fa, mi, re, and do'. After the third page, the students notice the pattern and begin to imitate the teacher in singing the text through a descending, five-note scale ending on the home tone. This process repeats many times throughout the course of the book, the students listening, and squealing with delight each time their part returns and they are able to read and sing along. Throughout

the text, the students track those five simple words in the text from left to right, joining the chorus of voices singing around them. After the initial presentation of the book, small percussion instruments are used to represent several animals in the story. The teacher shows them how to perform a simple drone in alternating half notes, giving one of the animals some traveling music. They divide into groups and excitedly portray their animal characters through singing, instruments, and movement as they practice and perform the story until the end of class time.

In the preceding scenario, the book was a part of the reading program adopted by the research site for the current study. In subsequent classes, the teacher revisited this book and led the students through other reading and musical activities. After this sound-story experience, the book had new meaning for the students. They recalled the joy of performing the book through music and were more engaged and motivated in the learning process, all while practicing fundamental reading and musical skills.

Background

In the early years of the 21st century, school districts were faced with challenges relative to educational accountability, especially in the areas of communication arts and mathematics. Educational goals and expectations had shifted since the early 1980s toward a focus on standards and student results (Guthrie, Nicotera, & Wong, 2007). Upon enactment of the No Child Left Behind (NCLB) Act of 2001 (H.R. 1 – 107th Congress, 2001), there was significantly more emphasis placed on students' reading and math skills in defining successful schools. The accountability measures of NCLB required all students to be proficient on state reading standards by 2014 (U.S. Department of

Education, 2011). To meet the federal and state mandates under NCLB, it was essential for educators to find effective strategies for bolstering reading scores.

In an effort to raise these scores, many schools greatly reduced or even eliminated music programs to create more instructional time for literacy. Ironically, however, researchers documented positive connections between the arts and academic achievement, particularly with respect to reading proficiency, and suggested any reduction in arts education would consequently result in missed opportunities to implement powerful and effective learning experiences (Darrow, 2008; Kassner, 2002).

At the time of this study, the researcher had fifteen years of teaching experience in an elementary general music classroom. The Common Core State Standards (CCSS) were being introduced and implemented across the country and the National Coalition for Core Arts Standards was in development. Administrators explicitly directed during professional development in the study district that all teachers were expected to teach the CCSS, regardless of their content areas. A new state teacher evaluation system was also in development and in the piloting stage in area school districts, which included and assessed this expectation. Teachers were required to explore the instructional shifts that occurred with the adoption of the CCSS and discern how their roles may change because of them (Uecker, Kelly, & Napierala, 2014).

The research site for the current study was a school that encouraged collaboration and placed strong emphasis on educating the ‘whole child’, promoting innovation and creativity. The students in this research project represented a large spectrum of ability levels and learning needs. Regular progress monitoring occurred throughout the school year to assist teachers in their use of data to inform instruction. Although collaboration

with other teachers was encouraged, it was rare that one had an opportunity to work with the classroom teachers and present learning experiences to assist in teaching core content. Teachers often worked in isolation or with their like-minded team members, but did not collaborate and connect learning across disciplines.

The researcher anticipated that time spent actively participating in music could make a greater impact on students' reading achievement rather than simply increasing the amount of time dedicated to reading instruction. Further, the natural connections with literacy could be purposefully included in music lessons to significantly improve a student's reading ability (Mizener, 2008; Paquette & Rieg, 2008). This theory was intriguing to the researcher, who intended to analyze and explore, through action research, how an integrated music curriculum could support reading instruction.

Purpose

The purpose of this study was to investigate the relationships between an integrated music curriculum and reading achievement among students in kindergarten. A strong foundation in early literacy skills at the kindergarten level may increase later academic reading achievement as children progress through elementary school (National Governor's Association, 2014; National Reading Panel, 2001) and the new information gained from this study may help school administrators, classroom teachers, music teachers, and reading specialists to find effective ways of using music to enhance reading achievement. Previous studies have been conducted with elementary children in the first, third, and fourth grades (Lyons, 2008; Perret & Fox, 2006) and the results of this study may also strengthen understanding of the value of music in the kindergarten curriculum.

According to Dwyer et al. (2011), the field of arts integration was in need of development and support to realize its full promise.

Overview of Methodology

To achieve the purpose of this study, action research was conducted that used an integrated music curriculum to affect the reading achievement of kindergarten students. A counterbalanced design was utilized and pre- and post-assessments were administered in the content areas of reading and music at the beginning of the 2013-2014 school year. Two groups were randomly assigned at the beginning of the school year. The treatment group participated in the integrated music curriculum while the control group did not. Group 1 received the integrated music curriculum (treatment), while Group 2 received music class ‘as usual’ (control). After twelve weeks, the reading assessments were given to students as a part of the benchmarking process. Subsequently, Group 1 received music class as usual (control) and Group 2 received the integrated music curriculum (treatment). The reading and music assessments were given at the end of the school year and quantitative analysis was used to determine the effect of the integrated music curriculum on reading achievement outcomes.

Hypotheses

The hypotheses for this quantitative study are as follows:

Hypothesis Statement 1: On the kindergarten level, there will be a difference in average growth in reading achievement when comparing scores of students in the treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

Hypothesis Statement 2: On the kindergarten level, there will be a difference in the change in average variance in achievement scores when comparing students in the treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

Hypothesis Statement 3: On the kindergarten level, there will be a difference in average growth in reading achievement when comparing scores of students in the 2013-2014 treatment group to the average growth in reading achievement yielded during the previous four academic years without the integrated music curriculum, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

Hypothesis Statement 4: On the kindergarten level, during the academic year 2013-2014, students will exhibit growth in the content area of music, as measured by pre- and post- assessments written by district personnel.

Limitations

There were several extraneous variables that presented limitations to this study. Many were related to the fact that this project was action research. Action research studies can suffer from the possibility of data collector bias, implementation, and attitudinal threats (Fraenkel, Wallen, & Hyun, 2012). The study district employed the researcher throughout this research project. Additionally, action research studies are weak in external validity and not generalizable without replication to other individuals, classroom settings, and situations (Fraenkel, et. al.). An implementation threat is also possible if the teacher behaved differently during the integrated music lessons in ways

not integral to the research design, such as being more enthusiastic or accessible (Fraenkel, et. al, 2012).

To minimize these limitations with respect to bias, the researcher did not participate in the data collection process. The literacy coaches and guidance counselors at the school building handled the Aimsweb data collection. Assessment data generated by the researcher's students was used in the secondary data set for this study. Therefore, to avoid bias, volunteers who were familiar with the study district rubrics (Appendix A) conducted the music pre- and post-assessment data collection for the entire population data set examined. The researcher served as the instructor, and special care was taken to follow the same lesson plans when both groups participated in the treatment and control activities.

Although this research project was in development for three years, 2013-2014 was the first year of implementation of the integrated music lessons. However, the 2013-2014 was the second year that free, full-day kindergarten was available for residents in the school district. This transition may have affected the data analyzed for Hypothesis statement 3, because the district was capturing more kindergarten students from the attendance area and kindergarten students were spending more time at school than in previous years. Hypothesis statement 3 was included in the research design to address this potential limitation; an analysis of variance (ANOVA) was completed to examine the difference in reading achievement from the previous school years where full-day kindergarten was not offered.

The limitation with respect to external validity and generalizability may be related to the fact that the students had a diverse set of prior knowledge and experiences.

Children begin school with “widely varying degrees of letter knowledge, and the ability to identify letters is a strong predictor of future achievement in reading” (Snow, Burns, & Griffin, 1998, p. 185). While some students entered kindergarten knowing most of their letter names and many letter sounds, others presented little or no such knowledge. The maturation of kindergarten students over the course of the academic school year could also affect both the reading and music data.

Additionally, many aspects of the sample population and school environment were not in the control of the researcher. Examples include class size, the gender of the students, gender of the teacher, the experience of the teacher, the number of times per week the class meets, and instructional time. The time of day the integrated music lessons took place was also not ideal instructional time for kindergarten students. The lessons were given during regularly scheduled music classes, which occurred late in the school day as dictated by the building schedule. As in most school buildings, there were interruptions in the instructional time such as snow days, field trips, fire drills, assemblies, and other unscheduled disruptions.

The Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) assessments used as an evaluative tool were already a part of the school’s routine benchmarking process. It is possible that another reading assessment may have provided a different perspective on reading growth.

Another potential limitation in this action research project was the test-retest effect. Students may improve their score because of the similarities of the testing environment and content. The benchmarking team made efforts to minimize this

limitation by changing the order in which the letters were presented and not correcting student answers during the pre- and post-assessments.

Furthermore, the results of this research project might be affected by the reading strategies employed by other classroom teachers and reading interventionists in the school building. Reading data was examined and monitored by many building level colleagues, and interventions for struggling readers were a part of the building's Response to Intervention (RTI) program. It was challenging to fully isolate the degree of change that was caused by the integrated music curriculum in this project. Another noteworthy limitation was the amount of time my students spent reading and making music at home. Supplemental instruction in reading or the participation in private music lessons beyond the school day could affect a gain in assessment scores.

Definition of Terms

Accountability: The method by which states and school districts endeavor to confirm that schools and school systems meet the established goals is called, accountability (Calkins, Montgomery, & Santman, 1998, p. 183).

Aimsweb: Aimsweb is a universal assessment, progress monitoring, and data management system, which provides short, valid, and reliable measures of reading performance for students (Pearson, 2011).

At-Risk students: At-Risk students are those who are not experiencing success in school for a variety of reasons (ex. low socio-economic status, impulsiveness, disciplinary issues) and are identified by staff as in need of support.

Beat: In music, beat is a pulse that is steady and continuous (Nichols, 2001).

Body percussion: In music, body percussion refers to “the practice of creating

rhythm using the body,” such as, clapping, snapping, patting, and stomping (Nichols, 2001, p. B-1).

Comprehension: Comprehension is “the understanding what one is reading and the ultimate goal of all reading activity” (Florida Center for Reading Research, 2014, p. 2).

Dalcroze: Dalcroze refers to the method of teaching music, developed by Émile Jaques-Dalcroze that involves the use of solfège, improvisation, and eurhythmics. Eurhythmics teaches concepts of rhythm, structure, and musical expression using movement (Choksy, 1981).

Decoding: The ability to “translate a word from print to speech, usually by employing knowledge of sound symbol correspondences is called, decoding; decoding is also the act of deciphering a new word by sounding it out” (Florida Center for Reading Research, 2014, p. 4).

Differentiated instruction: “Matching instruction to meet the different needs of learners in a given classroom” is called, differentiated instruction (Florida Center for Reading Research, 2014, p. 4).

Direct instruction: “Direct instruction occurs when the teacher defines and teaches a concept, guides students through its application, and arranges for extended guided practice until mastery is achieved” (Florida Center for Reading Research, 2014, p. 5).

Ensemble: Ensemble is a “group of musicians (instrumentalists or vocalists) who perform together” (Nichols, 2001, p. B-3).

Expression: In music, expression refers to the way in which the music is performed or interpreted. Expression involves the techniques used to “communicate the message or emotion of the music” (Nichols, 2001, p. B-3).

Fluency: Fluency is the ability to read text quickly, accurately, and with proper expression. Fluency provides a bridge between word recognition and comprehension (Florida Center for Reading Research, 2014, p. 6).

High frequency words: High Frequency words consist of a small group of words (300-500) that account for a large amount of the words in print and can be regular or irregular words. Often, they are referred to as ‘sight words’ since automatic recognition of these words is required for fluent reading (Florida Center for Reading Research, 2014, p. 7).

High stakes testing: Assessments with consequences attached to test performance is called high stakes testing (Calkins et al., 1998).

Improvisation: In music, improvisation is “creating music spontaneously. It is most closely associated with jazz and rock performances although practiced by musicians of all historical periods” (Nichols, 2001, p. B-3).

Integrated music curriculum: For purposes of this research, an integrated music curriculum is a series of music and reading lessons delivered by the researcher that are based on research (Calogero, 2002; Cooper, 2010; D'Agrosa, 2008; Darrow, 2008; Hansen & Bernstorff, 2002; Lyons, 2008; McEwing, 2011; Mizener, 2008; Paquette & Rieg, 2008; Perret & Fox, 2006; Trollinger, 2010; TUSD, 2014).

Key: In music, “key refers to the tonal center or main pitch of a composition” (Nichols, 2001, p. B-4).

Kodály method: The *Kodály* method of teaching music was developed by Zoltán Kodály, which includes the utilization of Curwin hand signs, solfège, and rhythm duration syllables as pedagogical tools in a particular sequence, aligning with child development (Choksy, 1981).

Literacy centers: Literacy centers, also known as reading centers, consist of activities

organized in the classroom for students to work cooperatively or individually. Students work in centers while the teacher is conducting small group instruction. Each center contains meaningful, purposeful activities that are an extension and reinforcement of what has already been taught by the teacher in reading groups or in a large group (Florida Center for Reading Research, 2014, p. 12).

Literacy centers offer students the opportunity to stay academically engaged as they apply the skills they have been learning.

Melody: In music, melody refers to “a series of related pitches played consecutively, or the part of a song that can be hummed” (Nichols, 2001, p. B-4).

Note: In music, note refers to “a pitch or tone or the visual representation of a pitch or tone” (Nichols, 2001, p. B-6).

Objectives: Objectives are “measurable statements detailing the desired accomplishments of a program” (Florida Center for Reading Research, 2014, p. 10).

Orff-Schulwerk: Orff-Schulwerk is a cooperative approach to teaching and learning music. It is based on things children like to do: sing, chant rhymes, clap, dance, and keep a beat on anything near at hand. These instincts are directed into learning music by hearing and

making music first, then reading and writing it later. (Shammrock, 1997, p. 41)

Ostinato: In music, ostinato refers to “a continuously repeated melodic or rhythmic pattern” (Nichols, 2001, p. B-5).

Phoneme: A phoneme is “the smallest unit of sound within our language system. A phoneme combines with other phonemes to make words” (Florida Center for Reading Research, 2014, p. 11).

Phonics: Phonics is “the study of the relationships between letters and the sounds they represent; also used to describe reading instruction that teaches sound-symbol correspondences” (Florida Center for Reading Research, 2014, p. 11).

Phonological awareness: Phonological awareness is one’s sensitivity to, or explicit awareness of, the phonological structure of words in one’s language. This is an ‘umbrella’ term that is used to refer to a student’s sensitivity to any aspect of phonological structure in language. It encompasses awareness of individual words in sentences, syllables, and onset-rime segments, as well as awareness of individual phonemes. (Florida Center for Reading Research, 2014, p. 11).

Percussion: “Instruments that are sounded by shaking or striking” is called percussion (Nichols, 2001, p. B-5).

Phrase: In music, a phrase is “a natural division of the rhythmic or melodic line, comparable to a sentence in speech” (Nichols, 2001, p. B-5).

Pitch: In music, the pitch refers to “the highness or lowness of a given note” (Nichols, 2001, p. B-6).

Progress monitoring: Progress monitoring refers to

assessments that keep the teacher informed about the child's progress in learning to read during the school year. These assessment results provide a quick sample of critical reading skills that will inform the teacher if the child is making adequate progress grade level reading ability at the end of the year. (Florida Center for Reading Research, 2014, p. 12).

Range: In music, range is “related to voices or instruments, the notes playable or singable from the lowest to the highest” (Nichols, 2001, p. B-6).

Reading achievement: Reading Achievement is growth as measured by two individually administered subtests of the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) assessments. Aimsweb is “a benchmark and progress monitoring system based on direct, frequent, and continuous student assessment” (Pearson, 2014, p. 1).

Rhyming: Rhyming is “words that have the same ending sound” (Florida Center for Reading Research, 2014).

Rhythm: In music, rhythm is “a pattern of movement and sound in time and space” (Nichols, 2001, p. B-6).

Rondo: In music, a rondo is “a musical form resulting from the alternation of a main theme and contrasting themes” (Nichols, 2001, p. B-7).

Scale: “The sequence of tones within a specific tonal setting” is called a scale. (Nichols, 2001, p. B-7).

Solfège: Solfège is “a pedagogical solmization technique for reading music by assigning a syllable to each note (do, re, mi, fa, sol, la, ti do), sometimes with corresponding hand signs” (Nichols, 2001, p. B-7).

Sound story: As defined by the researcher, a sound story is a story that is illustrated with sound instead of pictures as a part of a music experience.

Study district: As defined by the researcher, a midwestern, small suburban school district where the research study took place is called the study district.

Supplemental instruction: Supplemental instruction is defined as “instruction that goes beyond that provided by the comprehensive core program because the core program does not provide enough instruction or practice in a key area to meet the needs of the students in a particular classroom or school” (Florida Center for Reading Research, 2014, p. 15).

Syllable: “A segment of a word that contains one vowel sound is called a syllable. The vowel may or may not be preceded and/or followed by a consonant” (Florida Center for Reading Research, 2014, p. 15).

Tempo: In music, “tempo refers to the speed or pace of the music” (Nichols, 2001, p. B-8).

Timbre: In music, timbre refers to “the various qualities of sound, or the unique and contrasting voices of instruments, singing, and speech” (Nichols, 2001, p. B-8).

Unison: In music, unison refers to “everyone performing the same part together or the interval created by sounding two of the same pitches” (Nichols, 2001, p. B-8).

Conclusion

To investigate the relationships between an integrated music curriculum and reading achievement among students in kindergarten, the researcher designed and implemented an integrated music curriculum. Quantitative methods, as a part of action research, were used to evaluate the effectiveness of the integrated music curriculum. The

new information gained from this study may help schools find effective ways of using music instruction to enhance reading achievement.

Chapter Two: The Literature Review

The purpose of this quantitative study was to investigate the effects of an integrated music curriculum on reading achievement among students in kindergarten. Chapter two describes the educational climate at the time of the study and details the problems introduced in chapter one.

The Common Core State Standards

At the time of this research, school districts faced considerable challenges relative to educational accountability, especially in the areas of language arts and mathematics. Educational goals and expectations shifted, since the early 1980s, toward a focus on standards and student results (Guthrie et al., 2007). Consequently, educators were forced to consider new and alternative strategies in order to respond to increasing demands upon standardized measures of student achievement.

Expectations for students' conceptual understanding in language arts and development of literacy skills received national attention when the Common Core State Standards (CCSS) were launched in 2009 (National Governor's Association, 2014). The primary goal in creating these new standards was to ensure students would graduate high school with the knowledge and skills required to do well in college, career, and life. Once established, the standards defined learning goals and stated what students should know and be able to accomplish by the end of each grade level (National Governor's Association).

States across the United States worked in partnership with teachers, researchers, and educational leaders to design and develop the standards. Once developed, states were given the choice to determine whether or not to adopt the standards. At the time of

this study, 45 of the 50 states had adopted the CCSS (National Governor's Association, 2014).

Educators in states where the CCSS were adopted were required to coordinate and work in partnership at all levels to design opportunities for students to acquire the knowledge and skills needed for future success (Uecker et al., 2014). While common core standards for English language arts (ELA) and literacy in science, social studies, and technical subjects detailed the content students should learn, they provided little guidance with respect to how the content should be taught. Though some sample texts were suggested, the standards were by no means a developed curriculum (Culp, 2013).

The English Language Arts (ELA) Common Core State Standards were presented in four strands: reading, writing, speaking and listening, and language. Each strand contained “anchor” standards that were further specified, per grade level (K–12), with increased complexity across the grade levels. These strands were embedded in student learning in the music classroom (Culp, 2013). As such, the CCSS had enormous implications upon the field of music education (Cardany, 2013).

Music education standards had existed for years prior to the establishment of the CCSS. The National Standards for Arts Education, for example, were adopted in 1994. These performance standards, among other things, suggested benchmarks for acquisition of various musical skills over time. In other words, they suggested the levels of proficiency that should be expected of students (Consortium of National Arts Education Associations, 1994).

With the development of the CCSS it became necessary to reassess and review the arts standards to reaffirm the place of the arts in the core curriculum. Accordingly, the

National Common Core Arts Standards work began on development in 2011. While these standards had not been finalized at the time of this study, proposed drafts of the new arts standards were available for review and commentary. Cornerstone assessment tasks for the arts standards were also in pilot mode. The new standards were based on the *Understanding by Design* (Hayes, 2013) framework. This framework, known as UbD, was an important element in delivering instruction and effective curriculum (Schmoker, 1999). In addition to the new standards were other instructional considerations for educators. The next section offers a review of instructional practices in consideration of brain research developments.

Brain-based learning

Studies have been performed regarding brain-based learning in reading instruction and music (Bernstorff, 2009; Cooper, 2010; Jensen, 2001; Jones, 2005; Trollinger, 2010). The first subsection herein explores a sampling of the conclusions derived from neuromusical and neurological research to date. The second subsection examines the implications these findings might have on reading and music instruction. The third subsection delves into specific strategies for educators to implement brain-based learning in the classroom.

Conclusions derived from neuromusical and neurological research.

Neuroscientists believed in the human brain's distinct capability to respond to and take part in music (Hodges, 2000). In so thinking, they believed that humans at any age are capable of benefitting from further exposure to and involvement in music (Hodges). Notwithstanding any cognitive or physical limitations, these neuroscientists opined that

all individuals possessed a distinct ability to benefit from meaningful musical experiences (Hodges).

In the years leading up to this study, a number of scientific advances in science allowed researchers in the fields of neuroscience, psychology, and education to procure more definitive results from their studies of the brain. These advances offered, and many believed they would continue to offer, new insights into how children learn (Cooper, 2010; Hodges, 2000; Schons, 2008; Trollinger, 2010). As a result of these discoveries, educators witnessed the implementation of new standards, renewed focus on academic achievement, and greater interest in brain research (Flohr, 2010).

Learning and memory can essentially be explained by a single phenomenon known as neural communication (Schons, 2008). When the brain receives sensory input, neurons communicate with one another and develop certain pathways. One neuron releases neurotransmitters that generate a series of electrochemical reactions, thus causing another neuron to fire. These firing processes continue to other neurons, initiating a series of events. If the sensory stimulus is not received again during a standby period of a few hours to a few days, the neural pathway will likely disappear and no memory will be retained. Alternatively, if the firing pattern is repeated during the standby period, the group of related neurons will develop an increased tendency to fire again in the future, while requiring less stimulation. It is in this way that memories are formed and will get stronger with repetition. The more a pathway fires, the stronger it becomes (Schons, 2008). As the brain is confronted with new learning experiences, it generates additional neural connections and pathways (Respress & Lutfi, 2006). Many believed these new experiences caused the human brain to change both structurally and

functionally (Respress & Lutfi,).

