A Research Question and Study Exploring the Effects of an
Indirect Approach to Literacy through Music and Games.

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Abstract

Niland (2010) found that humans are innately musical and because of this it is crucial for children to be provided with an enriched environment in which they can be musical. The goal of an early childhood educator is to educate young children on a variety of topics. They must also do so in a developmentally appropriate way. Copple and Bredekamp (2006) stated that young children learn best when they are actively involved and given opportunities to play, explore, experiment and interact with people and objects. The researcher believed that using music to teach literacy skills would support children’s innate connections to music and allow them to learn literacy skills in a developmentally appropriate way, as they interacted with the songs and with each other. The participants in this study were four and five-year-old preschool students attending a Reggio Emilia inspired early childhood program. The researcher pushed into their classroom for eight lessons focused around music. Using the Brigance screen, the researcher conducted a pre-test and post-test, assessing preschooler’s literacy skills before and after the music based literacy lessons. Findings suggest that using music and play positively affects students’ literacy development.
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Chapter 1 – The Problem

This researcher spent her first ten years in education teaching in a Reggio Emilia inspired preschool. The Reggio Emilia approach to early childhood education asks the teacher to take on the role of a facilitator. Rather than teaching skills directly, the researcher would provide children with opportunities to discover and learn new skills through play (Edwards, 1998). During her first years of teaching, the researcher found that subjects such as math, science, and social skills were more easily incorporated into a play-based, indirect teaching environment. Literacy skills, however, were more easily taught in a more direct style; through reciting the alphabet, completing worksheets or reviewing flash cards. In her first years of teaching, the researcher found teaching literacy skills using an indirect approach challenging at times due to the spontaneity of each lesson and knowing when to take advantage of teachable moments. The use of indirect literacy instruction through music and games seemed like a natural way to incorporate literacy instruction in a play-based manner. Preschool aged children were found to enjoy poems and stories with repetition (Copple and Bredekamp, 2006) making the use of songs developmentally appropriate as a tool for teaching literacy. The researcher believed that when music is more intentionally chosen and used often in an early childhood classroom it could be both entertaining and aid in literacy learning.

Purpose of the Study

The purpose of this study was to determine if there would be a positive correlation between the use of music and games and children’s ability with specific literacy skills. The researcher hoped to find that music along with interactive, hands on literacy based
games could be used in a preschool classroom to indirectly teach and improve students’ literacy skill.

**Justification for the Study**

The researcher hoped that this study could aid in the continued improvement of best practices in the teaching of literacy skills in play-based early childhood settings. If the results of the study suggest that the use of music in a Reggio inspired preschool classrooms did indeed help to improve literacy skills, it would be right to assume that music could then be used in all other early childhood settings, as a tool for literacy instruction, not just Reggio inspired classrooms.

**Research Hypothesis**

The researcher hoped to answer the questions: what effects does the use of music and literacy games, as an indirect approach to teaching, have on early childhood literacy skills. The researcher hypothesized that the answer would be that the use of the music and literacy based games as an indirect, play-based approach to teaching literacy would improve children’s literacy skills. The researcher assumed that post-test score would be higher than pre-test scores on both the Brigance Screen Core Assessment and Reading Readiness Scale. The researcher’s results may have been affected by independent variables such as; the type of music chosen, the length of the time the researcher spent in the classroom, the number of lessons taught, or the play-based activities that accompanied the music. Some dependent variable that may have affected the outcomes of the research could have been; the current lessons begin taught by the classroom teacher, the use of music in a typical day in that preschool setting, or the children’s interactions with books and literacy skills at home.
Definition of Terms

Music:
Constitutive Definition: Music: The Merriam-Webster dictionary defines “music” as vocal, instrumental, or mechanical sounds having rhythm, melody, or harmony.
Operational Definition: In this study, the term “music” referred to any rhythmic songs, instruments played or instrumental sounds used during the lessons taught by the researcher.

Indirect:
Constitutive Definition: According to the Oxford Dictionary, indirect can be defined as “not done directly; conducted through intermediaries.”
Operational Definition: For the purposes of this study, “Indirect learning” referred to any information gained through an exploration or play.

Play-Based Learning:
Constitutive Definition: The online encyclopedia, Wikipedia, defines “play-based learning” as an approach “based on a Vygotskian model of scaffolding where the teacher pays attention to specific elements of the play activity and provides encouragement and feedback on children’s learning.”
Operational Definition: For this research project, “Play-based learning” referred to any learning that was taught in an indirect manner and which children enjoyed.
Literacy:

Constitutive Definition: Literacy is defined as “the quality or state of being literate” by the Merriam-Webster dictionary.