Most researchers agreed that musical experiences initiated activity in both hemispheres of the brain while strengthening cerebral cortex activity and memory retrieval mechanisms (Flohr, 2010; Hodges, 2000; Reimer, 2004). Further, musical experiences are multimodal in that they stimulate, at a minimum, the cognitive, auditory, visual, affective, memory, and motor systems (Hodges, 2000). These findings, and others, consequently led numerous brain researchers to determine that musical perception and processing, instrumental music training, and language were strongly connected (Trollinger, 2010). As such, many scientists suggested that increased exposure to the arts positively influences brain performance (Flohr, 2010; Respress & Lutfi, 2006).

Another study concluded that positive influences on the brain benefitted humans throughout life (Cooper, 2010). It further determined that the more learning one obtains in childhood, the less likely one is to be incapacitated by Alzheimer's disease or other forms of cognitive dementia later in life. Neuroscientists recommended learning to play one or more musical instruments. The conclusion for music educators was that neuroscientific research substantiated an emphasis on lifelong learning in music (Hodges, 2000). It was believed early and ongoing music training influenced the organization of the musical brain (Kraus & Banai, 2007). There were growing indications that individuals who studied music, especially at a young age, exhibited neurological qualities different from individuals who had not (Krause & Banai). Data obtained from brain imaging scans, such as MRI's, fMRI's, PET scans, and CT scans demonstrated that the primary auditory cortex in the left hemispheres of musically trained individuals was larger than that of untrained individuals (Hodges, 2000; Schons, 2008). Differences were markedly

exaggerated for individuals with absolute pitch (also known as perfect pitch) and for those who began musical training before the age of seven (Krause & Banai).

The neuromusical research projects referenced in this review substantiated the conclusion that music positively affects cognitive function. In fact, researchers concluded from their studies that through music humans are better able to share, express, discover, and know about parts of the human experience than through any other means (Hodges, 2000; Reimer, 2004). One researcher, Reimer, cautioned however, that it was rudimentary to “think in terms of a generalized brain involvement in one simple term ‘music’” (2004, p. 24). He provided a further caveat that just as individuals were unique in their experiences and emotions, so too were brain responses and activations within the neural systems (Hodges, 2000; Reimer, 2004).

Implications to music and reading instruction. In the article, “Music Dance, and the Brain: A Great Combination,” Bernstorf (2009) examined a study conducted by a researcher, Kraus, who stated “music education is so important to learning to read” (p. 17). Kraus researched auditory processing from an all-encompassing perspective, one that included both musical and reading processes. In the study, she examined the auditory brain-stem of responses of aural-stimuli upon untrained musicians and trained musicians. Her results indicated that all individuals’ brains process music as a higher-level cortical activity. She further found the brains of individuals with music training also processed music and speech more actively and strongly than those individuals without music training. In so finding, she discovered that trained musicians seemed to actively utilize more of their brains with enhanced brain responses when processing what they heard. As a result, Kraus concluded that music training actually changed the

structure of the brain and allowed musicians to respond to a variety of stimuli more efficiently than untrained musicians (Bernstorf, 2009; Kraus & Banai, 2007). She noted:

Musical experience has a pervasive effect on the nervous system. Our recent articles show that lifelong musical experience enhances neural encoding of speech as well as music and heightens audiovisual interaction. Our work suggests that musician have a specialized neural system for processing sight and sound in the brain stem, the neural gateway to the brain. This evolutionarily ancient part of the brain was previously thought to be relatively unmalleable; however, our studies indicate that music, a high-order cognitive process, affects automatic processing that occurs early in the processing stream, and fundamentally shapes subcortical sensory circuitry. (Bernstorf, 2009, p. 17)

School administrators and leaders were likely most interested in another study Kraus and her team completed on the brain-stem responses to auditory stimuli for “good” and “poor” readers (Bernstorf, 2009, p. 18). It revealed response patterns were different in those with and without musical training related to steady beat, rhythm and harmonics. “Poor” readers were found to have delayed timing while “good” readers had early timing (p. 18). In other words, “good” readers’ brains responded more quickly to time and harmonics. The responses between groups did not exist in regards to pitch. These researchers also explored how the brain processed sensory input (visual and auditory) with cognitive processes (decoding what they heard and saw). In analyzing their results, they concluded that music could assist children with both their reading and listening skills (p. 18).

Other scientists also believed from their findings that significant relationships between singing and language development existed (Trollinger, 2010). Notwithstanding the fact these studies have perhaps raised more questions than they have answered, music educators have nevertheless been able to use this knowledge to develop a number of different strategies for brain-based instruction (Trollinger).

Brain-based strategies for educators. As stated previously, research showed musical engagement helped students activate neural pathways and develop language-processing skills. From this, brain-based strategies were developed to help facilitate student learning. This subsection examines some of the instructional strategies suggested from the literature that may be used to effectively teach reading skills through music.

One strategy recommended that, when introducing a new idea, a teacher should compose a short melody as a memory aid, whether it is a spelling word, a grammatical rule or a scientific formula. This need not be a grand artistic statement. Rather, something as simple as a short jingle may be introduced in an effort to create powerful brain connections for young students (Jones, 2005). Proponents of this strategy suggested that students should be invited to sing paragraphs from reading assignments, vocabulary lists or poems to assist in the development of comprehension, vocabulary and grammatical understanding (Trollinger, 2010).

Another recommended strategy was founded in the belief that music could help regulate emotion or frustration during the learning experience. Specifically, supporters of this strategy believed the affective nature of music was ideal for changing a student's mood or emotional state (Becktold, 2001). They believed cross-lateral movements

combined with active music listening could effectively assist when students experienced frustration in the learning process (Becktold).

Two researchers supporting the foregoing research, Becktold (2001) and Jones (2005), recommended educators consider instructing students to pat themselves on the back with the opposite hand, or write words or numbers in the air while listening to music. They suggested these activities help engage both sides of the brain and by actively engaging with music, rather than passively listening, the brain is more effectively stimulated and developed (Becktold, 2001; Jones, 2005). Jones suggested teachers do not need to lead music making among their students. Rather, he believed young children can naturally create their own music when given just a few basic instructions. He further opined that, teachers should not concern themselves with the quality of their voices or musical training when singing to children, but it is far more important for them simply to demonstrate that music is available to everyone (Jones, 2005).

A similar brain-based instructional strategy involved using new vocabulary or putting emphasis on the words in a song. Proponents of this approach suggested, for example, when teaching chants, teachers not only emphasize the words, but add a melody after the chant in an effort to develop stronger brain connections. They believed when teaching songs with more complex melodies, teachers may better accommodate brain processing by presenting a melody on a neutral syllable first, and thereafter introducing repeating verbal phrases, rather than simply attempting all the words in one lesson (Trollinger, 2010). When adding a simple melody to a passage from a book or poem, engaging in a simple call and response activity will involve more areas of the brain to aid language development (Trollinger). These strategies also supported instructional

methods which encouraged children to create their own unique language or create their own words for specific objects or directions (Trollinger). One advocate of this approach, Cooper (2010), provided a list of recommendations for selecting stories to create brain-based learning opportunities for literacy in the music classroom (Cooper).

Regardless of the particular strategy implemented, researchers who found strong and positive interactions in terms of language development, singing, and pitch sensitivity development suggested that utilizing these strategies to help the brain develop more neural connections also advanced language skills and increased memory and attention span (Cooper, 2010; Trollinger, 2010). The commonly accepted basis for this shared belief stemmed from the body of research that strongly evidenced the fact that singing and reading both had the capacity to increase brain development, build vocabulary, and promote future academic success (Cooper). Nevertheless, at the time of this study research specific to the interactions of the brain in language, speech, and singing was, in most respects, relatively new. As such, researchers fully expected further meaningful developments that might further assist educators in developing brain-based instructional strategies in coming years (Trollinger).

Multiple Intelligence Theory

Research supported music as a way of knowing, as both a separate discipline and to support learning in other disciplines through integration (Nichols, 2001, p. 1). In recent theories of cognitive psychology, music was identified as a way to know the world around us. In 1983, one psychologist, Gardner, researched the ways people learned and developed, what became known as Multiple Intelligence Theory. In doing so, he identified nine distinct intelligences, though he resisted the idea of labeling students to a

specific intelligence (Gardner, 1999). Gardner's Multiple Intelligence Theory helped educators address the challenge of providing differentiated instruction (Nolen, 2003). Educators could and should try to adjust their teaching to meet the needs of their students and Multiple Intelligence Theory expanded strategies to engage in active learning for a broader and more diverse range of learners (Armstrong, 2000). The classroom environment should be fundamentally restructured to accommodate the needs of different kinds of learners (Armstrong).

If Gardner's (1999) Multiple Intelligence Theory is considered, many learning opportunities were not fully represented (especially visual/spatial, musical or kinesthetic) in traditional whole-class instruction. The use of learning centers allowed teachers to create a more balanced classroom (Armstrong, 2000). Restructuring the classroom to contain several learning activities and allowing students to select their centers expanded the possibilities for differentiation (Cunningham & Allington, 1999, pp. 194-195). Students who explored through manipulating, drawing, and playing games learned and pursued their own interests in a way they felt the most competent (Cunningham & Allington). The verbal-linguistic and musical intelligences, the only two relevant to this study, are further discussed.

Verbal-linguistic intelligence. Individuals whose strengths included an understanding of written and oral language were said to have verbal-linguistic intelligence (Armstrong, 2000). Those who possessed verbal-linguistic intelligence exhibited the capacity to use words effectively and make use of language to express and understand complex meaning. In order to help a linguistic student progress, educators ought to use language that the student can understand and relate to. Having the student

read, write, and give an oral presentation about information relevant to their lives could develop linguistic intelligence (Nolen, 2003). Music was a powerful language of expression, whether a student was performing it or listening to it (Jensen, 2001). Gardner believed music and language should be regarded as a common medium (Nolen). As such, musical intelligence is discussed next of the multiple intelligences.

Musical intelligence. Those with musical intelligence had the capacity to perceive and a secure understanding of musical elements, such as pitch, rhythm, and timbre (Armstrong, 2000; Nolen, 2003). Gardner suggested teachers encourage musical intelligence by introducing, “formal musical analysis and representation” (Gardner, 1999, p. 111). He and another author, Jensen, (2001) argued that musical intelligence should be valued because it because it may assist us in creating, identifying and using “emotional states to regulate our lives” (Jensen, 2001, p. 32; Nolen, 2003). Gardner also distinguished musical intelligence as essential to critical thinking, creativity, problem solving, collaboration and communication (Heath, 2010).

Five minds for the future. Gardner’s theory of “Five Minds for the Future” was described in the book, *21st Century Skills: Rethinking How Students Learn*, authored by Bellanca and Brandt (2010). Gardner noted that education was rapidly evolving (Bellanca & Brandt). The Disciplined Mind was the first of Gardner’s “Five Minds for the Future.” Gardner posited that in order to earn knowledge, one must be able to keep up with modern trends. This involved mastery of a way of thinking, which could occur through classes or on the job (Bellanca & Brandt). In another mode, the Synthesizing Mind, Gardner theorized that one could survey a range of sources, decide what was important, and then put the information together in a way that it made sense to self and

others. Incidentally, he noted that the current educational system did not often teach synthesis, yet it was required in the 21st Century work force (Bellanca & Brandt).

According to Bellanca & Brandt (2010), Gardner further noted that most artists followed the same pathways as their peers in a rather non-creative fashion. By contrast, he argued those with the Creating Mind, actually changed the ideas and practice of their peers. He further discerned that creativity required cognitive process combined with personality and temperament. In order to cultivate creativity, however, there needed to be manageable obstacles (Bellanca & Brandt). Finally, Gardner stated that the last two minds, Ethical and Respectful, were often confused and appeared in contrast. He noted the Respectful Mind welcomed the exposure to diverse peoples and groups as those individuals who possessed this mind were trusting of others and often gave people the benefit of the doubt. He thought the Respectful Mind to be crucial in a global economy as those possessing it were most aware and threatened by intolerance and prejudice in society. The Ethical Mind recognized the rights and responsibilities for every role. In order to develop the Ethical Mind, Gardner posited that one must discuss decisions and the ethical reasons behind them (Bellanca & Brandt). Some researchers believed that Gardner's Multiple Intelligence Theory and the concepts presented in "Five Minds for the Future" provided practical guidance to educators when designing for performance and products in the classroom that will integrate human intelligences and engage multiple learning styles (Bellanca & Brandt, 2010). In the next section another understanding for educators, that of best practice in music education is examined.

Best practice in reading instruction

It has been accepted that reading is a basic necessary skill and, therefore an

individual's ability to read is critical to success in modern society (National Reading Panel, 2001). Understanding the importance of literacy, researchers have, over decades, conducted thousands of studies on reading instruction that have generated a substantial knowledge base for teaching reading. These studies, in addition to a wide variety of literature reviews, contributed to the knowledge base that thereafter existed for reading education (Snow et al., 1998). This knowledge was not to be equated with consensus, however, as a variety of different teaching methods emerged.

This section provides an overview of the two instructional methods that prevailed, phonics and whole language, as well as a discussion of balanced literacy. The methods of phonics and whole language have competed for acceptance in teaching literacy (Post, 2014). Both instructional methods involved elements that were applied in the other and the differences between them were related to what is emphasized and the sequence of skill instruction (Post). While both methods applied common elements, they were very different with respect to what they emphasized and the manner in which they sequenced skill instruction (Post).

Phonics instruction. In order to learn letter-sound relationships of phonics, children must notice how the sounds of language are connected to the letters (Pinnell & Fountas, 2004). Phonological awareness encompassed the sounds of language. The processes of hearing, chanting, singing poems or songs helped students become more aware of sound patterns and how they are connected. Such patterns can be found in rhyming or alliterative words (Pinnell & Fountas). Students need repeated experiences to identify phonemes in words (Pinnell & Fountas). This ability to identify individual

sounds in words, called phonemic awareness, was essential when children were learning to connect sounds and letters (Pinnell & Fountas).

Reading programs committed to phonics instruction required adequate instructional time be devoted to the teaching of phonemic awareness skills, phonics skills, the development of spelling, and orthographic skills (Snow et al., 1998). Priority goals in kindergarten classrooms included enhancing children's letter knowledge and phonological awareness skills (Snow et al., p. 189). In order for children to be able to recognize letters, they were required to distinguish the features that made one letter different from another (Pinnell & Fountas, 2004). Some differences between letters (for example, *h* and *n*) are quite small, and therefore, this task required close attention (Pinnell & Fountas). Learning how to look at letters was essential for children to connect letters and sounds and learn letter names (Pinnell & Fountas). Through repeated exposure to letters in the stories or poems they heard, children began to notice the letters as they were embedded in print (Pinnell & Fountas). For these reasons, it was believed that children should learn beginning or ending consonant sounds and long vowel sounds at an early age (Pinnell & Fountas).

Research concerning phonics instruction concluded: a) the teaching of phonics is an important aspect of beginning instruction, b) effective classroom teachers in the primary grades value and teach phonics as part of their reading programs, and c) in order for phonics instruction to be effective in promoting independence in reading, it must be embedded in the context of a total reading/language arts program (Florida Center for Reading Research, 2014).

Whole language. The whole-language approach to teaching reading emphasized literature and text comprehension. In this approach, educators focused on the meaning of what was read, rather than decoding and spelling. Sacks and Mergendoller (1997) stated, “some evidence suggests this approach in kindergarten is more effective than phonics instruction, particularly for at-risk students presumably because these children are not yet familiar with the basic understandings about letter knowledge and how print works” (as cited in Snow et al., 1998, p. 185). Students orienting themselves to the world of print learned to track with their eyes from left to right across a line and at the end of the line, return to the left and track, again, left to right (Pinnell & Fountas, 2004, p. 9). In using the whole-language approach, high-quality and culturally-rich literature was often selected and students were encouraged to ‘guess’ from contextual clues when they did not know how to read a particular word.

Balanced literacy. Though there had been significant debate over which of the foregoing methods was most effective, many researchers increasingly called for a more balanced approach, where combined emphasis was placed upon both phonological processing and on meaning. One relevant report, “Preventing Reading Difficulties in Young Children,” reached this very conclusion. Therein, both phonics and whole language philosophies were rejected as the preferred approach insofar as they were taught to the exclusion of one another (Snow et al., 1998). Instead, the report found that the best deterrent against reading failure was a balanced approach to reading education wherein various aspects of both approaches were combined to produce the best reading outcomes. Using this hybrid approach to reading instruction, children were given opportunities to master concepts of print, learn the alphabetic principle, acquire word

recognition skills, develop phonemic awareness, engage in and sustain interest in reading, and experience a variety of developmentally appropriate materials and instruction (Snow et al.). The report concluded that this approach was most effective when taught through direct instruction and independent practice, beginning at an early age and built upon through the grades (Snow et al.).

One way of providing independent practice was through the use of centers. Calkins (2001) stated, “The reading center is the component in a reading curriculum that particularly embodies our commitment to literacy of thoughtfulness” (p. 322). Through centers children were given a forum to do what good readers the world over do: talk deeply about books, encounter surprising things in books, think about the craft of writing, envision the drama in a story, share responses with a friend, and pursue ideas (pp. 326-327). The use of centers was effective in early literacy because they “call out an active, constructive mind” and “invite children to approach books with initiative, thoughtfulness, and joy” (p. 335).

Music and literacy correlation

At the time of this study, current research explored the possible correlation of various musical skills and the relationship on language and literacy skills. It was recognized by both researchers and educators that common connections between music and language skills conclusively existed (Kassner, 2002; Paquette & Rieg, 2008; Standley, 2008; Tsang & Conrad, 2011). That being said, a causal relationship was not conclusively established. Nevertheless, most agreed there existed a need for early intervention to improve young children’s reading skills. Music learning was seen as an effective tool to assist students in the acquisition of these skills.

In the article, “To Be or Not to Be . . . A Reading Teacher”, another description of the connection between music learning and literacy was discussed and explored. The author, Kassner (2002), understood the growing trend for school boards and administrators to involve every teacher in the teaching of reading skills and believed music teachers could and should help children acquire nonmusical knowledge relevant to their classroom settings. When administrators considered whether or not to cut back the time available for arts curricula even further, the author noted:

Current research did not confirm any of the following hypotheses: a) Test scores in reading improve when reading skills are taught during music instruction time; b) Test scores in reading improve at different rates when various methods of reading instruction, e.g., phonics or whole language, are taught during music instruction time; or c) Student learning of music concepts and skills suffers no detrimental effects when reading is taught during music instruction time (Kassner, 2002, p. 2).

Kassner (2002) cited many studies that evidenced a strong correlation between music learning and higher levels of reading skills. However, none of the studies established a causal relationship. In fact, he found that research to that time had concluded that there was insufficient evidence to make any claims of causal relationship between arts education and other academic performance (Kassner). To that point he stated, “while studies in the future may be able to show a causal relationship, it may be that researchers have not yet developed sophisticated enough designs or measurement instruments” (Kassner, p. 3).

Nevertheless, Kassner (2002) observed commonalities between the best practices

in both reading instruction and music instruction, especially in the development of “phonemic awareness, rhyming, segmentation, expressiveness in reading, vocabulary, and other related reading skills” (p. 4). As such, he recommended music educators become more purposeful, making small semantic changes to align music with reading curriculum, and inform educational decision makers how reading skills are reinforced when music is taught (Kassner).

Recommendations and conclusions similar to Kassner’s (2002) were discussed in an article found later in the meta-analysis, “Does Music Instruction Help Children Learn to Read? Evidence of a Meta-Analysis”, by Standley (2008). In the article, Standley examined the combined value of 30 different research projects in music and reading. It was her belief that music learning, music reading and music participation all had an impact on reading skills (Standley, 2008). In conducting her analysis, Standley performed a comprehensive literature review of both published and unpublished studies. In doing so, she examined the characteristics and qualities of the various studies and identified, described and coded them for analysis. The results of each study were statistically analyzed. Because of the limited number of studies in this topic area, all known studies considering both reading assessment and music intervention were examined. Relevant studies were taken from the *Journal of Music Therapy*, *Music Therapy Perspectives*, *Journal of Research in Music Education*, Dissertation Abstracts, ERIC, PsychInfo, and FirstSearch (Standley).

Standley (2008) reached several notable conclusions. First, she found music interventions generally had a positive and significant effect on reading skills. Second, she concluded that most normally developing children who read at age appropriate

proficiency levels did not demonstrate increased reading outcomes from participation in music classes. In contrast, however, were children with special needs who showed greater reading outcomes resulting from music intervention. Third, she found the benefits to reading outcomes generated by music instruction were greatest in the pre-kindergarten years. Finally, she determined that the use of contingent music to reinforce reading behavior was the most effective technique for improving reading outcomes (Standley). Based upon her findings, Standley recommended music be used to enhance reading in early childhood and elementary levels and suggested reading instructors set up a ‘music center’ to reinforce desired reading behaviors.

In addition to the foregoing, there were other studies that investigated the relationship between music learning and literacy, though none established a causal relationship. Standley (2008) and Kassner (2002) both noted, however, that comprehensive, integrative analyses of experimental literature in this area were limited (Standley, 2008; Kassner, 2002). As such, she recommended future research to more fully explore this relationship as the meta-analysis revealed many intriguing, positive results of music’s effect upon reading skills (Standley).

A third article further supported the relationship between musical learning and reading, specifically with young English-language learners. In “Using Music to Support the Literacy Development of Young English Language Learners”, Paquette and Rieg (2008) held that integrating experiences with music in the early childhood classroom supported English language learners’ literacy development (Paquette & Rieg). They believed music could be naturally integrated throughout all curricular areas to develop and extend vocabulary and comprehension skills. They further described the benefits of

incorporating musical experiences into daily instruction and provided practical activities for doing so. These suggested activities focused on reading, writing, and singing songs for language skill development, reading fluency, and writing progress (Paquette & Rieg). Specific songs were suggested for teaching various language skills (Paquette & Rieg). The suggested activities and other music experiences were believed to improve listening and oral language skill development, improve attention and memory, and enhance abstract thinking (Paquette & Rieg). Additionally, music was noted to enhance students' overall creativity and cultural awareness (Paquette & Rieg).

In the article, "Music Training and Reading Readiness", Tsang and Conrad (2011) shared their research findings confirming relationships among phonological awareness, early reading skills and music perception skills in young children. They concluded that pitch perception was correlated with phonological awareness, a finding consistent with the research by Standley (2008) and that basic auditory processing skills underlied the association between music and reading abilities. Tsang and Conrad further found the correlation between music skills and reading skills was positively affected by the presence of formal music training. They also believed pitch discrimination predicted reading ability only in children without formal music training (Tsang & Conrad, 2011; Standley, 2008).

Tsang and Conrad's (2011) research revealed little agreement among researchers about the specific elements of music perception that correlated with reading development. Though various studies indicated that an association existed between various musical aptitudes and reading skills, few provided conclusive evidence as to the full extent of this association. Accordingly, the authors recommended future researchers examining the

association between music perception and reading (and perhaps other cognitive domains as well) carefully consider the factor of music training in the subjects (Tsang & Conrad, 2011). Finally, they too, recognized a continued need for more fundamental research regarding the possible existence of stronger correlation or causal relationships between music learning and reading skills (Hansen & Bernstorf, 2002; Standley, 2008).

In this section, literature involving the correlation between music and reading was reviewed. The following section examines how music can be successfully integrated into the language arts curriculum.

Best practice in music instruction

Music is a language common to all human beings. It can express thoughts and emotions where words come short (Nichols, 2001). This section will summarize two pedagogical approaches to teaching music. Both the Orff-Schulwerk Approach and the Kodály Method share a belief in “each person's innate musicality, emphasize active music making, begin with the ear rather than the eye, incorporate some form of movement, and see music as essential to the total education of the child” (Goodkin, 2001, p. 17). These pedagogical approaches have various differences which will be described in the next two subsections.

Orff-Schulwerk. At the time of the study the Orff-Schulwerk Approach was well established among American general music teachers (Steen, 1992). Orff-Schulwerk, also known as the Orff Approach, is a way of teaching and learning music (Shamrock, 1997). It is based on the instinctual things children like to do, such as singing, keeping a beat, chanting rhymes, clapping, and dancing (Shamrock). These instincts are directed

into learning music by listening and creating music first, then reading and writing it later. In this respect, it is similar to the way we all learn language (Steen).

The Orff-Schulwerk approach was conceived in the mind of one of Germany's best-known contemporary composers, Orff, who developed it over a period of time with Keetman, a one-time student and lifelong collaborator (Regner, 1991). It had been used by many educators all over the world to teach students in a natural and comfortable classroom environment. It was often called "Elemental Music Making" because the materials needed to teach students were "simple, basic, natural, and close to a child's world of thought and fantasy" (Shamrock, 1997, p. 41).

In this approach, teachers and students interacted as partners in making music (Steen, 1992). Several musical elements, including speech, movement, singing, and instruments, were used to aid in the development of conceptual understanding (Regner, 1991). It emphasized active participation in the music making process. The music generated by the Orff Approach was based on improvisation and employed tonal structures that helped to build a sense of confidence and interest in the music making process (Goodkin, 2001). In a given lesson, students may sing, play instruments, or dance alone as well as in groups. Orff teachers further stressed the importance of developing a student's singing voice, as singing was the foundation for musical instruction (Culp, 2013). Songs are usually short, selected to be within the students' singing range, and can be arranged to create harmony with ostinatos (repeated patterns), in a round, or in ABA form (Goodkin). The result is a music education based on learning by doing. Appropriate instruction is directed toward the quality of aesthetic experience and seeks to enrich human life (Regner).

Music teachers who follow the Orff Approach function as facilitators who introduce the objectives of the lesson and then encourage the students to develop it until they begin making music on their own. Music and movement are inseparable elements in music education based upon the Orff Approach. By regularly incorporating movement activities, students remain actively engaged in the lesson (Culp, 2013). In the Orff Approach, both the teachers and students share responsibility for the creation of music (Steen, 1992).

Researchers studying Orff-Schulwerk have found positive relationships between reading and music skills (Darrow, 2008). Mizener (2008) noted that the Orff-Schulwerk Approach, emphasized rhythm and movement and offered connections between music and language development in young students (Mizener).

Kodály. Another popular teaching approach at the time of this study followed the Kodály Method. Kodály developed the Kodály Method in Hungary during the mid-twentieth century (Choksy, 1981). This method used the child development principles derived from the writings of Swiss educational reformer, Pestalozzi. Pestalozzi believed that the curriculum should be child centered and that the teacher's role should be to provide guidance in a manner such that the children would learn to reach educational conclusions by themselves (Battersby & Snyder, 2011). In so doing, Pestalozzi believed teaching “should begin with the simplest elements and proceed gradually according to the development of the child . . . in psychologically connected order” (Battersby & Snyder, p. 5). In a Kodály lesson, children were introduced to a new concept first by listening, singing or movement. After the children learned the new concept, they thereafter learned

to notate and read it. As these new skills were developed, they were reinforced through movement, songs, exercises, and games (Choksy).

The Kodály Method incorporated the use of rhythm duration syllables, solfège, and Curwen hand signs as pedagogical tools. Scale degrees were sung using corresponding syllable names (*do, re, mi, fa, sol, la, and ti*), and as further described in the introduction of Chapter One. The syllables show their function within the key signature and the relationships between pitches. Once the melody is learned through solfège, text is added. The Kodály Method emphasized the selection of music and children's games must be strictly high-quality, authentic folk music (Choksy, 1981).

Specifically with respect to movement, the Kodály Method followed a technique inspired by the work of Jaques-Dalcroze, a Swiss music educator (Choksy, 1981, p. 10). To reinforce new rhythmic concepts, the Kodály Method used different rhythmic movements, such as walking, marching, running, clapping, patting, and stomping. These may be performed while listening to music or singing. In some exercises, the teacher may create appropriate rhythmic movements to accompany the songs and instruct the children to imitate (Choksy, p. 43). In these ways, the Kodály Method shares some of the characteristics of the Orff Approach (Goodkin, 2001). Studies have shown the Kodály Method to improve intonation, rhythm skills, music literacy, and the ability to sing in multiple parts (DeVries, 2001). Outside of music, it has also been shown to improve perceptual functioning, concept formation, coordination, motor skills, and performance in other academic areas such as reading and math (DeVries, p. 25).

Summary. Since their adoption, music educators have been addressing ELA Common Core Standards (CCSS) in many ways through their instruction by way of the

natural connections between the two content areas (Cardany, 2013). Common instructional strategies in the Orff-Schulwerk Approach and the Kodály Method have been created to link speech-language and musical development. Many strategies include reading text and notation, movement, speaking, singing, chanting, action songs and games, body percussion (clapping, stomping, patting, etc.), listening to differentiate sounds, and interacting with peers (Culp, 2013; Mizener, 2008). These strategies, especially those within an Orff Schulwerk classroom environment, support the goals of the CCSS (Culp, 2013). In the next section, best practice in reading instruction is explored.

Integration of music and reading

The fragmentation of curriculum into specific subject areas was vexing to many educators and made learning more challenging for students (Cunningham & Allington, 1999). For decades, experts asked why a separate time and curriculum for reading was necessary. Recognizing that to become better readers, many felt children should be reading about a topic that teachers want them to learn about (Cunningham & Allington, p. 179).

While integrating the learning across subject areas made a great deal of sense, there were barriers to its implementation. There were often separate curriculum guides and/or textbooks for each subject area. Each subject had its own set of distinct goals and objectives, and most schools required grades to be given in different content areas. Indeed, in most schools, teachers were departmentalized while students were moved to different teachers for different classes (Cunningham & Allington, 1999). Integrating the skills of reading and writing with other subjects was believed to be a better use of

instructional time (Cunningham & Allington). It was further believed that integration across content areas could also make the skills more relevant and provide more opportunities for students to apply what was being learned (Cunningham & Allington,).

In light of the foregoing, some schools began integrating the arts into the curriculum as part of a comprehensive school reform strategy. These schools documented positive changes in the school environment and improved student performance (Ruppert, 2006). With respect to music integration, three approaches were advanced: a) supplemental, b) social, and c) cognitive (Nichols, 2001, p. 15). Each was believed to benefit learning (Nichols). In the supplemental approach, music is used to support the learning environment or classroom atmosphere. It includes things such as playing background music during reading time, test taking, and other tasks requiring focus and concentration tasks. Music is also used to support transitions and introduce new subjects (Nichols). In the social approach, music is experienced for its social benefits and its ability to bring unity and cooperation to a classroom community (Nichols). In this way, music can bring diverse people together and provide a unique vehicle for teaching teamwork, respect, work ethic, responsibility and inclusion – all of which are a part of the “unwritten curriculum” in our schools (Nichols, p. 16). The cognitive approach to music integration connects music experiences and concepts with concepts from the general curriculum in an effort to enhance cognition (Nichols, p. 18).

As discussed, many researchers agreed music could and should be used to enhance reading instruction (Kassner, 2002; Mizener, 2008; Paquette & Rieg, 2008; Standley, 2008). These articles also provided recommendations regarding how reading

and music educators could make interdisciplinary connections between their respective curricula.

At the time of this study, several studies had already explored whether the possible correlation by and between the introduction of various musical skills to young students had an effect on language and literacy skills. All of the studies reviewed recognized three major corresponding requirements in the areas of music and reading instruction. First, they acknowledged a need for early intervention to prevent reading difficulties in young learners. Second, they widely recognized connections between music and language skills. Furthermore, they provided examples and teaching strategies relevant to curricular connections between music and literacy (Darrow, 2008; Mizener, 2008; Telesco, 2010).

In the article entitled, “Integrating Music and Children’s Literature”, Calogero (2002) described how educators could use children's literature to organize integrated thematic units to teach both music and reading skills. The use of literature in the music classroom enhanced music learning and appreciation, as well as reading skills and knowledge in other curricular areas (Calogero). Calogero included an extensive list of children's books and notes for teaching strategies.

Research has supported the notion that early music training is a critical component in the development of “verbal, reading, comprehension, mathematical and spatial-temporal reasoning skills in children” (Telesco, 2010). In the article, ‘Music and Early Literacy’, Telesco (2010) examined a pilot program conducted by Perrot where music was infused into the elementary curriculum. In this program, the school incorporated a woodwind quintet into daily learning and across all curricular areas. The

lessons began with active listening, which “helped to develop students’ aural awareness,” and established connections to phonics, vocabulary, context, comprehension, and other skills (Telesco, p. 6). The program resulted in significant improvement not only in school attendance, but in reading and math scores as well (Telesco). After results of the Perrot pilot program was published, other schools adopted similar programs and achieved extraordinary results. A recurring theme among these successful programs was the implementation of music as an integral part of the curriculum, where teachers of all subjects used music and the other arts to teach their content (Telesco).

In the article, “Music and Literacy”, Darrow (2008) discussed the relationship between language development and musical skills. She stated music reinforces many reading skills (p. 32). To support this conclusion, Darrow (2008) cited researchers who found relationships between reading and music skills in studies investigating the various music pedagogies (Orff-Schulwerk, Kodály and Dalcroze Eurhythmics), and participation in band, orchestra or choral ensembles. Darrow (2008) cited researchers Register, Darrow, Standley and Swedberg (2007), who had previously concluded that musically-infused curricula assisted second graders and students with learning disabilities to considerably improve their skills in word decoding and word knowledge (Darrow, 2008). While the evidence suggested music had an influence on children’s reading skills, further investigation was needed to “determine more specific effects as well as the type and amount of music necessary to effect lasting change” (Darrow, 2008, p. 33).

Correspondingly, Mizener (2008) described music activities and explained how certain processes strengthened language development in her article, “Enhancing Language Skills through Music”. Mizener noted that the Orff-Schulwerk Approach

emphasized rhythm and movement and offered many connections between music and language development in young students. She cited Hansen and Bernstorf (2002), who had examined several skills common to both language reading and music reading. These skills included phonological awareness, phonemic awareness, sight identification, orthographic awareness, cueing systems and fluency (Hansen & Bernstorf, 2002). The article, "Linking Music Learning to Reading Instruction", written by Hansen and Bernstorf (2002) in the *Music Educators Journal*, closely examined the similarities between reading and music processes and provided an extensive list of same from both disciplines. Further, it summarized related research findings in the fields of music education and reading instruction, and suggested additional studies on the topic.

Hansen and Bernstorf (2002) defined five areas of similarity between the teaching of reading and music. These similarities included: a) phonological awareness, b) phonemic awareness, c) sight identification, d) orthographic awareness, and e) cuing systems awareness and fluency (Hansen & Bernstorf). Additionally, they summarized the findings of previously conducted research regarding the relationship between music learning and literacy. All of these studies, including a meta-analysis study conducted by Butzlaff, indicated a relationship between these two disciplines. Having said this, the authors suggested additional research was needed because little research to that point evaluated either a direct correlation or a causal relationship between musical and literary skills (Hansen & Bernstorf). Hansen and Bernstorf (2002) continued further to name several researchers who had performed studies that were similar to this topic, including Lamb and Gregory, who found a high correlation between pitch matching and reading abilities. Several options for further research included the comparison of reading levels

of those students who have had music instruction emphasizing specific reading skills against students who received “literary-text only instruction” (Hansen & Bernstorf, p. 4).

In, “Making Music, Reaching Readers: Making Powerful Connections Possible for Young Students”, D'Agrosa (2008) shared three main points regarding how music experiences correlate to reading skills. First, she provided a rationale for making connections between reading and music. Second, she gave recommendations regarding how reading and music teachers could purposefully make these connections. Finally, she provided examples and teaching strategies to be used with literature and music lessons (D'Agrosa).

D'Agrosa (2008) agreed that reading was an important skill for children to learn in school. She found no commonly agreed upon strategy, however, as to how reading should be taught. The No Child Left Behind Act of 2001 was intended to place a greater emphasis on reading instruction for all learners. However, she believed the testing of reading skills was not necessary to prepare students and that more emphasis should, instead, be placed on constructing meaning. D'Agrosa (2008) concluded that musical activities could be used to assist in the achievement of this skill and could further improve scores by creating rich experiences and connections between the two disciplines (D'Agrosa).

D'Agrosa (2008) believed the collaboration between the music and reading teachers could create powerful learning experiences for children and, with thoughtful preparation, both curriculum could be adequately taught. She suggested educators: a) give time, energy and creativity to make this connection, b) learn the relevant vocabulary of each discipline, c) learn how the reading and music skills overlap and can be

embedded with each other, and d) develop strategies that intentionally address the essential skills of both disciplines (D'Agrosa).

D'Agrosa (2008) noted several researchers who had closely examined the similarities between reading and music processes and provided an extensive list of teaching strategies and connections from both disciplines (D'Agrosa, 2008; Hansen & Bernstorf, 2002; McEwing, 2011; Telesco, 2010). D'Agrosa also described several lessons where literature and music were used in classrooms to teach both reading and music skills. In reading, teaching strategies were presented for building vocabulary and increasing comprehension, phonological awareness, and reading fluency through music. In music, teaching strategies were presented for vocal exploration, rhythm patterns, underlying pulse/steady beat, and singing (D'Agrosa). Recommendations were provided regarding how music and reading teachers could make connections to their respective curriculum.

In the final section of this literature review, successful arts integration programs are introduced and described as a model for educators.

Relevant Studies in Arts Integration

Many researchers believed the arts can effectively motivate and engage students, encourage curiosity, promote creativity, teach twenty-first century skills, and facilitate collaboration among teachers (Bernstorf, 2009; Dwyer et al., 2011; Hansen & Bernstorf, 2002; Heath, 2010; Herbert, 2012; Hodges, 2000; Jensen, 2001; Jones, 2005; Kraus & Banai, 2007; Mizener, 2008; Paquette & Rieg, 2008; Perret & Fox, 2006; Pinnell & Fountas, 2004; Ruppert, 2006; Standley, 2008; Telesco, 2010; Tsang & Conrad, 2011). While a need still existed for additional research in these areas, researchers concluded

that the value of arts education were positive and consistent (Dwyer et al., 2011).

Successful programs such as *The Well-Tempered Mind*, The Opening Minds through the Arts Program (OMA) and the Turnaround Arts Initiative had successfully integrated the arts into the core curriculum. The remainder of this chapter will further explain the recommendations elicited from these efforts and determine the implications of the foregoing upon in education.

The Well-Tempered Mind. In this book, a pilot program directed by Perrot (2006), was described wherein music was infused into the elementary curriculum. In this program, a school incorporated a woodwind quintet into daily learning and across all curricular areas. The lessons began with active listening activities, which “helped to develop students’ aural awareness” and made connections to phonics, vocabulary, context, comprehension and other skills (Perret & Fox, 2006, p. 121). The program resulted in significant improvement not only in school attendance, but in reading and math scores as well (Perret & Fox).

After the results of the Perrot pilot program were published, other schools adopted similar programs and achieved what the researcher considered extraordinary results (Telesco, 2010). A common theme among these successful programs was the implementation of music as an integral part of the curriculum, where teachers of all subjects used music and other arts to teach their content (Telesco). Though membership in the quintet changed during the residency, the project was considered very successful and was eventually expanded to a middle school in Winston-Salem, North Carolina, as well as to the Tucson Unified School District in Arizona, where it became a part of the Opening Minds through the Arts Project (Perret & Fox, 2006; Telesco, 2010).

Opening Minds through the Arts. At the time of this study, the Opening Minds through the Arts (OMA) project was a student achievement program utilizing the arts to teach skills used in reading, writing, math, science and other subjects. Visiting artists, classroom teachers and music integration specialists collaborated to plan unit lessons that aligned with educational standards. It was based on brain research to target specific skills in each grade level and raised student test scores and teacher effectiveness. The Aptitude Inventory Measurement (AIMS) and Stanford Achievement Test (Stanford 9) were used as evaluation tools. All children at the school engaged in the OMA program. This program dramatically changed the school and classroom environments. For example, both teachers and students were more fully engaged and student attendance increased. During its three-year implementation, the OMA program made significant progress helping at-risk students succeed. Teacher effectiveness increased, arts instruction strengthened, and advances were made in student academic achievement (TUSD, 2014).

The Turnaround Arts Initiative. The Turnaround Art Initiative was developed most recently to this study. It arose at a time when cutting-edge studies in neuroscience had significantly advanced the scientific and academic communities' understanding of how arts strategies support crucial brain development in learning (Dwyer et al., 2011). Despite these advances, however, arts instruction in schools was on a downward trend. This was in large part due to budget constraints and increased emphasis on the subjects of high stakes testing (Ruppert, 2006). In the midst of this climate, President Obama created a presidential advisory panel to consider the increasing and changing need to emphasize education in the arts. This panel issued a report titled, "Re-investing in arts education," wherein it made the case for expanding access to arts education in schools

(Dwyer et al., p. 1). In so doing, the report argued that the arts held great potential to bolster student engagement and academic achievement (Herbert, 2012). As to the effective use of arts in schools, the advisory panel offered five recommendations to strengthen arts education:

1. Build collaborations among different approaches;
2. Develop the field of arts integration;
3. Expand in-school opportunities for teaching artists;
4. Utilize government policies to reinforce the place of the arts in K-12 education; and
5. Widen the focus of evidence-gathering about arts education. (Dwyer et al., 2011, pp. 48-54)

From this report, the Turnaround Arts Initiative developed. This was a pilot project chartered in eight low-performing schools across the United States in the fall of 2012 and was funded for three consecutive years. The goal of this program was to create a model for other schools which sought to create a strong arts curriculum (Herbert, 2012).

A progress report, released after the first year, revealed encouraging preliminary results. The initial data showed there were positive changes in Turnaround Arts Schools (Dwyer et al., 2011). Researchers studying the initiative pointed to shifts in school culture and climate, positive perceptions by teachers and students, and increased school morale. In assessing school reform indicators, the progress report noted that over half of Turnaround Arts schools increased daily attendance, a chronic challenge in low-performing schools. Moreover, disciplinary incidents were significantly decreased in a majority of Turnaround Arts schools, some by as much as 69-79% (Dwyer et al., 2011).

The report also showed that all but one of Turnaround Arts schools improved overall scores in math, and all but one improved their overall scores in reading. All Turnaround Arts schools improved their scores in either reading or math. When matched up to low-performing schools in their respective states or districts, five out of seven Turnaround Arts Schools (70%) experienced greater progress in reading, while just under half made greater progress in math. Overall, the Report found “many hopeful signs about the potential of this work to positively influence student experience, student engagement, school culture, and school outcomes” (Dwyer et al., 2011, p. v).

Conclusion

The CCSS and educational accountability conditions established a pressing demand for innovative and creative instructional strategies, which might be associated with improved student achievement. As a result, educators and school leaders considered new research in brain development, multiple intelligences and best practices in music and reading instruction. Numerous correlations and relationships between language arts and music were found between concepts and skills in these content areas. Arts integration has been used in many successful long term programs to expand arts opportunities, engage students more deeply in learning content, and as an effective school reform strategy. The next chapter will provide details the methodology used in this music integration research project.

Chapter Three: Methodology

The purpose of this study was to investigate the effects of an integrated music curriculum on the reading achievement among students in kindergarten. Chapter three details the methodology used to test the research hypotheses.

The Research Site

An accessible population for this study was taken from a mid-western, suburban elementary school with a student enrollment of 510 students in kindergarten through fifth grade, and with approximately sixty full-time faculty and staff. The student population was 81% White, 8% Black or African-American, 6% Two or More Races, 3% Hispanic, 1% Asian, and 1% Other. Seventeen percent of the students qualified for a free or reduced lunch. Gender demographics showed 52% of students were female and 48% were male. Two percent of students were English-Language Learners, and 10% of students qualified for special education services (Study District, 2013, p. 1). Census data for 2008-2012 indicated 7% of residents were at or below poverty level (U.S. Census Bureau, 2014).