Operational Definition: For this study, “literacy” was defined as, “the skills and knowledge that children acquire during the preschool years that set the stage for learning to read and to write in the elementary grades and beyond.” (Roskos and Christie, 2011)
Chapter 2 - Background and Review of Literature

Preschool aged children have been found to learn best in an environment that allows them to uncover their understandings about the world around them in a natural, play-based way. Due to the pressures of meeting standards, such as the new Common Core State Standards, some early childhood classrooms are beginning to use more direct instruction and are leaving out the opportunities for play, which most early childhood educators consider developmentally inappropriate for young children (Nitecki, 2013). The researcher sought to show that play and learning are not mutually exclusive, but rather, support each other as shown through the work of early childhood educators like those in Reggio Emilia (Edwards, 1998).

The researcher taught young children using the principles of the Reggio Emilia approach to education for over ten years. This approach is a project based approach that takes into consideration the children’s interests and the use of play as a teaching tool (Edwards, 1998). One challenge of this approach is to find a balance in literacy instruction in which skills, such as phonics, are taught in a way that is still child centered and has meaning to all learners.

Based on theories of Piaget and Vygotsky, authors Roskos and Christie (2011) developed the play-literacy nexus where play, literacy skills, and language merge together, stating that, “play and literacy skills develop simultaneously and interact to form longer developmental trajectories of language and literacy learning” (Roskos and Christie, 2011). One way thought to weave together play and literacy was through the use of music and song play with children. “Emergent literacy may be nurtured in an early childhood environment that integrates literacy experiences with meaningful music
activities in which young children develop skills necessary for success in both areas simultaneously.” (Wiggins, 2007) Wiggins’ statement (2007) supports the researchers hope to use music as an alternative to more direct instruction such as worksheets or flash cards. However, a study by Hatch (2010) showed there are some teachers who believe this more direct approach to instruction is the best approach for teaching. Vygotsky’s views on early childhood development and the process of learning skewed towards a more direct teaching approach. Some scholars who follow a Vygotskyin way of thinking believe that children learn best when they are being more directly taught by an adult rather than through their own discoveries (Hatch, 2010).

It may be true for some children that a more direct approach to literacy instruction may become necessary. However, the researcher found contradictive research to that of a Vygotskyin view. Gestwicki (1999) reported that it is developmentally inappropriate to expect all children to work on the same skill at the same time through drills, worksheets, and rote memorization. Allowing children to explore literacy in a pressure-free environment through their areas of interest and the use of the arts has proven to improve skills such as creative thinking, memory, listening and letter and word identification (Brand and Dalton, 2012)

Niland (2010) believed that humans are innately musical and because of this it is crucial for children to be provided with an enriched environment in which they can be musical. This is best incorporated into a child-centered play-based curriculum revolving around the child’s interests. One study conducted in Queensland, Australia observed two kindergarten teachers after new guidelines were implemented which contained only literacy and math to investigate the amount and types of music activities occurring.
“Findings reveal the music is seen as a foundation for many of the daily routines and an important element of inquiry-based learning in the classroom” (Garvis, 2012). Another study, conducted by Lamb and Gregory (1993), showed a positive relationship between a child’s ability to discriminate pitch and their phonemic awareness and reading test scores (Wiggins, 2007). Music can improve a child’s book concepts, sight vocabulary, reading comprehension and fluency (Kolb, 1996). Parlakian and Lerner (2010) showed how music can affect areas of literacy such as spoken language, receptive language, and phonemic awareness.

Music can connect and teach literacy skills to children in a way that is child-centered and play-based rather than through direct teaching, memorization or drills. “Rhythm and rhyme seem to magically increase learning, and singing frequently provides an emotional hook that can engage students in learning routine facts.” (McIntire, 2007)
Chapter 3 - Procedures

After reviewing the literature on the effects of music on literacy skills, the researcher felt that developing a few sample lessons revolving around music would be a play-based way to introduce literacy skills to a preschool classroom in her Reggio Emilia inspired early childhood center. The literature supported the use of music as a tool for literacy instruction and supported the importance of play as a developmentally appropriate approach for teaching young children.