The building environment supported collaboration. The district and building administrators supported the arts and valued the education of the whole-child. Further, many resources were available to the researcher as well as opportunities for professional development concerning the Common Core State Standards (CCSS). Finally, full-day kindergarten was new in the study district, and for the first time kindergarten music classes occurred within 50-minute lesson blocks.

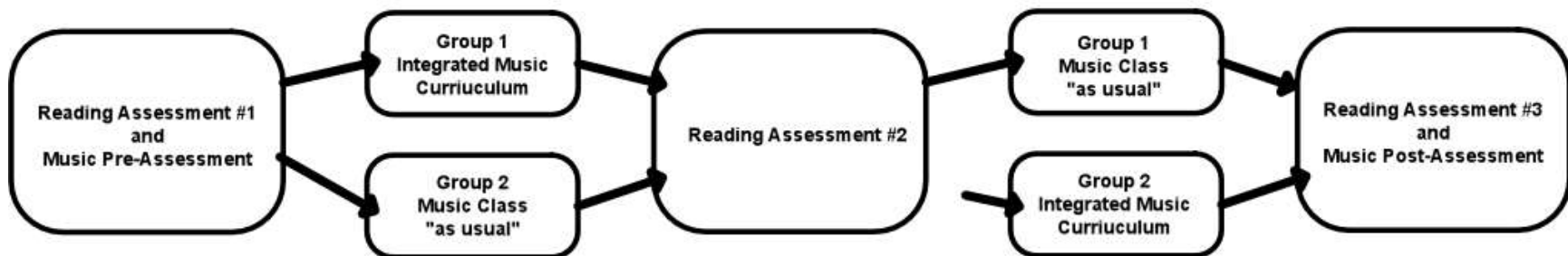
Research Design

The experimental design consisted of both descriptive and intervention methods supporting an action research and personal case study. The researcher's role in the study was the students' teacher, as well as the researcher to document observations throughout the music intervention and reading instruction. The reading instructors in the school building delivered the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) benchmarking assessments.

A counterbalanced research design was employed in this study, through which all groups received all treatments in a different order (Fraenkel, et. al., 2012). Two kindergarten classes were randomly selected at the beginning of the school year. Group 1 received the integrated music lessons during the first semester (treatment), while Group 2 received music class 'as usual' (control). The term 'as usual' was used to describe music lessons that were taught in previous school years at the kindergarten level. In the second semester, Group 1 received music class 'as usual' (control) while Group 2 received the integrated music lessons (treatment). This research design is illustrated in Figure 1.

Instrumentation. The Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) assessment data was used as an evaluative tool. The school reading interventionists collected scores during the three scheduled benchmarking collection times of the school, in the fall, winter, and spring. In an effort to reduce coercion, two volunteers collected the study district music data (pre- and post-assessments) in the fall and spring. The volunteers were musically-trained and familiar with the district's music rubrics. A copy of the rubric is found in Appendix A.

Figure 1. Assessment Flow Chart



This method for evaluating the study hypothesis statements was chosen because the assessments used could show the differences, if any, in average growth in reading achievement when comparing the scores of students in the treatment group (those receiving the integrated music curriculum) to the control group (those who received music lessons as usual). The reading data were already collected in the school building using Aimsweb as measurement tool.

At the time of this writing, the Aimsweb assessments had undergone rigorous examination by the technical review committee of the National Center for Response to Intervention (NCRTI) and received the highest favorable rating for reliability and validity (National Center for Response to Intervention, 2014). Reliability of a test refers to the consistency of scores when administered by different people at about the same time (Bluman, 2010). Validity is the degree to which correct inferences can be made based on the results from an instrument when applied to the real world (Fraenkel, et. al., 2012). The Aimsweb assessments were checked regularly for reliability and validity for over 25 years (Pearson, 2014).

The music assessment consisted of a criterion-referenced instrument, or rubric, developed by district personnel. A criterion-referenced instrument is one that specifies a particular goal, or criterion, for the students to achieve (Fraenkel, et. al., 2012). The reliability and validity of the instrument was not formally tested, however the instrument had been in use for over ten years in each of the elementary schools to assess and report student growth in the content area of music. The volunteers who collected the secondary data for this study were musically-trained and familiar with the district rubric in use for kindergarten. Students were asked to match pitch through singing, play a simple bordun

(two-note chord) to a familiar song on xylophones, and move to the steady beat of recorded music. These criteria were included in the kindergarten district report card for music. The assessments were administered through centers, where each student rotated to each activity and volunteers recorded the student's score according to the district rubric. This process was repeated again in the spring to see if the music curriculum requirements were fulfilled during the 2013-2014 school year.

It is possible there were other assessment instruments that would have more accurately measured growth. Other studies used the Aptitude Inventory Measurement (AIMS), Stanford Achievement Test (Stanford 9) (TUSD, 2014), and the Predictive Assessment of Reading (PAR) (Perret & Fox, 2006). Use of these assessment instruments was impractical for this study, given time and cost concerns, as well as the previously established use of the Aimsweb and district music assessments. Accordingly, the researcher chose to use secondary data for analysis.

Data Collection and Analysis Procedures

The quantitative analyses procedures for each of the four null hypothesis statements in this study are described below:

Null Hypothesis Statement 1: On the kindergarten level, there will be no difference in average growth in reading achievement when comparing scores of students in the treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

For Null Hypothesis Statement 1, the researcher randomized the data forming two groups ($n=15$). Next, the researcher completed a t -test for independent means to compare the scores for Group 1 and Group 2. The t -test is a parametric test used for comparison

of the mean between groups (Fraenkel, et. al., 2012). It was used because $n < 30$, the population was normally distributed and the standard deviation was known (Bluman, 2010).

Null Hypothesis Statement 2: On the kindergarten level, there will be no difference in the change in average variance in achievement scores when comparing students in the treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

For Null Hypothesis Statement 2 the researcher randomized the data, then completed a chi-square test for difference in variance. The chi-square test can be used to test variances or standard deviations (Bluman, 2010). This nonparametric test compares frequencies actually observed in a study with expected frequencies to see whether they are significantly different (Fraenkel, et. al., 2012).

Null Hypothesis Statement 3: On the kindergarten level, there will be no difference in average growth in reading achievement when comparing scores of students in the 2013-2014 treatment group to the average growth in reading achievement yielded during the previous four academic years without the integrated music curriculum, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

For Null Hypothesis Statement 3, the researcher randomized the data, and completed an Analysis of Variance, or ANOVA test. The ANOVA is a statistical test, which is used to determine if there is a significant difference among three or more means (Bluman, 2010).

Null Hypothesis Statement 4: On the kindergarten level, during the academic year 2013-2014, students will not exhibit growth in the content area of music, as measured by pre- and post- assessments written by district personnel.

In order to test Null Hypothesis Statement 4, the researcher randomized the music data and completed a z -test for difference in means.

The researcher served as the instructor during the lessons for both the treatment and control groups. All raw data were maintained in a password-protected computer in a password-protected file. The researcher utilized coded data to maintain participants' confidentiality.

Participants

The researcher used a random, convenience sample from the study-site building population of the 2013-2014 Kindergarten class of 77 students. Previous to this study, demographic differences between groups were intentionally minimized by school administration during the assignment of students to a particular class at the time of enrollment. Random sampling is the selection of a sample in which every member of the population has an equal chance of being selected (Fraenkel, et. al., 2012). A convenience sample is any group of individuals that is conveniently available to be studied (Fraenkel, et. al.). The kindergarten population was 74% White, 16% Black or African-American, 7% Two or More Races, 2% Hispanic, and 1% Other. Four percent of the students qualified for a free or reduced lunch. The gender demographics showed 46% were female and 54% were male. One percent of the students were English-Language Learners and 4% of the students qualified for special education (Study District, 2013, p. 1).

Recruitment was not necessary for this action research study. Rather, students in the 2013-2014 Kindergarten class participated in the study during regularly occurring music classes. All students in a particular class participated in each lesson targeted for that class. Parents received a letter informing them about their child's participation in the class activities that generated the secondary data for the study (Appendix B). Consent was not necessary in this study, since the researcher examined only secondary data and all assessments given were part of the school benchmarking process.

The researcher selected kindergarten students for this study because research showed early intervention was important for reading skills (Telesco, 2010). Further, the study-site reading interventionists stated that this was the grade level most in need of intervention strategies. The previous school year was the first year the study district provided free, full-day kindergarten for district residents. This change in the study district policy resulted in higher enrollment in the school attendance area.

The kindergarten population in the elementary school was the largest group of students entering the classroom performing, on average, at the 'below target' benchmark in reading. The percentage of kindergarten students who scored 'above and below target' level on the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) is shown on Figures 2 through 9 for the assessments administered during the three benchmarking over the previous four school years.

Figures 2 and 3 show there was a greater percentage of students scoring above targets than below in the fall benchmarking period during the 2012-2013 academic year.

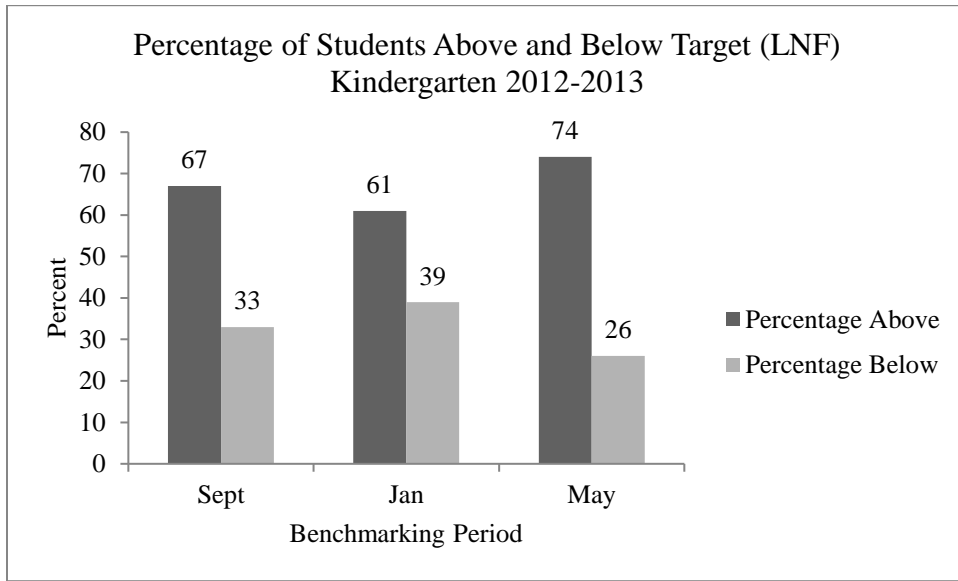


Figure 2. Aimsweb Data Letter-Naming Fluency (LNF) 2012-2013

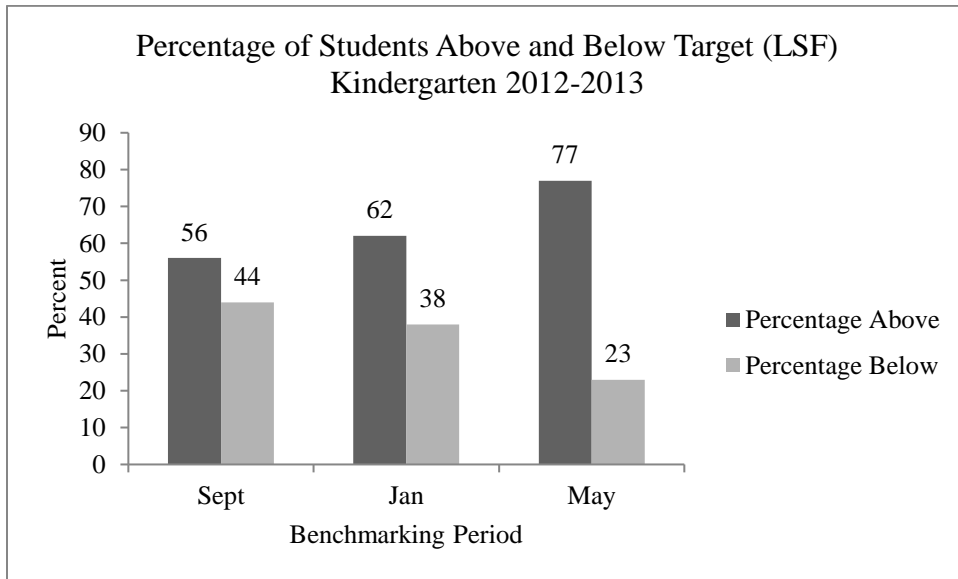


Figure 3. Aimsweb Data Letter-Sound Fluency (LSF) 2012-2013

In contrast, Figures 4 and 5 show there was a greater percentage of students scoring below target during fall benchmarking period in the 2011-2012 academic year.

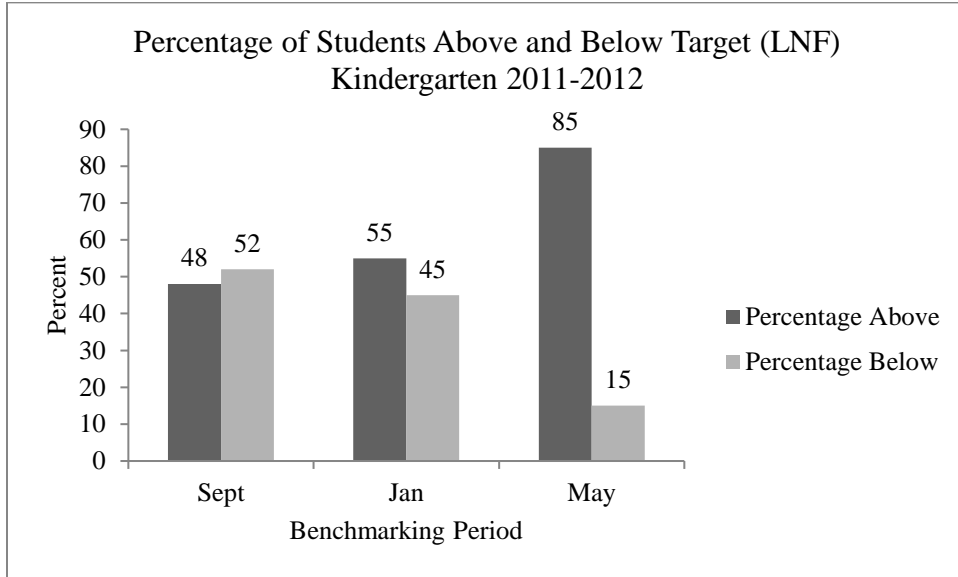


Figure 4. Aimsweb Data Letter-Naming Fluency (LNF) 2011-2012

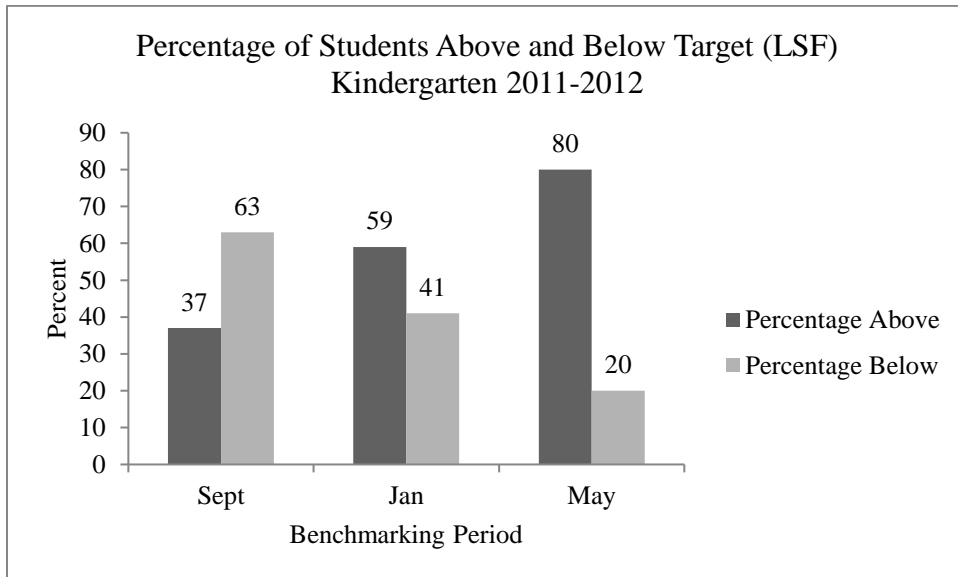


Figure 5. Aimsweb Data Letter-Sound Fluency (LSF) 2011-2012

Figures 6 and 7 illustrate there was a greater percentage of students scoring above target than below during the fall benchmarking period in the 2010-2011 academic year.

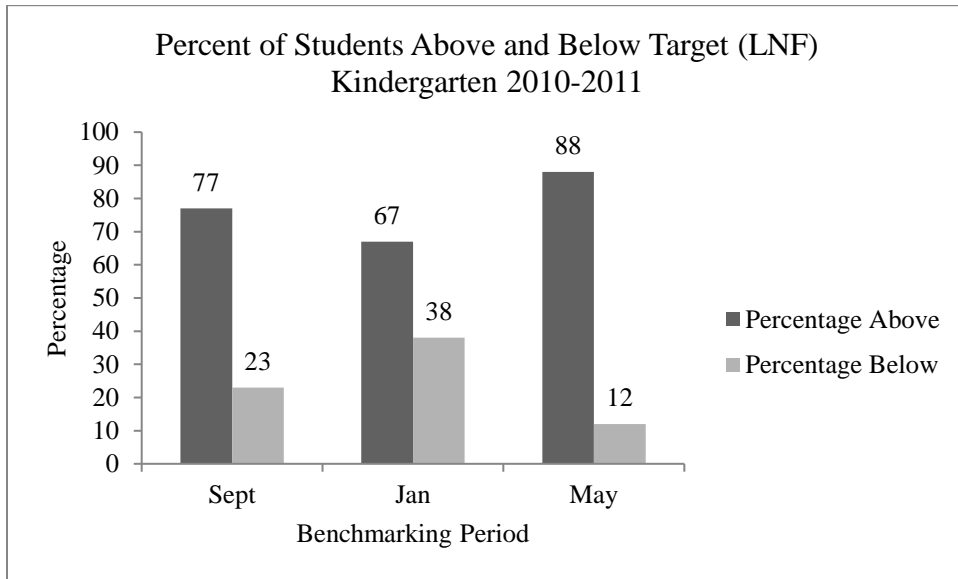


Figure 6. Aimsweb Data Letter-Naming Fluency (LNF) 2010-2011

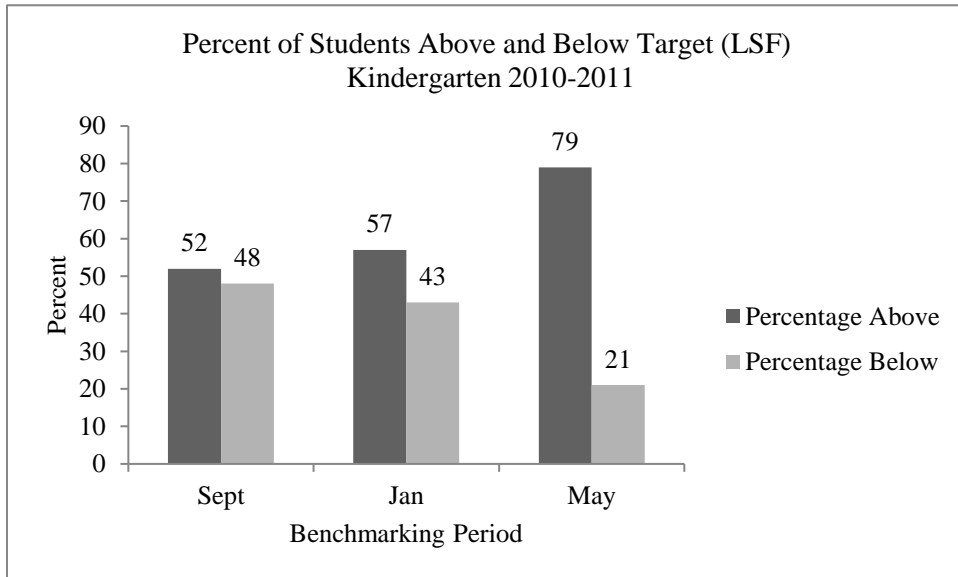


Figure 7. Aimsweb Data Letter-Sound Fluency (LSF) 2010-2011

Figures 8 and 9 also reveal a greater percentage of students above target during the fall benchmarking period during the 2009-2010 academic year.

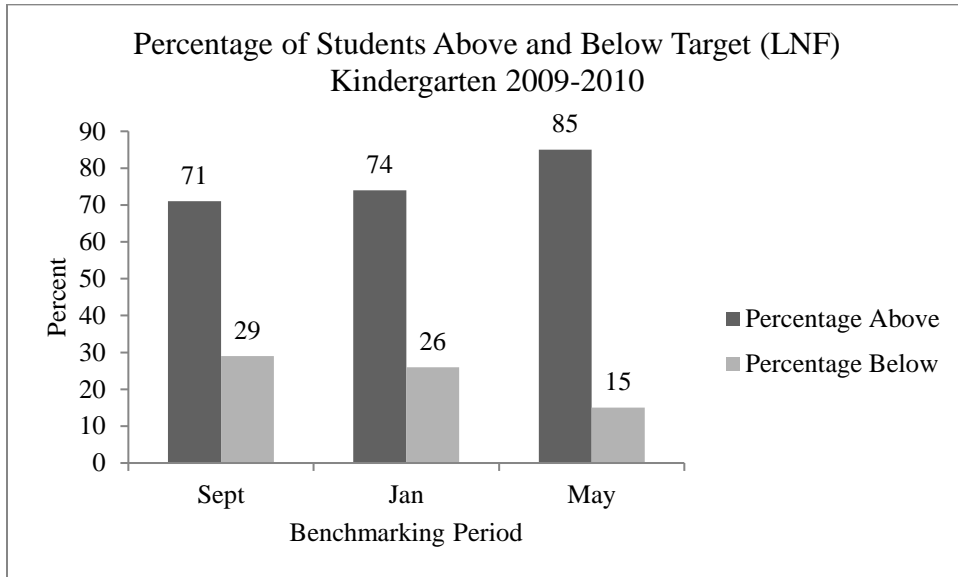


Figure 8. Aimsweb Data Letter-Naming Fluency (LNF) 2009-2010

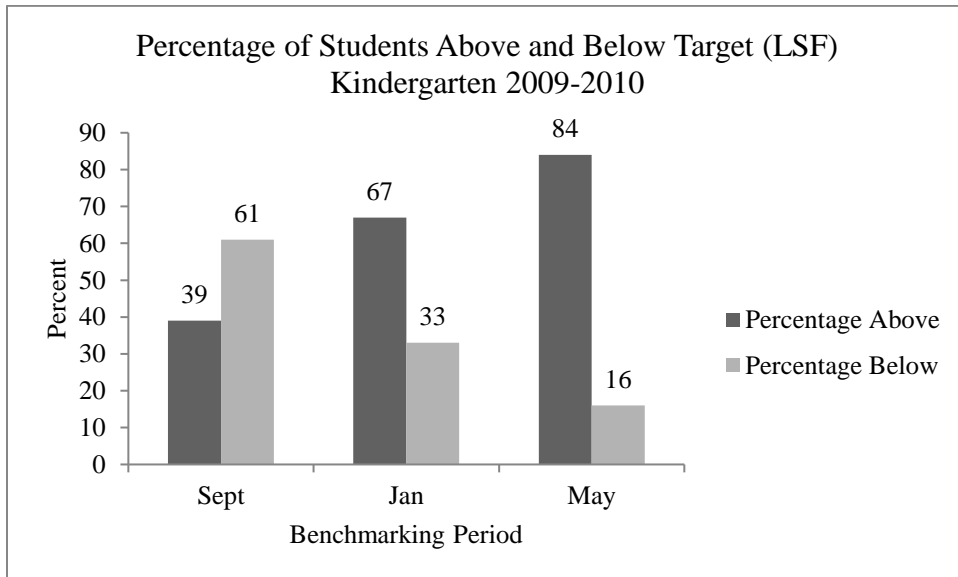


Figure 9. Aimsweb Data Letter-Sound Fluency (LSF) 2009-2010

Each of the past five academic years showed a greater percentage of students were scoring above target by the spring benchmark period, yet a percentage of

kindergarten students remained that were performing below target in their identification of letter names and sounds.

Development of the Integrated Music Curriculum

Research by the National Reading Panel (2001) and the National Governor's Association (2014) suggested early intervention was essential to getting students to perform more consistently with their peers. The focus of this study was to design an integrated music curriculum and investigate its effect upon the reading achievement of 77 kindergarten students. The integrated music curriculum used in this study was developed by the researcher using methods derived from current literature and successful music integration studies (National Governor's Association, 2014; TUSD, 2014; Perret & Fox, 2006; Robelen, 2011; Standley, 2008). The researcher met regularly with the literacy coach in the school building to design and implement the integrated music curriculum. The literacy coach observed kindergarten music lessons, made recommendations and assisted as activities and strategies were designed and implemented. These recommendations, information from the building benchmarking data, as well as current research were used as guides in developing the integrated lessons and instructional strategies in this study. Implementing this program required little in terms of monetary resources. However, it did require a significant amount of creativity and planning time.

The CCSS for English Language Arts were adopted by both the state and study district (National Governor's Association, 2014; Study District, 2013). The National Core Arts Standards for Music were released after instruction was delivered, and thus were not a factor when designing the integrated music curriculum. For the convenience of the reader, the CCSS for English Language Arts and the National Core Arts Standards

for Music are listed in the integrated music lesson outlines (see Appendix C). The specific activities for the integrated lessons are outlined in Appendix C and followed the framework in Figure 10.

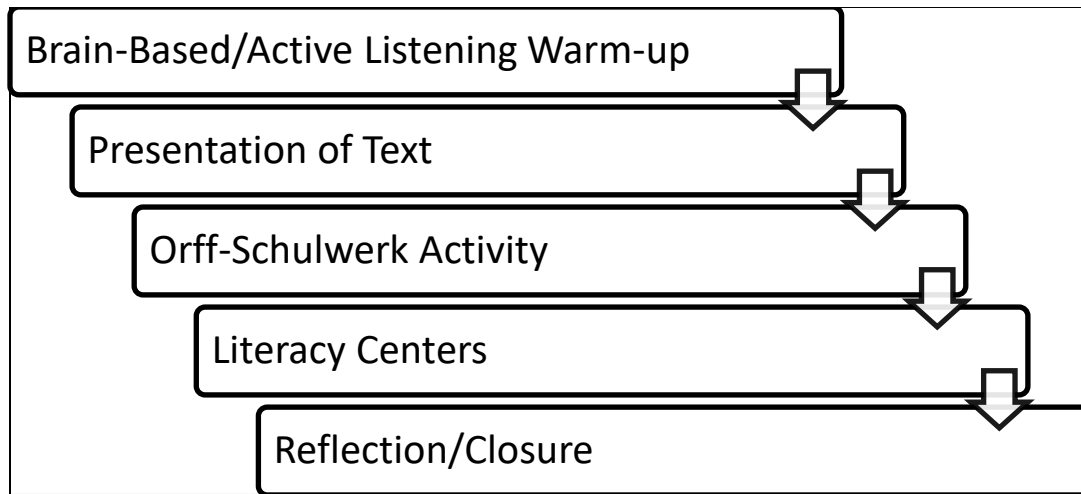


Figure 10. Framework for integrated lessons

Each integrated lesson began with brain-based or active listening activities to engage and prepare students for learning. Brain-based activities were successfully used in the Opening Minds through the Arts Project (TUSD, 2014). Active listening activities were described in the book, *The Well-Tempered Mind* (Perret & Fox, 2006). The researcher was unable to bring live musicians to the school building, as utilized in the above-mentioned project. In lieu of this, high-quality recordings were used.

The next part of the integrated lessons involved the presentation of text. Reading aloud with kindergartners was largely supported. Further, it was believed to offer an ideal opportunity for exploring many aspects of language and literacy (Snow et al., 1998). The books were selected from the reading program that was in use by the Kindergarten classroom teachers and were either an introduction or a second reading from their

classroom experience, depending on the classroom teacher and the time of year. A list of the literature and recordings used in the integrated music lessons is in Appendix D.

After the text was presented, activities were used following the Orff-Schulwerk approach and the Kodály method. Students used improvisation, exploration, singing, movement, and instruments in their performances of the books. The process of improvising and creating sound stories involved several steps. The first step involved gathering the students' suggestions and ideas concerning the movement in the story, in an effort to activate their imaginations. Next, students collaborated to decide upon vocal and instrumental sounds. Finally, students created a performance of the book giving musical expression to the actions and feelings in the text. The students learned through interacting with the text in musical ways: by listening, creating, and performing.

Literacy centers were developed to allow the students more time to experience further connections between music and reading. The literacy centers were not locations in the classroom, but rather groupings of children working on activities to support learning. The centers included pointing pages, rhyming activities, sound stories, word rhythms, and books to sing and read. A more extensive description of the centers used can be found in Appendix C. Literacy centers were not included in every integrated lesson, however. When doing so, centers were reinvigorated when students returned to them.

Finally, the integrated lessons ended with reflection time. During this time students reviewed learning goals to see if they were attained, discussed what went well and what might improve their future performance. Occasionally, the reflection time was used to talk about some of the problems the children experienced in the process. If time

permitted, the performance of a book was repeated again for the classroom teacher. The effectiveness of the integrated music curriculum was evaluated through a) reading pre- and post-assessments, and b) music pre- and post-assessments.

Summary

At the time of this study, schools were placing increasing emphasis upon improving student achievement in language arts. In the elementary school building, kindergarten students arrived with varied experiences and many were considered 'below target' in reading skills. The researcher designed and implemented an integrated music curriculum to better understand the role of music in reading achievement among kindergarten learners. The new information gained from this project may help school administrators, classroom teachers, music teachers, and reading specialists find effective ways to use music instruction to enhance the reading achievement of students.

Chapter Four: Results

This quantitative action research, counterbalanced design was conducted to determine the effect of an integrated music curriculum upon reading achievement among kindergarten students. This chapter details the results of the four hypotheses tested.

Characteristics of the Sample

A random sample ($n = 30$) was selected forming two groups from the 2013-2014 kindergarten classes. The random sample ($n = 15$) of Group 1 was 74% White, 10% Black or African-American, 13% Two or More Races, 3% Hispanic. Twenty-three percent of the students qualified for a free or reduced lunch. The gender demographics indicated 43% were female and 57% were male. The random sample ($n = 15$) of Group 2 was 77% White, 20% Black or African-American, and 3% Hispanic. Seventeen percent of the students qualified for a free or reduced lunch. The gender demographics showed 53% were female and 47% were male. The sample demographics were comparable to the kindergarten population (Study District, 2013, p. 1).

Data collection and analyses procedures

The reading achievement data used in this study were secondary data collected by the literacy benchmarking team within the elementary school building. Data collection began on September 20, 2013. Reading achievement was evaluated through two individually administered subtests of the Aimsweb: Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF). These assessments were administered through the regular building benchmarking process in the fall, winter, and spring. The winter and spring benchmark data were collected on January 9, 2014 and May 8, 2014, respectively. Tables

1 and 2 provide baseline data for the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) Assessments.

Table 1.

Aimsweb Data Letter-Naming Fluency (LNF) Groups One and Two

| Group 1 LNF Fall Benchmark | | Group 2 LNF Fall Benchmark | |
|----------------------------|-----------|----------------------------|-----------|
| Mean | 26.86667 | Mean | 24.93333 |
| Standard Error | 4.84804 | Standard Error | 3.68196 |
| Median | 30. | Median | 25. |
| Mode | 9. | Mode | #N/A |
| Standard Deviation | 18.77638 | Standard Deviation | 14.26017 |
| Sample Variance | 352.55238 | Sample Variance | 203.35238 |
| Kurtosis | 1.84237 | Kurtosis | 3.30586 |
| Skewness | 0.3051 | Skewness | 0.54992 |
| Range | 58. | Range | 56. |
| Minimum | 4. | Minimum | 2. |
| Maximum | 62. | Maximum | 58. |
| Sum | 403. | Sum | 374. |
| Count | 15 | Count | 15 |

Table 2.

Aimsweb Data Letter-Sound Fluency (LSF) Groups One and Two

| Group 1 LSF Fall Benchmark | | Group 2 LSF Fall Benchmark | |
|----------------------------|-----------|----------------------------|----------|
| Mean | 14.06667 | Mean | 9.2 |
| Standard Error | 3.09295 | Standard Error | 2.10939 |
| Median | 17. | Median | 6. |
| Mode | 1. | Mode | #N/A |
| Standard Deviation | 11.97895 | Standard Deviation | 8.16963 |
| Sample Variance | 143.49524 | Sample Variance | 66.74286 |
| Kurtosis | 1.56959 | Kurtosis | 1.38367 |
| Skewness | 0.23774 | Skewness | 0.33278 |
| Range | 34. | Range | 21. |
| Minimum | 1. | Minimum | 0 |
| Maximum | 35. | Maximum | 21. |
| Sum | 211. | Sum | 138. |
| Count | 15 | Count | 15 |

The researcher compared the musical components of vocal technique, instrumental technique, and response to music through movement through the use of pre- and post-assessments using a rubric designed by study district personnel. The music pre-assessment was collected on September 23, 2013, and the post-assessment was conducted on May 5, 2014. Participants' scores were excluded if either pre- or post-assessment scores were missing. Additionally, those scores for kindergarten students who missed one-third or more of the treatment were excluded from the sample. Scores for three kindergarten students were excluded based upon these criteria.

Results

The first step in data analysis involved an evaluation of whether or not growth in reading had occurred. To do this, the percentages of students scoring above and below targets on the two reading assessments were examined. Figures 11 and 12 summarize the data regarding the Aimsweb Letter-Naming Fluency (LNF) and the Aimsweb Letter-Sound Fluency (LSF) during the three benchmark periods in the 2013-2014 school year. The data were generated using the reports feature provided by Pearson in the web-based Aimsweb program in use by the study district.

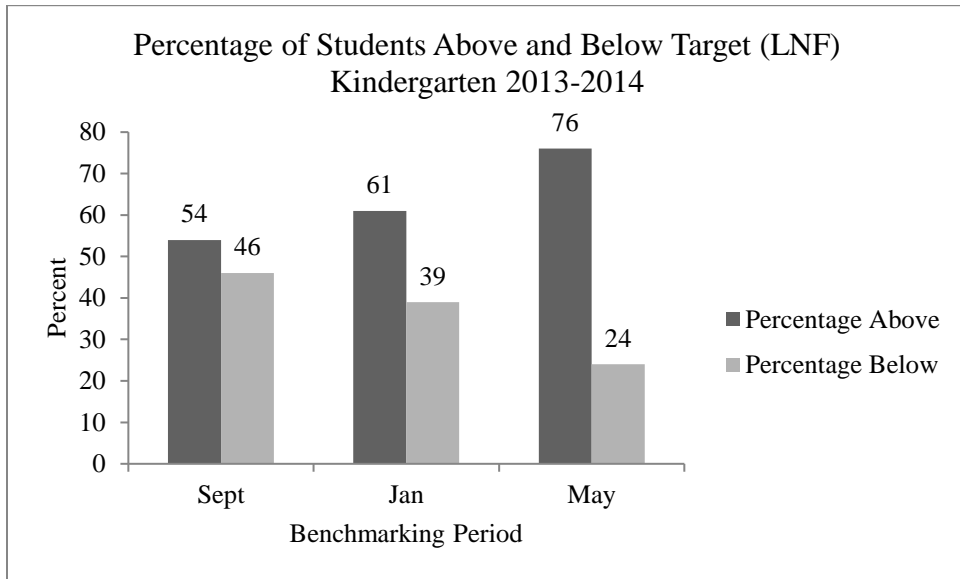


Figure 11. Aimsweb Data Letter-Sound Fluency (LNF) 2013-2014

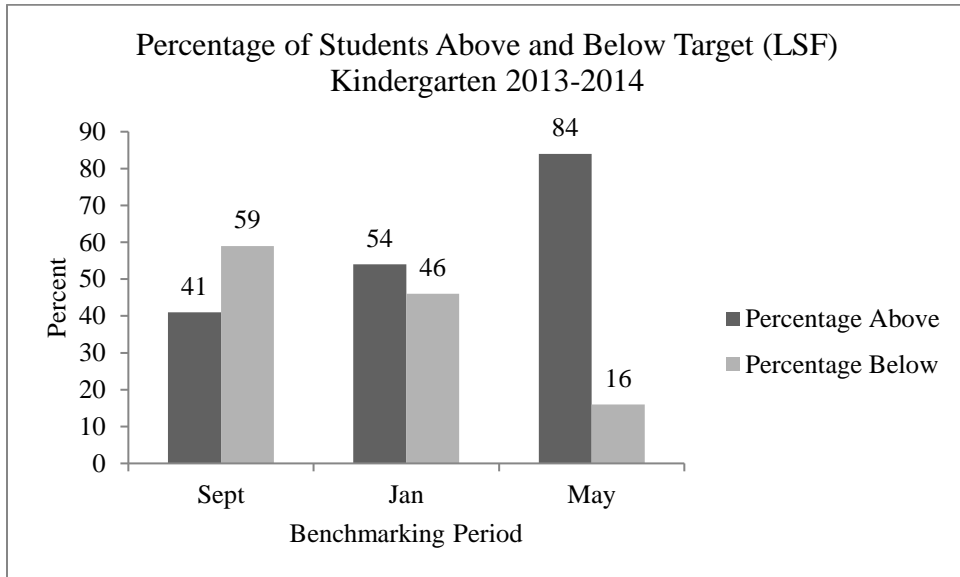


Figure 12. Aimsweb Data Letter-Sound Fluency (LSF) 2013-2014

Four hypothesis statements were tested to determine the effect of the integrated music curriculum on the kindergarten students' reading achievement.

Null Hypothesis Statement 1. On the kindergarten level, there will be no difference in average growth in reading achievement when comparing scores of students

in the treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

A *t*-test for independent means was completed between the treatment and control groups to compare the pre-assessment data collected in the fall benchmarking period. Tables 3 and 4 summarize the pre-assessment scores as measured by the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) from the fall benchmarking period.

Table 3.

Results: LNF Fall Benchmark t-Test

| LNF Fall Benchmark T-Test Comparing Means | | | | |
|---|-------------|------------------------------|----------|---------|
| Descriptive Statistics | | | | |
| VAR | Sample size | Mean | Variance | |
| LNF Group 1 | 15 | 26.866 | 352.552 | |
| LNF Group 2 | 15 | 25.6 | 257.257 | |
| Summary | | | | |
| Degrees Of Freedom | 28 | Hypothesized Mean Difference | | 0.E+0 |
| Test Statistics | 0.198 | Pooled Variance | | 304.904 |
| Two-tailed distribution | | | | |
| p-level | 0.843 | t Critical Value (5%) | | 2.048 |

The test values of 0.198 (LNF) was between the two-tailed critical values of ± 2.048 . The null hypothesis was not rejected, which showed the differences between groups were not significant.

Table 4.

Results: LSF Fall Benchmark t-Test

| Comparing Means LSF Fall Benchmark T-Test Comparing Means | | | |
|---|-------------|------------------------------|-----------|
| Descriptive Statistics | | | |
| VAR | Sample size | Mean | Variance |
| LSF Group 1 | 15 | 14.066 | 143.495 |
| LSF Group 2 | 15 | 9.2 | 4,454.608 |
| Summary | | | |
| Degrees Of Freedom | 28 | Hypothesized Mean Difference | 0.E+0 |
| Test Statistics | 0.277 | Pooled Variance | 2,299.052 |
| Two-tailed distribution | | | |
| p-level | 0.783 | t Critical Value (5%) | 2.048 |

The test values of 0.277 (LSF) was between the two-tailed critical values of ± 2.048 . The null hypothesis was not rejected, which showed the differences between groups were not significant.

Following the fall benchmarking data collection, Group 1 received the integrated music curriculum (treatment) during the first semester while Group 2 received music class as usual (control). The data were checked for skewness, using the Pearson's Index (PI) and were normally distributed. The percentage increase in the Letter-Naming Fluency (LNF) scores for Group 1 (treatment) was 43.6%. Group 2 (control) showed a higher percentage increase of 46.4%. A *t*-test for independent means was applied with a confidence level of 95% ($\alpha = 0.05$). Table 5 summarizes the results.

Table 5.

Results: LNF Winter Benchmark t-Test

| LNF Winter Benchmark <i>T</i> -Test Comparing Means | | | |
|---|-------------|------------------------------|----------|
| Descriptive Statistics | | | |
| VAR | Sample size | Mean | Variance |
| LNF Group 1 (Treatment) | 15 | 38.6 | 307.971 |
| LNF Group 2 (Control) | 15 | 37.466 | 261.838 |
| Summary | | | |
| Degrees Of Freedom | 28 | Hypothesized Mean Difference | 0.E+0 |
| Test Statistics | 0.183 | Pooled Variance | 284.904 |
| Two-tailed distribution | | | |
| p-level | 0.855 | t Critical Value (5%) | 2.048 |

The test value of 0.183 was between the two-tailed critical values of ± 2.048 and did not fall in the critical region. The null hypothesis was not rejected. Though the average of Group 1 (treatment) was observably higher than that of Group 2 (control), there was insufficient evidence to support the alternative hypothesis that there was a significant difference in average growth in reading achievement when comparing scores of students in the treatment group receiving the integrated music curriculum to the control group who did not receive the integrated music curriculum, when measured by the Aimsweb Letter-Naming Fluency (LNF).

Similar results were observed when analyzing the student scores on the Aimsweb Letter-Sound Fluency (LSF). The data were checked for skewness using the Pearson's Index (PI) and were normally distributed. The percentage increase in the Letter-Sound Fluency (LSF) scores for Group 1 (treatment) was 59.2%. Group 2 (control) showed a higher percentage increase of 92.8%. Table 6 summarizes the results.

Table 6.

Results: LSF Winter Benchmark t-Test

| LSF Winter Benchmark T-Test Comparing Means | | | |
|---|-------------|------------------------------|----------|
| Descriptive Statistics | | | |
| VAR | Sample size | Mean | Variance |
| LSF Group 1 (Treatment) | 15 | 22.4 | 179.257 |
| LSF Group 2 (Control) | 15 | 17.733 | 101.352 |
| Summary | | | |
| Degrees Of Freedom | 28 | Hypothesized Mean Difference | 0.E+0 |
| Test Statistics | 1.078 | Pooled Variance | 140.304 |
| Two-tailed distribution | | | |
| p-level | 0.289 | t Critical Value (5%) | 2.048 |

Since the test value 1.078 was between the two-tailed critical values of ± 2.048 , it did not fall within the critical region represented by the bell curve. Therefore, the null hypothesis was not rejected. Although the average of Group 1 (treatment) was observably higher, there was insufficient evidence to support the alternative hypothesis that the growth in reading achievement in the group receiving the integrated music curriculum was significantly higher than the group receiving music class as usual.

In the second semester, the two groups reversed curriculums during music classes. In other words, Group 1 received music class as usual (control) and Group 2 received the integrated music curriculum (treatment). The data were checked for skewness using the Pearson's Index (PI) and were normally distributed. The percentage increase in the Letter-Naming Fluency (LNF) scores for Group 1 (control) was 22.9%. Group 2 (treatment) showed a higher percentage increase of 23.7%. A *t*-test for independent means was applied, the results of which are shown in Table 7.

Table 7.

Results: LNF Spring Benchmark t-Test

| LNF Spring Benchmark T-Test Comparing Means | | | |
|---|-------------|------------------------------|----------|
| Descriptive Statistics | | | |
| VAR | Sample size | Mean | Variance |
| LNF Group 1 (Control) | 15 | 47.133 | 305.409 |
| LNF Group 2 (Treatment) | 15 | 46.066 | 347.780 |
| Summary | | | |
| Degrees Of Freedom | 28 | Hypothesized Mean Difference | 0.E+0 |
| Test Statistics | 0.161 | Pooled Variance | 326.595 |
| Two-tailed distribution | | | |
| p-level | 0.872 | t Critical Value (5%) | 2.048 |

The test value 0.161 was between the two-tailed critical values of ± 2.048 , and therefore, did not fall within the critical region. The null hypothesis was not rejected. There was insufficient evidence to support the alternative hypothesis that the growth in reading achievement in the group receiving the integrated music curriculum was significantly higher than the control group, which received instruction as usual.