Description of the Study

Due to the nature of the information collected, the researcher chose to develop a correlational study linking the use of music and literacy based games as a play-based approach to literacy instruction with preschoolers. The data collected includes pre-test and post-test scores from the Brigance Early Childhood Screen with a focus on literacy. The action research began in June 2015 and ended August 2015. This study was quantitative, quasi experimental, due to the researcher having only limited control over the control group. The researcher pushed into a Reggio inspired preschool classroom twice a week, working with small groups of children.

Sample

The participants in this research study are male and female preschool students within one classroom at Grand Rapids Early Discovery Center in Grand Rapids, Michigan. Ten children, four to five years old, participated in this study. The number of participants was affected by the total number of children enrolled in the preschool during the summer of 2015. The classroom the researcher worked in would typically have 20
children enrolled, the summer of 2015 had lower enrollment. Every child enrolled in the class participated in the study.

**Instruments Used**

The Brigance Screen consists of a core assessment and a reading readiness scale. The core assessments focus on three developmental areas: physical development, language development and academic skills/cognitive development (literacy and mathematics) (Brigance, 2013). The reading readiness scale asks 10 observational yes or no questions related to the act of reading a book.

For this study, the researcher did not score the tests in full because the goal of these assessments is not to find delay or giftedness, but rather to show growth in literacy development only.

Scoring was reported by the number of correct questions out of the total number of questions asked. Each student was given a number in place of his or her real name to protect each student’s privacy as the researcher gathered data.

A copy of the data sheets showing how each question was asked can be found in the Appendix. Also included are the questions asked on the reading readiness scale and the scoring guide.

**Explanations of the Specific Procedures Followed**

Grand Rapids Early Discovery Center Preschool students were assessed on literacy skills using the Brigance core assessment and reading readiness scale in the beginning of June, prior to any other interactions with the researcher. The researcher pushed into the classroom during the classroom’s small group time of the day and led
students in music activities and literacy games for eight lessons. Following the completion of the eight lessons, the researcher again assessed literacy skills using the Brigance core assessment and reading readiness scale.

The research project was explained to the parents of the students through a letter. Parents were encouraged to ask any questions regarding the research through e-mail, phone or in person. Parents were given the opportunity to review and sign the consent form attached to the letter. A copy of the parent information letter and consent form can be found in the Appendix section at the end of this document.

**Internal Validity**

According to Tuckman and Harper (2012), “Internal validity affects observers’ certify that the research results can be accepted, based on the design of the study” (p. 6). Based on the design of this study, one could argue that there could be a conflict of interest due to the researcher also being the program’s director. The researcher attempted to eliminate any pressure to participate by stating in the consent form that participation in this study is optional and there was no pressure to participate.

Families were assured that the participation and/or findings of the study would not have any effect on how the researcher in her role as program director responded to the families and there would be no coercing them to participate.

**External Validity**

“A study has external validity if the results obtained would apply in the real world to other similar programs and approaches” (Tuckman & Harper, 2012). This study could easily be repeated on a larger scale with more participants of differing backgrounds and
populations. Because of the limited number of participants, however, the scope of the results may have been rather limited.

Further, the uses of music and games as a play-based, indirect approach to teaching is not limited to literacy skills alone. The method of using music and games to assist learners could extend into all content areas and beyond.

**Statistical Techniques and Methods of Analysis**

The researcher analyzed the data by using the Pearson’s Correlation Coefficient formula, entering all pretest and post-test assessment results into a spreadsheet in Microsoft Excel. These spreadsheets, found in Appendix G, allowed the researcher to create graphs and charts to display data, see trends, and determine either a positive or negative correlation between pre-test scores and post-test scores after the music lessons were taught.

This study evaluated literacy development in a group of preschoolers using the Brigance Screen to demonstrate growth. Students were given a pre-test using both the Brigance Screen Core Assessment and the Brigance Reading Readiness scale. Through the course of eight push in lessons, the researcher employed music and games as a tool for teaching specific literacy skills. The lessons were taught over the period of a month and a half, during the summer of 2015, at the Grand Rapids Early Discovery Center, in their preschool classroom. A total of ten children participated in this study. After the eight lessons were complete the researcher then conducted a post-test, again using the Brigance Screen Core Assessment and the Brigance Reading Readiness scale. The scores of the pre-test and post-test were compared and analyzed to determine if there was a
correlation between music and literacy play and children’s literacy scores as measured through the Brigance Screen.
Chapter 4 – Results, Analysis and Data

This study was designed to consider if music, as an indirect approach to instruction, could have a positive impact on children’s literacy skills. The researcher sought to discover if there would be a correlation between the use of music and games as an indirect approach to teaching literacy skills and children’s literacy scores as determined from the Brigance Core Assessment and Reading Readiness Scale. The researcher compared the Brigance Core Assessment pre-test and post-test scores and the Brigance Reading Readiness Scale pre-test and post-test results to examine if there was a change in scores from the pre-test to the post-test. The researcher then, analyzed the results using the Pearson’s Correlation Coefficient formula to determine if there was any correlation between the use of music in the classroom and the test scores as assessed using the Brigance.

Brigance Core Assessment Results

The Brigance core assessment has a total of thirteen sections. Out of those thirteen, five are connected to the domains of academic/cognitive literacy skills or language development. The remaining eight sections focus on the domains of academic/cognitive development, physical development and academic/cognitive development in mathematics. When calculating only the academic/cognitive literacy domains and the language development domains, a child can score a total of 38.5 points. The data collected was based only on those five literacy or language based questions. Table 4.1 shows the pre-test and post-test scores for the literacy and language development portion of the Brigance core assessment.
Table 4.1 compares the Brigance Core Assessment pre-test and post-test scores of the ten participants. Out of those ten, seven showed an increased score from their pre-test to their post-test. Three participants scored lower on their post-test than on their pre-test.

Using the Pearson’s Correlation Coefficient formula, as shown in table 4.2, shows the correlation between the pre-test and post-test scores, it is calculated to be 0.75. With the degree of freedom being 8, the critical value for r would be .632. The calculated coefficient of 0.75 is higher than the critical value of .63 showing a positive correlation. Correlation with an r value of .70 or higher is thought to have a very strong positive relationship. This positive correlation, as displayed in table 4.2 below, implies that indirect literacy instruction through music and games has a positive effect on children’s
literacy knowledge assessed through the Brigance literacy and language core assessment, advocating for the use of music as an indirect approach for literacy instruction.

Table 4.2

**Brigance Reading Readiness Scale Results**

The Brigance Reading Readiness Scale asks ten “yes” or “no” questions. The Reading Readiness Scale focuses on the development of the child’s skills and behaviors that demonstrate emergent literacy skills (Brigance, 2012).

All ten questions were answered for each child participating in the study. The answers to each question were determined by the researcher using the scoring guide shown in Appendix E.
Table 4.3 compares the scores of the Brigance Reading Readiness Scale pre-test and post-test. Of the ten participants, two scored higher on their post-test than they did on their pre-test. Five of the ten participants showed no change between their pre-test and post-test and 3 participants scored lower on their post-test than they did on the pre-test.

Using the Pearson’s Correlation Coefficient formula, as shown in table 4.4, the correlation between the pre-test and post-test scores is calculated to be 0.79. With the degree of freedom being 8, the critical value for $r$ would be .63. The calculated coefficient of 0.79 is higher than the critical value of .63, showing a positive correlation. If $r$ is equal to or greater than .70 the results are said to have a very strong positive relationship. This positive correlation, as shown in table 4.4 below, implies that indirect literacy instruction through music and games has a very positive effect on children’s
literacy knowledge as assessed through the Brigance Reading Readiness Scale. Again, making the use of music and literacy play an alternative tool for literacy instruction in early childhood education.

Table 4.4

The positive correlations seen in both the Brigance Core Assessment and the Reading Readiness Scale indicate that an indirect approach to teaching literacy is through the use of music is effective for preschool aged children. Using music and literacy play did have a positive impact on the literacy skills of children as measured by the Brigance Screen Core Assessment and Reading Readiness Scale. Due to the small sample size, the results may have been limited in scope and provide a foundation for further study. The
intentional and increased use of music and play in the early childhood classroom as a tool for teaching literacy skills can be attainable for any teacher and as this study supports can also be an alternative to more direct literacy instruction such as worksheets or flash cards.
Chapter 5 – Discussions and Conclusions

The results of this research project have shown that an indirect method of literacy instruction through music and play positively impacts children’s knowledge of literacy skills. This positive correlation implies that play-based literacy instruction through music and games is not only developmentally appropriate according to current research, but also aids in the teaching of literacy skills necessary for success later in education. Research has shown that learning programs that combine music and literacy have a very positive effect (Bolduc, 2009). In the book, Sound Before Symbol: Developing Literacy Through Music, author Maria Kay (2013) lists a total of 12 studies that positively link music and literacy skills. The positive correlation of this research along with previous studies like those listed throughout this report hopes to encourage the use of music in the early childhood classroom. Making music a common practice in early childhood classrooms would help to solidify its importance and its ability to teach necessary literacy skills, without the use of worksheets, rote memorization, flashcards or other developmentally inappropriate techniques that ask children to sit still and take in information out of context to real life events (Copple and Bredekamp, 2009).