An identical statistical analysis was also completed for the spring benchmark Aimsweb Letter-Sound Fluency (LSF) scores. The percentage increase in the Letter-Sound Fluency (LSF) scores for Group 1 (control) was 38.1%. Group 2 (treatment) showed a higher percentage increase of 53.8%. Table 8 summarizes these results.

Table 8.

Results: LSF Spring Benchmark t-Test

| LSF Spring Benchmark T-Test Comparing Means | | | |
|---|-------------|------------------------------|----------|
| Descriptive Statistics | | | |
| VAR | Sample size | Mean | Variance |
| LSF Group 1 (Control) | 15 | 30.933 | 144.209 |
| LSF Group 2 (Treatment) | 15 | 27.266 | 64.352 |
| Summary | | | |
| Degrees Of Freedom | 28 | Hypothesized Mean Difference | 0.E+0 |
| Test Statistics | 0.983 | Pooled Variance | 104.280 |
| Two-tailed distribution | | | |
| p-level | 0.333 | t Critical Value (5%) | 2.048 |

The test value 0.983 was between the two-tailed critical values of ± 2.048 and, therefore, did not fall in the critical region. The null hypothesis was not rejected. There was insufficient evidence to support the alternative hypothesis that there was difference in student growth in reading achievement outcomes when using the Aimsweb Letter-Naming Fluency (LNF) as an evaluative tool.

Null Hypothesis Statement 2. On the kindergarten level, there will be no difference in the change in average variance in achievement scores when comparing students in the treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

To test Hypothesis Statement 2, data were randomized and a chi-square test for difference in variance was completed for the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) benchmarking data in winter and spring. These benchmarking periods served as the post-assessments for the treatment and control

groups. The data were checked for skewness using the Pearson's Index (PI) and were normally distributed. The critical value was 17.708. The results of the chi-square tests are shown in Table 9.

Table 9.

Results: Chi-Square for Difference in Variance

| Chi-Square for Difference in Variance Results | | |
|--|--|--|
| Assessment and Benchmarking Period | Group 1 | Group 2 |
| Aimsweb Letter-Naming Fluency (LNF) Winter Benchmarking Data | Post-Treatment Since the test value 31.03 falls in the critical region, the decision was to reject the null hypothesis. | Post-Control Since the test value 31.03 falls in the critical region, the decision was to reject the null hypothesis. |
| Aimsweb Letter-Sound Fluency (LSF) Winter Benchmarking Data | Post-Treatment Since the test value 31.04 falls in the critical region, the decision was to reject the null hypothesis. | Post-Control Since the test value 31.03 falls in the critical region, the decision was to reject the null hypothesis. |
| Aimsweb Letter-Naming Fluency (LNF) Spring Benchmarking Data | Post-Control Since the test value 31.03 falls in the critical region, the decision was to reject the null hypothesis. | Post-Treatment Since the test value 31.04 falls in the critical region, the decision was to reject the null hypothesis. |
| Aimsweb Letter-Sound Fluency (LSF) Spring Benchmarking Data | Post-Control Since the test value 31.03 falls in the critical region, the decision was to reject the null hypothesis. | Post-Treatment Since the test value 31.04 falls in the critical region, the decision was to reject the null hypothesis. |

At a confidence level of 95%, there was sufficient evidence to support the alternative hypothesis that there was a difference in the change in average variance in achievement scores when comparing students in the treatment group receiving the music integration

intervention to the control group who did not receive the intervention, as measured by the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency (LSF) assessments.

Table 10 indicates that the treatment group had a higher variance in outcomes than the control group in both Letter-Naming Fluency and Letter-Sound Frequency.

Table 10.

| <i>Post-to-Post Variance in Student Achievement</i> | |
|---|---------|
| Winter | |
| Letter-Naming Fluency | |
| Treatment | 307.971 |
| Control | 261.838 |
| Letter-Sound Fluency | |
| Treatment | 179.257 |
| Control | 101.352 |
| Spring | |
| Letter-Naming Fluency | |
| Treatment | 305.409 |
| Control | 347.78 |
| Letter-Sound Fluency | |
| Treatment | 144.209 |
| Control | 64.352 |

Null Hypothesis Statement 3. On the kindergarten level, there will be no difference in average growth in reading achievement when comparing scores of students in the 2013-2014 treatment group to the average growth in reading achievement yielded during the previous four academic years without the integrated music curriculum, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

The sample was randomized using Microsoft Excel ($n=15$). Average growth for the sample was determined by calculating the difference between fall and spring

benchmarking scores for the past five academic years. In a check for normality, the data appeared to be slightly skewed for some academic years. Therefore, data were checked for skewness using the Pearson's Index (PI) and were normally distributed.

The Analysis of Variance (commonly abbreviated as ANOVA) test was selected to determine whether the reading assessment scores during the 2013-2014 school year and the previous four school years were statistically different. The ANOVA technique was chosen because it can be used to determine whether significant differences exist among three or more means (Bluman, 2010). An ANOVA was performed for the average growth on LNF scores. The results are summarized in Table 11.

Table 11.

Results: LSF ANOVA

| Analysis of Variance (One-Way) Aimsweb Letter-Naming Fluency | | | | | | |
|--|-------------|------|---------|----------|---------|--------|
| Summary | | | | | | |
| Groups | Sample size | Sum | Mean | Variance | | |
| LNF 09-10 | 15 | 321. | 21.4 | 184.114 | | |
| LNF 10-11 | 15 | 332. | 22.133 | 342.409 | | |
| LNF 11-12 | 15 | 235. | 15.666 | 79.523 | | |
| LNF 12-13 | 15 | 349. | 23.266 | 197.066 | | |
| LNF 13-14 | 15 | 304. | 20.266 | 116.495 | | |
| ANOVA | | | | | | |
| Source of Variation | SS | df | MS | F | p-level | F crit |
| Between Groups | 518.053 | 4 | 129.513 | 0.704 | 0.591 | 2.502 |
| Within Groups | 12,874.533 | 70 | 183.921 | | | |
| Total | 13,392.586 | 74 | | | | |

Because the f-test value 0.704 was less than the critical value 2.502 the null hypothesis was not rejected. At a confidence level of 95%, there was insufficient evidence to

conclude there is no difference in mean LNF fall benchmark scores when comparing the 2013-2014 school year to the previous four years.

The researcher conducted a second ANOVA to determine whether the LSF data produced similar results. The results for the LSF ANOVA are summarized in Table 12.

Table 12.

Results: LSF ANOVA

| Analysis of Variance (One-Way) Aimsweb Letter-Sound Fluency | | | | | | |
|---|-------------|------|---------|----------|---------|--------|
| Summary | | | | | | |
| Groups | Sample size | Sum | Mean | Variance | | |
| LSF 09-10 | 15 | 201. | 13.4 | 106.685 | | |
| LSF 10-11 | 15 | 377. | 25.133 | 172.695 | | |
| LSF 11-12 | 15 | 331. | 22.066 | 147.638 | | |
| LSF 12-13 | 15 | 225. | 15. | 208.142 | | |
| LSF 13-14 | 15 | 253. | 16.866 | 66.980 | | |
| ANOVA | | | | | | |
| Source of Variation | SS | df | MS | F | p-level | F crit |
| Between Groups | 1,464.746 | 4 | 366.186 | 2.607 | 0.042 | 2.502 |
| Within Groups | 9,830. | 70 | 140.428 | | | |
| Total | 11,294.746 | 74 | | | | |

Since the f-test value 2.607 was greater than the critical value 2.502 the null hypothesis was rejected. At a confidence level of 95%, there was sufficient evidence to conclude that at least one difference in mean LSF scores occurred when comparing the 2013-2014 school year to the previous four years. The highest mean 25.13333 during the 2010-2011 school year was noticeably higher than the mean 15.0 during the 2012-2013 school year.

As an additional check, the researcher completed a *t*-test to compare the largest gap in mean LSF scores, even though this did not include the academic years that the integrated music curriculum was delivered. The *t*-test results are shown in Table 13.

Table 13.

Results: t-Test for Difference in Means

| T-Test for Comparison of Means | | | |
|--------------------------------|-------------|------------------------------|----------|
| Descriptive Statistics | | | |
| VAR | Sample size | Mean | Variance |
| | 15 | 25.133 | 172.695 |
| | 15 | 15. | 208.142 |
| Summary | | | |
| Degrees Of Freedom | 28 | Hypothesized Mean Difference | 0.E+0 |
| Test Statistics | 2.011 | Pooled Variance | 190.419 |
| Two-tailed distribution | | | |
| p-level | 0.054 | t Critical Value (5%) | 2.048 |

The test value of 2.011 was less than the two-tailed critical value of 2.048, which did not allow a rejection of the null hypothesis. At a confidence level of 95%, the data did not support the claim that the difference in means was significant.

Taken as a whole, the data analysis did not allow a rejection of the null hypothesis. At a confidence level of 95%, there was not a significant difference in average growth in reading achievement when comparing scores of students who received the integrated music curriculum in the academic year 2013-2014 to the average growth in reading achievement yielded during the previous four academic years prior to this

research project, all as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

Null Hypothesis Statement 4. On the kindergarten level, during the academic year 2013-2014, students will not exhibit growth in the content area of music, as measured by pre- and post- assessments written by district personnel.

Volunteers assessed kindergarten students in the fall and spring with the use of a rubric designed by district personnel. The rubric assessed three criteria in the content area of music: a) vocal technique, b) instrumental technique, and c) response to music through movement. A randomized sample was taken from the kindergarten population ($n=30$) from each group. The data were checked for skewness using the Pearson's Index (PI) and were normally distributed.

Table 14.

Results: Vocal Technique Pre- and Post-Assessment z-Test

| Two-Sample z-test (Vocal Technique) | | |
|--|--------------------------|---------------------------------|
| | Pre-Assessment (Fall) | Post- Assessment (Spring) |
| Mean | 1.933 | 2.65 |
| Variance | 0.616 | 0.675 |
| Population Variance | 0.616 | 0.675 |
| Sample size | 30 | 30 |
| p-level | 0.05 | |
| Mean Difference | -0.716 | |
| Mean Difference - 95% LCL | -1.123 | |
| Mean Difference - 95% UCL | -0.310 | |
| Standard Error | 0.207 | |
| z | -3.454 | |
| P($Z \leq z$) - Two-tailed distribution | 0.001 | |
| z Critical Value - Two-tailed distribution | 1.959 | |

The percentage increase in vocal technique scores was 37.1%. The percentage increase for instrumental technique scores was 101.1% and response to music through movement scores was 79.3%. A *z*-test for difference in means was applied with a confidence level of 95% (or an alpha level of 0.5). Tables 14, 15, and 16 summarize the results.

The test value of -3.45 was less than the two-tailed critical value of -1.96 and fell in the critical region. The null hypothesis was rejected. At a confidence level of 95%, there was sufficient evidence to support the alternative hypothesis that the student growth in the content area of music (vocal technique) was significant.

Table 15.

Results: Instrumental Technique Pre- and Post-Assessment z-Test

| Two-Sample z-test (Instrumental Technique) | | |
|---|--------------------------|-----------------------------|
| | Pre-Assessment (Fall) | Post-Assessment (Spring) |
| Mean | 1.5 | 3.016 |
| Variance | 0.379 | 0.611 |
| Population Variance | 0.379 | 0.611 |
| Sample size | 30 | 30 |
| p-level | 0.05 | |
| Mean Difference | -1.516 | |
| Mean Difference - 95% LCL | -1.872 | |
| Mean Difference - 95% UCL | -1.160 | |
| Standard Error | 0.181 | |
| <i>z</i> | -8.344 | |
| P($Z \leq z$) - Two-tailed distribution | 1.110E-16 | |
| <i>z</i> Critical Value - Two-tailed distribution | 1.959 | |

The test value of -8.34 was less than the two-tailed critical value of -1.96 and fell in the critical region. Therefore, the null hypothesis was rejected. At a confidence level of 95%, there was sufficient evidence to support the alternative hypothesis that student growth in the content area of music (instrumental technique) was significant.

Table 16.

Results: Movement Pre- and Post-Assessment z-Test

| Two-Sample z-test (Response to Music Through Movement) | | |
|--|------------------------------|-----------------------------|
| | Pre- Assessment (Fall) | Post-Assessment (Spring) |
| Mean | 1.583 | 2.833 |
| Variance | 0.346 | 0.436 |
| Population Variance | 0.346 | 0.436 |
| Sample size | 30 | 30 |
| p-level | 0.05 | |
| Mean Difference | -1.25 | |
| Mean Difference - 95% LCL | -1.566 | |
| Mean Difference - 95% UCL | -0.933 | |
| Standard Error | 0.161 | |
| z | -7.737 | |
| P(Z<=z) - Two-tailed distribution | 1.021E-14 | |
| z Critical Value - Two-tailed distribution | 1.959 | |

The test value of -7.73 was less than the two-tailed critical value of -1.96 and fell in the critical region. Therefore, the null hypothesis was rejected. At a confidence level of 95%, there was sufficient evidence to support the alternative hypothesis that student growth in the content area of music (response to music through movement) was significant.

Summary of Results

The statistical analysis showed the integrated music curriculum did not have a significant effect on the reading achievement outcomes for kindergarten students. However, significant growth occurred in the content area of music. The results from the statistical analysis are further discussed in Chapter Five.

Chapter Five: Discussion and Reflection

The purpose of this research was to examine the effects of an integrated music curriculum on reading achievement of kindergarten students. This quantitative study was designed to answer four hypothesis statements using *t*-tests for independent means, *z*-tests for difference in means, chi-square tests for difference in variance, and an ANOVA to determine the effects of the integrated music curriculum when the Aimsweb Letter-Naming Fluency (LNF) and Letter-Sound Fluency is used as an evaluative tool.

Discussion of Results

Hypothesis Statement 1: On the kindergarten level, there will be a difference in average growth in reading achievement when comparing scores of students in the treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

The first hypothesis statement was not supported. Though the averages of the spring semester treatment group with a percentage increases of 23.7% (LNF) and 53.8% (LSF) were observably higher than those of the control group, with percentage increases of 22.9% (LNF) and 38.1% (LSF), there was insufficient evidence to support the alternative hypothesis that a significant difference in average growth in reading achievement was attained. The results for Hypothesis Statement 1 were not expected when considering the significant effects other music integration studies had realized to increase student achievement outcomes (Perret & Fox, 2006; Standley, 2008; TUSD, 2014).

Hypothesis Statement 2: On the kindergarten level, there will be a difference in the change in average variance in achievement scores when comparing students in the

treatment group to the control group, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

In contrast, the second hypothesis statement was supported. There was a significant difference in the variance between groups that received the integrated music curriculum and the groups that received the regular music curriculum. However, there was no statistical evidence to conclude that the integrated music curriculum was effective at increasing student achievement in reading. In each treatment-to-control group comparison of variance in student achievement, the treatment groups showed a significantly higher variance. Evidence as to whether the range of scores increased at the same time the lowest score was raised is inconclusive. Therefore, the statistical test indicated a difference while the inductive interpretation cannot support the alternative hypothesis. The results for Hypothesis Statement 2 were not expected when considering the significant effects other music integration studies had realized to increase student achievement outcomes (Perret & Fox, 2006; Standley, 2008; TUSD, 2014)..

Hypothesis Statement 3: On the kindergarten level, there will be a difference in average growth in reading achievement when comparing scores of students in the 2013-2014 treatment group to the average growth in reading achievement yielded during the previous four academic years without the integrated music curriculum, as measured by the Aimsweb Letter Naming Fluency (LNF) and Letter Sound Fluency (LSF) assessments.

The third hypothesis was not supported. The ANOVA failed to show a significant difference in average growth when comparing the means of the groups who received the integrated music curriculum to the groups who received music class as usual. Because the

2013-2014 academic school year was the first year of implementation of the integrated music curriculum, and the treatment had been designed with components of successful arts integration programs in mind, this result was unexpected. These results did not mirror similar research studies in the literature.

Hypothesis Statement 4: On the kindergarten level, during the academic year 2013-2014, students will exhibit growth in the content area of music, as measured by pre- and post- assessments written by district personnel.

The fourth hypothesis was supported. The overall results of the z -test for difference in means confirmed students exhibited significant growth in the content area of music during the 2013-2014 academic year. This was evidenced by examining pre- and post-scores in vocal technique, instrumental technique, and response to music through movement on a district-developed rubric. The data analysis showed the integrated music curriculum was effective at teaching the musical concepts and skills included on the kindergarten music rubric. The researcher expected these results.

Limitations Affecting Results

With respect to Hypothesis Statements 1 and 2, the findings may not have indicated significantly stronger achievement for the treatment group because of the various interventions that were in place throughout the building to improve the reading achievement of kindergarten students. Reading interventionists at the school building were regularly assessing students and providing supports for those who were below targets. The caseloads of the reading interventionists changed often as they applied components of the Response to Intervention (RTI) framework within the school building. The researcher was unaware which students were receiving supplemental instruction, or

to what extent. The assistance provided, if any, certainly could have affected the results herein. In addition, if there had been significant improvements it would have been difficult to identify how much contribution was given to achievement by the integrated music curriculum in comparison to the amount of contribution by a combination of building-wide interventions.

The result lack of significant differences in regard to Hypothesis Statement 3 may have occurred because of the varied experiences of each kindergarten population. Each kindergarten population entered school with various abilities and background knowledge. In addition, the personnel comprising the kindergarten staff were not consistent over the past five academic years from which secondary data was gathered, which may have affected the results. The outcomes may have also been distorted as a result of the fact that testing dates and times were not consistent from year to year. While some of the fall benchmark assessments were administered as late as mid-October, others were conducted in early September. The time of day that the assessments took place was also varied. In fact, two kindergarten classes did not complete the spring benchmark assessments until the last thirty minutes of the school day, which may not have been an optimal time to assess kindergarten students. Because the data examined were secondary, these variables were outside of the researcher's control, but worthy of mention.

The researcher did not anticipate that students in Group 1, who participated in the integrated music curriculum in the first semester, would continue to make observations and connections about what was learned beyond the first semester when they were no longer receiving the integrated music curriculum. To the contrary, a number of students inquired about creating a sound story for new books, noticed rhyming words in songs,

and looked for patterns in song lyrics even after the treatment had ended for their class. As such, the previous experiences from the integrated lessons may have contributed to further growth in reading achievement after the integrated music curriculum or treatment concluded.

Even without an intentional focus on boosting reading achievement with the regular music curriculum in the control group lessons, the researcher found it difficult to remove all connections between music and reading concepts. As mentioned previously, many aspects of reading are naturally reinforced in music activities (Mizener, 2008). The researcher noticed instances where reading was reinforced while delivering the regular music curriculum. The researcher did not believe it was ethical to completely eliminate visual representation of the music being taught, to rely solely on the echo process in the teaching of a song, or to stop pointing to the text as a song was sung in unison. These instructional strategies and others may have also contributed to the development of reading concepts, especially in an understanding of print and word recognition. This, too, affected the results.

Behavior management in the kindergarten music classroom may have also had an effect on the results. Preparing students to make music while learning reading concepts was a top priority; however, when students did not possess the social skills necessary for school, these objectives could not be addressed. In a typical class size of twenty or more children, it was challenging to work with kindergarten students who were still getting acclimated to the idea of school and the fact that they had to share the teacher's attention. To a greater extent, the kindergarten students in the first treatment group needed to learn the routines of the classrooms: how to sit and move around the classroom, share materials

and work with others, respond to the teacher when given directions, and wait to comment and not interrupt the delivery of instruction. When the integrated music lessons began in September, many students were still learning these valuable social skills, which may have contributed to the results of this study.

Snow days, assemblies and fire drills . . . OH MY! As mentioned earlier, the researcher attempted to maintain consistency of instruction with the classes. However, there were many interruptions that made this challenging. The second semester was especially difficult, having four snow days in the first month of the semester. Although all of the lessons were completed with Group 2 in the 12-week period, it would have been more effective to spend more than one lesson to fully develop the Orff-Schulwerk activities.

Observations and Personal Reflections

Although the quantitative results for Null Hypotheses 1, 2 and 3 were not statistically significant, there were observable changes in the children's motivation and attitude toward reading. For example, students often entered the room asking whether they would be working on their sound stories from the previous lessons. They were enthusiastic about sharing their creative ideas and often rehearsed and revisited the texts during work time in learning centers. In fact, one student remembered the development of a song in rondo form. She spent time in the learning centers developing new contrasting sections using word picture cards, carefully selecting, arranging, and playing new word rhythms. She then wrote her music on staff paper and took the composition home to show her family.

While reflecting upon the efficacy of the integrated music lessons, the researcher realized the extent to which the quality of instruction was limited by the need to carefully follow lessons plans in order to maintain consistency between groups. In an ordinary teaching environment, the researcher would have altered some of the less effective instructional strategies used from the first semester to the second. While identified, better strategies could not be implemented because the study required the researcher to maintain consistency within the learning experiences between groups. Additionally, the researcher's use of the Orff Approach created a conflict. The Orff Approach required that the researcher act as a facilitator guiding the children through music making. In so doing, the researcher sensed the instruction delivered was too controlling, due to the effort expended leading the children a certain direction. The intention behind this was to mirror the instruction delivered to the other group in the previous semester.

In the early planning of the integrated music curriculum, the researcher intended to include literacy center activities within each lesson. This plan was abandoned, however, when the researcher realized there was not always enough time to complete the Orff-Schulwerk activities and the centers in each lesson. As such, literacy centers were not used as frequently as the researcher originally envisioned, which kept them fresh and more thought-provoking for the students when they were included in the lesson.

Additionally, the literacy centers were originally organized with student groups rotating to assigned activities. When the researcher first observed the students interacting and participating in the literacy center activities, it became necessary to include an element of 'choice' in this element of the lesson. Therefore, during the fourth week of the first semester, the treatment group was instructed to begin at assigned learning centers

and were later allowed to choose their next learning center activity, moving freely from task to task. This adjustment greatly increased student motivation. Students inquired about the possibility of participating in literacy centers more often and expressed discontent when it was time to stop working in centers.

Initially, a few students in the treatment group made comments such as, “music class was too much like reading.” One student struggled with the transition to music class. During these times the researcher struggled with adhering to the lesson plan. This, in turn, affected with the researcher’s ability to respond to the student’s needs in order to keep instructional methods similar between the two groups. The participation of this student grew over the course of the school year and reached a turning point when he was provided more choices and opportunities to make creative decisions. Overall, the researcher noticed considerable differences in the atmosphere and energy of the students and classroom during the integrated music curriculum.

Recommendations for Future Integration Programs

The researcher offers three recommendations to assist readers in the development and implementation of an integrated music curriculum. First, classroom teachers, reading interventionists and music teachers should meet before beginning an integrated curriculum and regularly during the year to coordinate and plan for instruction. Coordination of books and letter study proved challenging in this study. Although the literature was selected from the reading program at the research site, a lack of structured coordination caused the individual classrooms to progress through the curriculum at varying rates. Classroom teachers studied different sight words and letters in their literacy lessons at different times. Because of this, the researcher was unable to

consistently introduce texts in a manner consistent with the use of texts in the kindergarten classrooms. Despite the researcher's attempts to collaborate, classroom teachers were sometimes unwilling or unable to have conversations about their reading lessons. In light of this, the researcher introduced the texts sequentially according to musical concepts and skills, which may have been the first introduction or a repeated exposure of a text for the students, depending on their assigned Kindergarten class. It might have been more powerful to connect to classroom learning and present a text the same week that the children read it in their classroom. Finally, this research project would have been strengthened if more time had been spent experiencing music with the classroom teachers in the regular classroom. Opportunities to plan alongside the classroom teachers may have helped to facilitate the comfort level of the classroom teachers to include music in their learning activities. This researcher would recommend that future integration programs provide for a regular meeting time for structured coordination of current learning goals in reading and the music curriculum.

The next recommendation for future integration programs is to carefully select literature for use in the music classroom. In this study, books were selected from the reading program already in place at the research site, however some books created more joyful musical experiences than others. Books that included patterns or suggested sounds and movements were easier to develop in the music classroom. Students were especially motivated when a new instrument was introduced with a book, such as the use of the tubano drums in the book, *Cat's Colors* (Cabrera, 1997), or glockenspiels with the book, *Chicka Boom* (Martin & Archambault, 1989). These introductions also helped to allow students to determine the instrumentation under guided parameters. Many of the books

used throughout the integrated lessons became favorites among the students and were often performed by numerous children during literacy center time. In one instance, a student delighted in the experience of creating a sound story for the book, *Cat's Colors* (Cabrera, 1997). The student asked several times to revisit this book and found every opportunity to re-read the book and add creative movement to the story. His classmates saw his contagious enthusiasm and, at times, joined him in an encore performance. This enthusiasm carried over into his classroom when he discovered the book with his classroom teacher. The researcher believed that the musical experience the students remembered gave him the confidence and desire to read the book again and again.

The third recommendation is to use brain-based and active-listening activities early and throughout integrated music lessons. The brain-based and active-listening warm-ups included in the integrated music lesson framework were an effective strategy to aid in the transition to the music classroom and prepare kindergarten students for learning. This element of the lesson provided some much-needed movement for the students. It was an effective way to review the behavioral expectations and the students enjoyed the recordings. The researcher planned to include these and similar activities with kindergarten and other grade levels in the future and recommended others to explore this element as well.

Recommendations for Future Research

Since it is difficult to generalize results to other schools, replication of this study with kindergarten or with another grade level is recommended. This research could have been strengthened if a larger sample size had been selected. As such, the reader is encouraged to conduct a similar study with his or her own population.

In light of the inconsistency of test-taking times during the year and during the school day, it is recommended that researchers schedule assessment dates and times carefully, and avoid the administration of benchmark assessments at the end of the school day.

The various examples of anecdotal data mentioned previously were not considered in the testing of the four hypothesis statements. Further research could use both a quantitative and a qualitative approach to measure the students' responses to using music as a part of their learning in reading. A mixed method approach may reveal additional insight concerning the possible connection between the integration of music and reading.

Further research could also examine the effects of bringing music into the regular classroom during reading lessons along with the integrated music lessons delivered by the music teacher. Extending this research project to a year-long study would make the alignment of reading goals and literature easier to accomplish and would increase the likelihood that the integrated curriculum would affect reading achievement results. The alignment of the presentation of texts could assist in making more powerful connections for the students.

A further examination of the data, with respect to subgroups of the student population, may reveal more specific information about the effects of the integrated music curriculum for student subgroups. For example, some studies have noticed integrated music activities have helped ELL students (Paquette & Rieg, 2008) and at-risk students (Respress & Lutfi, 2006). The researcher recommends future studies examine the average growth gains for these and other subgroups.

Finally, the researcher observed a connection between students' reading and music scores. Therefore, a correlation or causal study between reading and music scores is also recommended for future research.

Implications

At the time of this study, educational accountability had evolved to a point where all teachers were expected to teach the CCSS, regardless of content area. This was a new expectation for educators who were previously unaware of the potential connections between music and reading. To meet the new expectations, school districts should consider these five questions:

1. Are we addressing the needs of the whole child as we work to improve reading achievement?
2. Are we able to maintain our commitment to the whole child, while at the same time teaching to the Common Core State Standards?
3. Are we allowing teachers the opportunity to collaborate and make meaningful connections between content areas?
4. What does research say about the relationship between music and literacy in the classroom?
5. How can music support higher-order thinking in reading instruction?

While this study showed significant student growth in the content area of music when the district music rubrics were used an evaluative tool, the results did not evidence growth in reading achievement outcomes. As noted, this was something the researcher did not expect. Based upon the quantitative findings of this study alone, it appeared that the

integrated music curriculum proved beneficial to music achievement, but not reading. From this, one must conclude that the development and implementation of an integrated music curriculum might not be more effective at boosting reading achievement than by simply committing additional time and resources to reading instruction alone. At the same time, however, the researcher believes the limitations and factors potentially affecting the outcomes outlined may have influenced the results to the point that they were nonconclusive. As such, one should carefully consider basing decisions on the outcomes in this study are.

Further, and perhaps more importantly, educators must consider whether the CCSS make sense if adhering to them necessarily prevents schools from teaching to and effectively developing, the whole child. In this regard, and irrespective of this study's outcomes, districts may want to avoid implementing measures that effectively cut arts programs simply to manufacture more time for reading instruction during the school day. Rather, districts may want to remain mindful of the existence of strong public support for the arts and the common belief that the arts are vital for a well-rounded education (Ruppert, 2006). As Duncan, U.S. Secretary of Education, proposed, "Experiences in the arts are valuable on their own, but they also enliven learning of other subjects, making them indispensable for a complete education in the 21st Century" (Dwyer et al., 2011, p. 2).

School leaders and educators should be careful not to measure music's importance only by its potential effects upon achievement in other content areas. Music should be included as a part of the core curriculum because the skills and concepts learned in the arts are valuable on their own. To the extent the whole child's education is

paramount, music should remain as a part of the core curriculum because the skills and concepts learned in the arts are valuable on their own. It is only through music that the aesthetic nature as an art form can be experienced. The integrity of learning music for music's sake is enough to justify the inclusion in the core curriculum for all students. Music should not be viewed only as a supplemental instructional strategy.

In this study, careful attention was placed to introduce musical skills in a sequential, logical order along with the reading concepts and skills. Conceptual integration is much more difficult to achieve and requires more collaboration between teachers. Despite the results in this study, the researcher believes the efforts of integrating music and reading are worth further examination to provide deeper, more relevant learning connections for students.

With the implementation of the CCSS and newly emerging climate for accountability in education, it will be more important than ever for teachers to find effective instructional strategies for language arts. Adding reading activities to an existing music curriculum could be beneficial in supporting the reading achievement of kindergarten students and further research in this area is needed. The findings in this study did not prove that an integrated music curriculum could be used to affect the reading achievement outcomes of kindergarten students. However, the researcher hopes this research may bring readers one step closer to ensuring students are obtaining the best possible education in the future.

Conclusion

In Chapter One, a peek inside a classroom revealed children who were discovering the wonderful sounds stored away in a classroom full of instruments. They

used these instruments and their voices to bring life to their reading of the book, *In the Tall, Tall Grass*. In the days that followed, the students grew quite comfortable with glockenspiels, xylophones and various unpitched percussion instruments. They became more proficient at listening for patterns and reading stories. They listened carefully to the text and the sounds produced by others. They improvised their own solutions to accurately re-tell the story through singing, sound, and movement.

Since the publication of this study, those students finished kindergarten. What were they likely to have learned?

From a musical perspective, the students acquired an extensive musical vocabulary. They learned about using sound expressively and listening perceptively. They practiced their vocal and instrumental technique. They were a part of a musical community that shared, compromised, helped, and supported one another. They realized that everyone had unique musical talents.

From a language arts perspective, the integrated music curriculum did not prove to be more beneficial than traditional methods of reading instruction. However, children were introduced to letter-sound relationships, print concepts and fluency as they read and sang phrases with expression.

In light of, and despite, the findings herein, the sum of these accomplishments is threefold. First, the students gained some measure of independence as musicians and readers. Second, they realized success and joy in these experiences, thereby deepening their love of music and reading. Finally, they discovered connections between music and reading that could enhance their learning for a lifetime.

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Appendix A: Study District Music Rubric

Kindergarten Music

Music Concepts and Skills

| Demonstrates Vocal Technique | | |
|---|---|--|
| Beginning | Approaching | Meeting |
| Uses speaking voice only. | Uses speaking voice and attempts other uses of the voice (sing, speak, hum, whisper). | Explores uses of the voice (sing, speak, hum and whisper). Explores solo and echo singing. |
| Demonstrates Instrumental Technique | | |
| Beginning | Approaching | Meeting |
| Has difficulty playing instruments correctly or with intention. | Attempts to use correct playing techniques. | Performs with correct playing techniques. Performs with mostly accurate rhythms, melodies, and dynamics. |
| Responds to Music through Movement | | |
| Beginning | Approaching | Meeting |
| Attempts to perform and respond to music through movement. | Performs and responds to strong beats through movement with assistance. | Performs and responds to strong beats through movement independently and exhibits artistic interpretation of music through movement. |

Appendix B: Parent Information Letter

Title of Study: "THE EFFECT OF AN INTEGRATED MUSIC CURRICULUM ON READING ACHIEVEMENT OUTCOMES OF KINDERGARTEN STUDENTS"

Principal Investigator: Tracy St. Clair
Telephone: XXX-XXX-XXXX E-mail: XXX@XXXXXX.XXX

Lindenwood University
School of Education
209 S. Kingshighway
St. Charles, Missouri 63301

Dear Parent(s) or Guardian(s):

Your son or daughter is participating in a research project as part of their classroom experience. This project is designed for elementary students in kindergarten. Tracy St. Clair, a doctoral candidate at Lindenwood, is conducting the research as the final part of a doctoral program.

The purpose of this study is to research the effect of music on the learning process. Similar programs have been used in other schools for about 8 years, and have been found to help students with reading. For 12 weeks, your child will participate in lessons that use music to teach reading concepts. These lessons will be part of the regular school day, delivered in the music classroom by the principal investigator. Before the study, as part of the school's regularly scheduled benchmarking process, students will be given a 15-minute reading assessment to determine reading skill levels. At the end of the study, the same assessment is given to determine changes in skill levels. The results of this exercise will not be used to determine your child's grade.

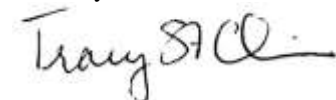
Benefits: Music has been found to engage people of all ages, thereby acting as an attention getter or catalyst for learning new information. This research benefits all students by presenting reading concepts in a meaningful way.

Confidentiality and Risks: Students will be given a numerical code to maintain confidentiality. Your child's name will not be shared with researchers; therefore, research records will not contain your child's name and will be stored on a password protected computer and destroyed when the study is completed. Your child's information will be combined with information from other students taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. Your child and your child's school will not be identified in these written materials.

There are no known risks associated with the procedures described above. While it is not possible to identify all potential risks in research procedures, the researcher has taken reasonable safeguards to minimize any potential, but unknown risks.

Questions: If you have questions about this study, you are welcome to contact the principal investigator, Tracy St. Clair, at XXX-XXX-XXXX, or the supervising faculty, Dr. Jill Hutcheson at XXX-XXX-XXXX. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Jann Weitzel, Vice President for Academic Affairs at XXX-XXX-XXXX.

Sincerely,



Tracy St. Clair, Ed.D. Principal Investigator

Appendix C: Integrated Music Lessons Outline

Lesson #1: *Chicka, Chicka, Boom, Boom*

Reading Objectives and Common Core State Standards:

- I can follow print left to right in a text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform an ascending and descending glissando (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).

Materials Needed:

- Book: *Chicka, Chicka, Boom, Boom* by Bill Martin and John Archambault
- 5-6 Soprano or Alto Glockenspiels with mallets
- 5-6 Drums
- 5-6 Shaker instruments
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Perform the brain dance movements without a recording. Sing the “Alphabet Song,” pointing to the letters displayed on the ActivBoard or visual as they are sung.
2. **Presentation of Text:** Read the book, *Chicka Chicka Boom Boom* (shared reading with whole class, if class was already familiar with the book).
3. **Orff-Schulwerk Activity:** Class sits in a circle. Place a glockenspiel vertically in front of one student (with lowest bars closest to student); give the student one mallet.

Demonstrate playing the glockenspiel and passing it around the circle when a page turn occurs as the book is read. Ask students to find a song that might be played when the words, “chicka” and “boom” occur in the story (ex. maracas, egg shakers, vegetable and fruit shakers, log or tubano drums). Assign groups to perform movement, choral-read the story (along with teacher leader) and play instruments at appropriate times.

4. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #2: *Chicka Chicka Boom Boom*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Art Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform an ascending and descending glissando (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).

Materials Needed:

- Book: *Chicka, Chicka, Boom, Boom* by Bill Martin and John Archambault
- Pointing Page Folders
- 4-5 small, sustained metal instruments (ex. triangles)
- Magnetic letters and cookie sheets
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Brain dance movements without a recording.
2. **Review of Text:** Revisit the book, *Chicka Chicka Boom Boom* (shared reading activity with whole class, since class was already familiar with the book). Ask students to show ascending and descending glissando on an imaginary glockenspiel. Teacher may also sing the “Alphabet Song” in unison with the class, while pointing to the letters on the back pages.

3. **Introduction of Literacy Centers:** Divide class into three groups and assign them to a center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song (used magnetic alphabet letters on cookie sheets to mix and fix the “Alphabet Song”), and, c) Rhyme Time (small teacher group reading passages from the text). Rotate to new center activities or allow students to choose another activity if time permits.
4. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #3: *Twinkle, Twinkle Little Star*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform a simple melody (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can notice same and different phrases in music (MU:Cr1.1Ka, MU:Re7.2Ka).

Materials Needed:

- Book: *Twinkle, Twinkle Little Star* by Jane Cabrera
- “5 Minute Brain Dance - Chimes” recording by Eric Chappelle
- 5-6 Soprano or Alto Glockenspiels with mallets
- Pointing Page Folders
- 4-5 Small, sustained metal instruments (ex. triangles)
- Songs cut up into phrases
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Brain dance movements with narration recording (5 min.) by Eric Chappelle.
2. **Presentation of Text:** Read the book, *Twinkle, Twinkle, Little Star*, inviting students to raise their hand when they notice rhyming words. Once finished, students some

- questions about the key details in the text, pointing out the different verses on each page and the setting/characters in the story.
3. **Orff-Schulwerk Activity:** Students lie on their backs in a scattered formation on the floor, well-spaced over the entire classroom. Each student improvises a way to “twinkle” (and one will blink very fast!). As they sing the song, one child improvises a dance, moving between them. On the last word, he stops and taps another, and they exchange places to begin again. If the class is large, two or three stars may dance at once (Regner, 1991, p. 59).
 4. **Literacy Centers:** Divide class into four groups and assign them to a center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, and d) Sing and Play a Song (small group led by the teacher to play “Twinkle, Twinkle Little Star” on instruments). Rotate to new center activities or allow students to choose another activity if time permits.
 5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #4: *Twinkle, Twinkle Little Star*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objective and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform a simple melody (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can notice same and different phrases in music (MU:Cr1.1Ka, MU:Re7.2Ka).

Materials Needed:

- Book: *Twinkle, Twinkle Little Star* by Jane Cabrera
- “5 Minute Brain Dance - Narration” recording by Eric Chappelle
- Pointing Page Folders
- 4-5 Soprano or Alto Glockenspiels with mallets
- 10-12 nylon scarves or flashlights
- 4-5 Small, sustained metal instruments (ex. triangles)
- Songs cut up into phrases
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Brain dance movements with narration recording (5 min.) by Eric Chappelle.
2. **Review of Text:** Revisit the book, *Twinkle, Twinkle, Little Star* (teacher sings the book, pointing out rhyming words).

3. **Orff-Schulwerk Activity:** Invite some students to play the melody to “Twinkle, Twinkle Little Star” while the others sing the song. Repeat to add new verses as present in the book. Later, a small group can improvise a dance using nylon scarves or flashlights.
4. **Literacy Centers:** Divide class into four groups and assign them to a center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, and d) Sing and Play a Song (small group led by the teacher to play “Twinkle, Twinkle Little Star “on instruments). Rotate to new center activities or allow students to choose another activity if time permits.
5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #5: *The Kissing Hand***Reading Objectives and Common Core State Standards:**

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can perform short and long sounds through word rhythms (MU:Cr1.1.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can notice same and different phrases in music (MU:Cr1.1Ka, MU:Re7.2Ka).

Materials Needed:

- Book: *The Kissing Hand* by Audrey Penn
- “5 Minute Brain Dance - Chimes” recording by Eric Chappelle
- 4-5 triangles with beaters
- 4-5 pairs of finger cymbals
- 4-5 small drums
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Brain dance movements without narration recording (5 min.) by Eric Chappelle.
2. **Presentation of Text:** Read the book, *The Kissing Hand*. Teacher introduces “The Kissing Hand Song” each time the words *kissing hand* appear in the story (Davis, 2001). Ask students some questions about the key details in the text. Teacher leads

- the students to discover that “The Kissing Hand Song” shares the same melody used in “Twinkle, Twinkle Little Star.” Display the words to the new song and invite students to sing along.
3. **Orff-Schulwerk Activity:** Put triangles, finger cymbals and drums in front of the children. Ask them to describe the sounds they expect to hear before they actually play them. Then, as they listen to the “Kissing Hand” song they will identify the durations in the song that each instrument can play. Practice patting quarter notes and clapping the half notes (on rhyming words), spreading the hands out to show the extended sound. Play the song with drums imitating the pats and triangles and finger cymbals the claps. Prepare students to play the rhythm of the song without help from the singers, internalizing the words. Perform instruments at appropriate time as the book is read again (Regner, 1991).
 4. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #6: *Pumpkin, Pumpkin*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform an ascending and descending scale (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).

Materials Needed:

- Book: *Pumpkin, Pumpkin* by Jeanne Titherington
- Haunted House Recording by Kate Kuper
- Pointing Page Folders
- Songs cut up into phrases
- 4-5 Small, sustained metal instruments (ex. finger cymbals)
- Picture word cards
- 4-5 Soprano or Alto Glockenspiels with mallets
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Listen to the recording “Haunted House” responding to the cues to perform Braindance® movements.
2. **Presentation of Text:** Read the book, *Pumpkin, Pumpkin* (teacher sings the book starting on the pitch *d* and singing up the scale, pointing out rhyming words). Teacher

asks the students to turn to a partner and describe the process of how a pumpkin grows from a seed in this story.

3. **Orff-Schulwerk Activity:** Sing the scale song, “Pumpkin, Pumpkin” and invite students to show high/low through movement (begin curled up in a ball on floor – pretending to be a “seed” and then growing slowly into a pumpkin and the book is read/sung):

*Low C – I have a little seed.
 D – It is so small and round.
 E – I used my little shovel
 F – to plant it in the ground.
 G – It grew into a pumpkin.
 A – I picked it carefully.
 B – I scooped out all the pumpkin pulp
 High C – and saved some seeds for spring!
 Descending scale from High C: Pump-kin, pump-kin, pump-kin, pump-kin!*

4. **Literacy Centers:** Divide class into four groups and assign them to a center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, d) Sing and Play a Song, and e) Clap a Word (new center activity introduced by the teacher in a small group). Rotate to new center activities or allow students to choose another activity if time permits.
5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #7: *Cat's Colors*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can sing and play the solfège pitches: *sol-la-mi* (MU:Pr6.1.Kb).
- I can experience short and long through word rhythms (MU:Cr1.1.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1.Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can notice the pattern of question-answer in music (MU:Cr1.1Ka, MU:Re7.2Ka).

Materials Needed:

- Book: *Cat's Colors* by Jane Cabrera
- "Braindance" (Kerri Lynn Nichols, Movement for Dancers CD)
- Pointing Page Folders
- Songs cut up into phrases
- 4-5 Small, sustained metal instruments (ex. finger cymbals)
- Picture word cards
- 4-5 Soprano or Alto Glockenspiels with mallets
- 4-5 Drums
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Listen and move to the recording, "Ching, Chop, Boom!" (Kerri Lynn Nichols, Movement for Dancers CD).

2. **Presentation of Text:** Read the book, *Cat's Colors* (teacher sings the pitches *sol-la-mi* for each question and uses rhythmic speech for the answers). On a second reading, invite students to join in singing the questions with solfège hand signs and patting the rhythm of the words for the answers.
3. **Orff-Schulwerk Activity:** Teach students to play the *sol-la-mi* pattern through body percussion, then transfer to the glockenspiels. Teach students to play the rhythm of the words on drums. Invite a group of students to play the question on glockenspiels and the answer on drums in the following manner:

Q: Is it green? So la mi (sing and play on xylophones)

A: Green is the grass where I like to walk. [Ta ti ti Ta ti ti Ta Ta Ta] (speak and play on drums)

4. **Literacy Centers:** Divide class into five groups and assign them to a center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, d) Sing and Play a Song, and e) Clap a Word. Rotate to new center activities or allow students to choose another activity if time permits.
5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne's book, *Alphabet Action Songs*).

Lesson #8: *Cat's Colors*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and perform high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can sing and play the solfège pitches: *sol-la-mi* (MU:Pr6.1.Kb).
- I can experience short and long sounds through word rhythms (MU:Cr1.1.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can notice the pattern of question-answer in music (MU:Cr1.1Ka, MU:Re7.2Ka).

Materials Needed:

- Book: *Cat's Colors* by Jane Cabrera
- "Braintance" (Kerri Lynn Nichols, Movement for Dancers CD)
- Colorful Nylon Scarves or Ribbon Wands
- 4-5 Soprano or Alto Glockenspiels with mallets
- 4-5 Drums
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Listen and move to the recording, "Ching, Chop, Boom!" (Kerri Lynn Nichols, Movement for Dancers CD).
2. **Review of Text:** Review the book, *Cat's Colors* (teacher sings the pitches *sol-la-mi* for each question and uses rhythmic speech for the answers). On a second reading,

invite students to join in singing the questions with solfège hand signs and patting the rhythm of the words for the answers.

3. **Orff-Schulwerk Activity:** Invite students to re-tell the story through movement, performing with colorful nylon scarves or ribbons. Review the activity from the previous lesson and assign three groups of students to: play the question on glockenspiels, play the answer on drums and move expressively to the story. Consider rotating groups to allow each student to experience different parts of the performance.
4. **Reflection/Closure:** If time permits, perform the story for the classroom teacher. Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne's book, *Alphabet Action Songs*).

Lesson #9: *Cookie's Week*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can listen and play upwards and downwards (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can listen to and select from a variety of tone colors to illustrate a story (MU:Cr2.1.Ka, MU:Pr4.1.Ka, MU:Pr4.2.Ka, MU:Pr5.1.Ka, MU:Cn10.0.Ka, MU:Cn11.0.Ka).

Materials Needed:

- Book: *Cookie's Week* by Cindy Ward
- “Ching, Chop, Boom!” (Kerri Lynn Nichols, Movement for Dancers CD)
- Various unpitched and pitched percussion instruments or found objects
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Listen and move to the recording “Braindance” (Kerri Lynn Nichols, Movement for Dancers CD)
2. **Presentation of Text:** Read the book, *Cookie's Week*. In a second reading, teacher models some vocal sound effects as the story is read and invites students to join in.
3. **Orff-Schulwerk Activity:** Develop a vocal and instrumental sound story. Read the story, inserting letter sounds as effects as the story is read. Select from a set of unpitched percussion instruments to match that sound! For example, a steady or

intermittent low tone on an instrument may represent “Cookie the Cat” walking along. While a quick, ascending scale pattern sends him climbing up the curtains. A high represents him getting tangled in the curtains and a descending scale brings him down again. Other sounds can be found for sleeping curled up, splashing in the toilet, digging in the flower pots, upsetting the trash can, etc. Whenever possible, the children should choose the sounds from a variety of timbres and play them. When all are fixed, the story can be told without words, or student can re-tell the story in any sequence he/she chooses, and the instruments respond on cue. A few students could devise movements, or anyone not playing could pantomime the story (Regner, 1991, p. 20).

4. **Reflection/Closure:** If time permits, perform the sound story for the classroom teacher. Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #10: *If You Give A Mouse A Cookie*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and play high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can experience short and long sounds by creating word rhythms (MU:Cr1.1.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can create contrasting sections and perform a song in rondo form (MU:Cr1.1.Ka, MU:Re7.2.Ka).

Materials Needed:

- Book: *If You Give A Mouse A Cookie* by Laura Joffe Numeroff
- “Braindance” (Kerri Lynn Nichols, Movement for Dancers CD)
- Picture word cards OR metal “cookies” (orange juice lids with high frequency words and rhythm notation written on them with a permanent marker).
- 4-5 Soprano or Alto Glockenspiels with mallets
- 4-5 Drums
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Listen and move to the recording “Braindance” (Kerri Lynn Nichols, Movement for Dancers CD)
2. **Presentation of Text:** Read the book, *If You Give A Mouse A Cookie*. Invite students to share something they noticed about the book with a partner sitting next to them.
3. **Orff-Schulwerk Activity:** Teach the students to sing the “A Section” below:

*A Section (to the folk song melody “Did You Ever See A Lassie?”):
If you give a mouse a cookie, a cookie, a cookie,
If you give a mouse a cookie, he’ll want something more!*

Invite students to create contrasting B, C, D sections by selecting four word rhythms (sight words from the text written on “cookies” frozen orange juice lids with rhythm notation on the back OR picture word cards). Allow students to arrange the words in order. Clap while reading/saying the words. Transfer to an unpitched percussion instrument. As a final performance, sing the “A Section” and perform in rondo form (ABACADA).

4. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #11: *A Tiger Cub Grows Up*

Reading Goals:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Goals:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and play high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).

Materials Needed:

- Book: *A Tiger Cub Grows Up* by Joan Hewitt
- Lion hand puppet and a tiger finger puppet (or two puppets of different sizes)
- Temple blocks with mallets
- A variety of high and low sounding instruments
- Pointing Page Folders
- Songs cut up into phrases
- 4-5 Small, sustained metal instruments (ex. finger cymbals)
- Picture word cards
- Basket filled with books previously used in integrated lessons
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Play a game of musical “Simon Says” (a game for pitch discrimination). Teacher starts a roll on the lowest temple block. This roll continues throughout the game. The teacher then gives movement instructions to the students: sit down, put your hands on your head, etc. The children, however, are

- not to follow the instruction until the teacher plays one of the higher temple blocks once, immediately returning to the roll. The teacher may vary the length of waiting time before playing the higher block, trying to “trick” the students.
2. **Presentation of Text:** Read the book, *A Tiger Cub Grows Up*. Invite students to share something they noticed about the book with a partner sitting next to them.
 3. **Orff-Schulwerk Activity:** Teacher introduces Leo and Tiger Cub in characteristic high and low voices. Remind the class that like big grown men, Leo has a low voice, because he is a large animal, and that Tiger Cub, being much smaller, as children are, has a high one. Invite students to make low, deep voices and high, light voices. Dynamics should not be neglected since both animals can speak either loudly or softly. Next, with mallets held in the puppets’ mouths, the two animals progress to playing instruments. Tiger Cub plays finger cymbals, glockenspiel, and finger drum (high instruments), while Leo uses a large suspended cymbal, spring drum, bass xylophone and the bass drum (low instruments). Teacher uses the puppets to conduct students who are playing “their” instruments. Consider having students improvise a soundscape with or without visual representation (A soundscape is a texture of different layers of instrument or vocal sounds to perform during the reading of the story (Regner, 1991, p. 7).
 4. **Literacy Centers:** Divide class into six groups and assign them to a center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, d) Sing and Play a Song, e) Clap a Word, and f) Book Basket. Rotate to new center activities or allow students to choose another activity if time permits.

5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne's book, *Alphabet Action Songs*).

Lesson #12: *When Sophie Gets Angry – Really, Really Angry*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can listen and perform loud and quiet (MU:Cr1.1.Ka, MU:Pr4.2.Ka).
- I understand the musical terms, *crescendo* and *decrescendo* (MU:Cr1.1.Ka).
- I can listen and play high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).

Materials Needed:

- Book: *When Sophie Gets Angry – Really, Really Angry* by Molly Bang
- “Guided Warm Up” (Kate Kuper, CD)
- A variety of unpitched percussion instruments (one for each student)
- Pointing Page Folders
- Songs cut up into phrases
- 4-5 small, sustained metal instruments (ex. chimes)
- Picture word cards
- Basket filled with books previously used in integrated lessons
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Listen and move to the recording “Guided Warm Up” (by Kate Kuper).
2. **Presentation of Text:** Read the book, *When Sophie Gets Angry – Really, Really Angry*. Ask students some questions about the key details in the text. Introduce the

- musical terms, *crescendo* and *decrescendo*, and invite students to share if they noticed moments in the book where these appeared.
3. **Orff-Schulwerk Activity:** Give each child an unpitched percussion instrument. As you read the story, have the children contribute to the story by playing, shaking, stomping, clapping loudly for the anger. For example, consider using the instruments to build to full force when she slams the door as she runs outside, then getting softer and fast as she runs, becoming quieter, stopping or very slow as she cries, then extremely soft as she sits there, letting the breeze and the ocean calm her down. Then, play a bit louder and with a different tempo or rhythm as she walks home. Use a different rhythm as the family works on the puzzle together and as each person goes about their own task. Repeat to develop a performance with the class, to help students see how rhythm and sound express emotions and how to play together in an ensemble.
 4. **Literacy Centers:** Divide class into six groups and assign them to a literacy center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, d) Sing and Play a Song, e) Clap a Word, and f) Book Basket. Rotate to new center activities or allow students to choose another activity if time permits.
 5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne's book, *Alphabet Action Songs*).

Lesson #13: A Whistle for Willie

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and play high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can listen to and select from a variety of tone colors to illustrate a story (MU:Cr2.1.Ka, MU:Pr4.1.Ka, MU:Pr4.2.Ka, MU:Pr5.1.Ka, MU:Cn10.0.Ka, MU:Cn11.0.Ka).
- I can create a simple melody using pitches from the pentatonic scale (MU:Cr2.1.Ka, MU:Cr3.2.Ka).

Materials Needed:

- Book: *Whistle for Willie* by Molly Bang
- “Braindance” (Kerri Lynn Nichols, Movement for Dancers CD)
- Temple Blocks with mallets
- Stick figure drawings in different positions
- Pointing Page Folders
- Songs cut up into phrases
- 4-5 Small, sustained metal instruments (ex. chimes)
- Picture word cards
- Basket filled with books previously used in integrated lessons
- Book: *Alphabet Action* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Walk to the sound of the temple blocks and freeze when the teacher plays the signal rhythm. Hold up stick figure drawings

for the students to create shapes with their bodies. When the temple blocks play again, invite students to walk in that shape or perform a non-locomotor movement to keep the steady beat.

2. **Presentation of Text:** Ask students if they can whistle and invite some of them to whistle a familiar tune and see if someone can identify it. Read the book, Whistle for Willie. Ask students some questions about the key details in the text.
3. **Orff-Schulwerk Activity:** Using the xylophones (set up in the C pentatonic scale), create a simple two-phrase melody for the whistle using three notes. Select one of the student's melodies and teach it to the entire class. Ask the class to perform this melody anytime the whistle is said in the story. Add a simple bordun or ostinato on barred instruments. Assign various percussion instruments to characters in the book.

For example:

Peter: student whistle or a slide whistle

Willie the Dog: spring drum or regular drum

Spinning around: stir xylophone

Up & Down: xylophones play ascending and descending scales

Walking: temple blocks

Assign students to dramatize the story and play instruments and perform with the book.

4. **Literacy Centers:** Divide class into six groups and assign them to a literacy center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, d) Sing and Play a Song, e) Clap a Word and f) Book Basket. Rotate to new center activities or allow students to choose another activity if time permits.

5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne's book, *Alphabet Action Songs*).

Lesson #13: *In the Tall, Tall Grass*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words and phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and play high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can sing and perform the solfège pitches: *sol-fa-mi-re-do* (MU:Pr6.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can listen to and select from a variety of tone colors to illustrate a story (MU:Cr2.1.Ka, MU:Pr4.1.Ka, MU:Pr4.2.Ka, MU:Pr5.1.Ka, MU:Cn10.0.Ka, MU:Cn11.0.Ka).

Materials Needed:

- Book: *In The Tall, Tall Grass* by Denise Fleming (1995)
- “8 Minute Brain Dance - Narration” (Eric Chappelle, Brain Dance Music CD)
- Pointing Page Folders
- Songs cut up into phrases
- 4-5 Small, sustained metal instruments (ex. chimes)
- Picture word cards
- Basket filled with books previously used in integrated lessons
- Book: *Alphabet Action* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Braindance® movements with narration recording (8 min.) by Eric Chappelle.

2. **Presentation of Text:** Introduce the musical term, *scale*, and invite students sing a descending scale on solfège with hand signs (*sol, fa, mi, re, do*). Read the book, *In the Tall, Tall Grass* (Teacher sings the book using the solfège pitches sol-mi and students join in singing the descending scale “*in the tall, tall grass*” each time the page is turned).
3. **Orff-Schulwerk Activity:** Teacher shows the students how to play the descending scale on xylophones. Invite students to sing and play the scale as the book is read again. Assign groups of students to create movement for the creatures. Divide into groups performing the book with singing, instruments and creative movement.
4. **Literacy Centers:** Divide class into six groups and assign them to a literacy center to start. Centers include: a) Pointing Pages, b) Mix & Fix A Song, c) Rhyme Time, d) Sing and Play a Song, e) Clap a Word, and f) Book Basket. Rotate to new center activities or allow students to choose another activity if time permits.
5. **Reflection/Closure:** Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne’s book, *Alphabet Action Songs*).

Lesson #14: *In the Tall, Tall Grass*

Reading Objectives and Common Core State Standards:

- I can follow print left to right on a familiar text (RF.K.1a).
- I can notice letter-sound relationships (RF.K.2).
- I can recognize and name letters and familiar words in text (RF.K.1d).
- I can read/sing words in phrases with expression (RF.K.3, RF.K.4).
- I can recognize some high frequency words in a text quickly (RF.K.3c).
- I can notice rhyming words (RF.K.2a).
- I can re-tell a story (RI.K.2, RL.K.2).

Music Objectives and National Core Arts Standards:

- I can keep a steady beat (MU:Cr1.1Ka, MU:Re7.2Ka).
- I can explore uses of my voice: singing, speaking, whispering, and shouting (MU:Pr4.3Ka).
- I can listen and play high and low (MU:Pr4.2.Ka, MU:Re7.2.Ka).
- I can sing and perform the solfège pitches: *sol-fa-mi-re-do* (MU:Pr6.1.Kb).
- I can follow a musical cue provided by the teacher (MU:Pr5.1.Ka, MU:Pr5.1.Kb).
- I can perform with proper technique when playing instruments (MU:Pr5.1.Ka, MU:Pr5.1.Kb, MU:Pr6.1.Ka, MU:Pr6.1.Kb)
- I can notice the pattern of question-answer in music (MU:Re7.2.Ka).
- I can move expressively to music (MU:Cr1.1.Kb).
- I can listen to and select from a variety of tone colors to illustrate a story (MU:Cr2.1.Ka, MU:Pr4.1.Ka, MU:Pr4.2.Ka, MU:Pr5.1.Ka, MU:Cn10.0.Ka, MU:Cn11.0.Ka).

Materials Needed:

- Book: *In The Tall, Tall Grass* by Denise Fleming (1995)
- “8 Minute Brain Dance - Chimes” (Eric Chappelle, Brain Dance Music CD)
- A variety of unpitched percussion instruments
- Book: *Alphabet Action Songs* by Denise Gagne

1. **Active Listening/Brain-based Warm-up:** Braindance® movements without narration recording (8 min.) by Eric Chappelle.
2. **Review of Text:** Revisit the book, *In the Tall, Tall Grass* (Invite students to join in singing the descending scale “in the tall, tall grass” each time the page is turned).

3. **Orff-Schulwerk Activity:** Teacher reviews with the students how to play the descending scale on xylophones. Invite students to create and develop a sound story. Assign groups of students to find instrument sounds for the creatures in the story. Divide into groups to perform the book with singing, instruments and creative movement.
4. **Reflection/Closure:** Consider performing the sound story for the classroom teacher. Reflect on activities, addressing any problems that may have occurred and review learning goals. If time permits, sing a letter-sound song to accompany the current letter study in their classroom (see Denise Gagne's book, *Alphabet Action Songs*).

Appendix D: Description of Literacy Centers**Pointing Pages Activity** (RF.K.3), (MU:Pr4.3Ka):

Pointing pages were similar to finger point reading: as the teacher points to the words of a familiar text or refrain in sequence, the children are challenged to recite the words in time. Students were provided a folder with a copy of the songs or poems used throughout the integrated music lessons. They were encouraged to read the songs, touching each word. The teacher encouraged the students to use three voices before moving on to the next song in the folder: a) speaking, b) whispering, and, c) singing. Consistent with the literature, finger point reading is useful for developing basic concepts about print, such as directionality, and leads students to internalize the language of a story (Snow et. al, 1999, pp. 181-182).

Mix and Fix a Song Activity (RF.K.3), (MU:Pr4.3Ka):

Familiar songs from the integrated lessons were cut up into strips of paper, each strip containing a musical phrase. The strips of paper were stored in ziploc bags and labeled with the title of the song. Students were asked to read the individual strips of paper first, then put them in order to complete the song. When the song was arranged in order, students sang the song while pointing to the individual words to check their work. Pointing page folders (with the songs printed in order) were also available for the children to check their work.

Clap a Word Activity (RF.K.2b), (MU:Cr1.1.Ka):

Word cards were printed on heavy cardstock from the Fountas & Pinnell kindergarten

binder materials. The number of syllables and word appeared on the reverse side of the picture. Students selected four word cards, determined an order, then read aloud and clapped the words. They were encouraged to mix them up several times to create new rhythms before selecting another set of cards. This activity helped the students develop phonological awareness as well as an understanding of word rhythm.

Rhyme Time Activity (RF.K.2a), (MU:Pr5.1.Ka):

Short poems and passages from the lesson texts were printed, with an emphasis on high frequency words and provided for students. They were asked to highlight the rhyming words, read the poem or passage, and play a small, sustained, percussion instrument as they read the rhyming words. Some examples of instruments used were triangles, finger cymbals, and chimes. The poems for children selected were relatively short in length and taken from the Fountas and Pinnell book, Sing a Song of Poetry. Consistent with the literature, poetry (and other rhythmical texts) offered unique advantages for students who were considered “below target” in reading. The poems could be mastered in a short period of time, and struggling readers could achieve a level of reading success that is more difficult with information and narrative texts (Rasinski & Zimmerman, 2013).

Sing and Play a Song Activity (RF.K.3), (MU:Pr4.3Ka), (MU:Pr5.1.Ka):

Simple folk songs with notation were provided for students to play on pitched percussion instruments (ex. glockenspiel, resonator bells). Students were also encouraged to assign pitch letters from the pentatonic scale to turn short poems into a song. Poems were selected from the book, Sing a Song of Poetry (Pinnell & Fountas, 2004).

Book Basket (RF.K.4, SL.K.1), (MU:Pr4.3Ka), (MU:Cr1.1.Kb):

Multiple copies of the books from the integrated lessons were available for children to revisit and read once their first center was completed. Several copies were available for individual and peer reading. In many lessons, students returned to the book basket several times to recreate and dramatize and dance the previous musical activities alone, with a partner, or with a small group from the previous lessons.

Appendix E: List of Children's Literature and Recordings

- Cabrera, J. (1997). *Cat's colors*. New York, NY: Scholastic, Inc.
- Cabrera, J. (2012). *Twinkle, twinkle, little star*. New York, NY: Scholastic, Inc.
- Chappelle, E. (2007) 5 Minute Brain Dance - Narration [Narrated by Ingrid Herlen]. On *Brain Dance Music* [CD]. Santa Fe, NM: Ravenna Ventures, Inc.
- Chappelle, E. (2007) 5 Minute Brain Dance - Chimes. On *Brain Dance Music* [CD]. Santa Fe, NM: Ravenna Ventures, Inc.
- Chappelle, E. (2007) 8 Minute Brain Dance - Narration [Narrated by Ingrid Herlen]. On *Brain Dance Music* [CD]. Santa Fe, NM: Ravenna Ventures, Inc.
- Davis, M. (2001). *The kissing hand song*. [Submitted to The Mailbox Magazine Online]. Retrieved from <http://www.mrsjonesroom.com/songs/kissinghand.html>
- Fleming, D. (1995). *In the tall, tall grass*. New York, NY: Henry Holt and Company.
- Gagne, D. (2003). *Alphabet action songs*. Deer Park, Alberta, Canada: Themes & Variations.
- Hewitt, J. (2001). *A tiger cub grows up*. Minneapolis, MN: Carolrhoda Books.
- Keats, E. J. (1999). *Whistle for Willie*. New York, NY: Scholastic, Inc.
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Appendix F: Additional Definitions of Terms

Dynamics: In music, dynamics is “a term applying to the varying degrees of volume” (Nichols, 2001, p. B-2).

Echo process: In music, echo process refers to “an approach to learning a composition by rote; the leader plays or sings a phrase of music and the group repeats it” (Nichols, 2001, p. B-2).

Home tone: In music, “the first note of a given scale is called the home tone, or the pitch (key) a musical composition is based on” (Nichols, 2001, p. B-3).

Letter-Sound correspondence: Letter-Sound correspondence is the “matching of an oral sound to its corresponding letter or group of letters” (Florida Center for Reading Research, 2014, p. 9).

Partner/Peer Reading: Partner/Peer reading is “students reading aloud with a partner, taking turns to provide word identification help and feedback” (Florida Center for Reading Research, 2014, p. 11).

Pedagogy: Pedagogy is “how instruction is carried out or the method and practice of teaching” (Florida Center for Reading Research, 2014, p. 11).

Question-Answer form: In music, question-answer form refers to “a two-part form consisting of two contrasting but related phrases” (Nichols, 2001, p. B-6).

Retelling: Retelling is “the act of recalling the content of what was read or heard” (Florida Center for Reading Research, 2014, p. 13).

Tremelo: In music, tremolo refers to “the rapid repetition of a single note” (Nichols, 2001, p. B-8).

Vitae

Tracy St. Clair is currently the general music teacher for a Midwestern, suburban elementary school. Her teaching experience includes 15 years at the elementary level, 10 years as a District K-12 Music Facilitator, eight years as a choral director for the Kirkwood Children's Chorale and eight years as co-founder and director of Xylomania!, a summer music workshop for children. She was named *Teacher of the Year* in her school district during the 2008-2009 school year, and is a certified instructor in two leading music pedagogies, The Orff-Schulwerk Approach (Levels 1 and 2) and the Kodály Method (Level 1). In addition, Tracy has presented at a number of professional development workshops within the metropolitan area and her school district.

Tracy's educational studies have resulted in the anticipation of an Educational Doctorate degree awarded upon graduation in December 2014 from Lindenwood University. A Master's of Arts in Education degree was earned in 1999 as well as a Bachelor's Degree in vocal music in 1998 from Truman State University.