Author Carol Gestwicki (1999) summarizes developmentally appropriate preschool environments as those which allow children to use play as a way for them to express their understandings. Gestwicki (1999) also states that, “In such an environment adults carefully observe, plan for the child’s active involvement with materials, playmates, and adults, prepare the environment, model play, design questions to stimulate children’s more mature thinking and understanding and respond in a way designed to deepen and extend the learning experiences.” (p. 262). Gestwicki’s statements and the
results of this study remind early childhood educators that rather than simply choosing any CD off the shelf, they should choose carefully. The teacher’s choice could be just a fun experience for the children or it could be an opportunity for literacy learning in their classroom, along with being a fun, developmentally appropriate experience for the children.

This field is ripe for future study. Further research should seek to isolate the specific literacy skills that are best taught through the use of music and play. Similar studies might consider the question: “Does music best support the development of rhyme? Phonics? Print concepts? Letter sound correlation?” This study points to a positive correlation that music can impact literacy growth. Studies such as those suggested above could demonstrate how to best apply that knowledge.
References


Brigance, H.A. (2012) Brigance early childhood screen III (K&1) [Assessment instrument]. North Billerica, MA; Curriculum associates LLC


Appendix A
Consent Form

I am sending you this form to verify your consent to allow your child to be a participant in my research project entitled, “Music as a Play-Based Approach to Literacy Education in a Preschool Setting.” The purpose of this study is to determine if there is a positive correlation between music and improved literacy skills. The researcher hopes to find that music can be used in a preschool classroom to indirectly teach and improve student’s literacy skill.

Students will join me in small groups to enjoy music through listening to music, singing songs and instrument play. I will collect data using the literacy portions of the Brigance Early Childhood Screen III. This data will be collected at the beginning and end of the research for the use of comparison.

Your child’s participation is voluntary and there will be no penalty if you choose to have your child not participate or have your child stop participating at any time during the study. I am currently working on my final project for my Masters in Education from Aquinas College in Grand Rapids, MI. I am being supervised by Dr. Nkechy Ezeh, Associate Professor of Education at Aquinas College. All information from this study will be kept completely confidential and no names will ever appear in the research documents or any publications. Only research findings will be reported. All test scores will be kept confidential and upon recording, they will be shredded. Please feel free to contact me via email at kostemel@aquinas.edu or Nkechy Ezeh at nkechy.ezeh@aquinas.edu with questions, concerns, or comments. We will make sure that your questions or concerns will be addressed until you are satisfied. If you would like a copy of the research results, I will gladly provide that to you. Thank you in advance for your willingness to help me in my study.

Sincerely,

Mrs. Melissa Boyette, Program Director
Grand Rapids Early Discovery Center

Participant’s name: ____________________________________________________________

Parent signature: ___________________________________________ Date: ___________
# Appendix B

## Lessons

<table>
<thead>
<tr>
<th>Song</th>
<th>Book</th>
<th>Literacy Game</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Test</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson One</strong></td>
<td>The Itsy Bitsy Spider, by Iza Trapani</td>
<td>Skill: Retelling and sequencing. Using clothes line and clothes pins, the children retold the story by sequencing pictures. They told the story again through finger play.</td>
</tr>
<tr>
<td>The Cool Itsy Bitsy, Jack Hartmann from “Hip-Hop Alphabop 2”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill: Rhyming awareness (Hartmann, 2017)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson Two</strong></td>
<td>Caps for Sale: A Tale of a Peddler and Some Monkeys Buisness, by Esphyr, Slobodkina</td>
<td>Skill: Retelling and sequencing. Children first sequenced pictures from the book. Then, using paper plate monkey masks, the children acted out the story taking paper hats from the peddler.</td>
</tr>
<tr>
<td>I Got a Hat, The Learning Station from “Seasonal Songs in Motion”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill: Rhyming</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson Three</strong></td>
<td>Giraffes Can’t Dance by Andreae Giles and Guy Parker-Rees</td>
<td>Skill: Making connections. The children moved their bodies in the same way as Gerald, as they did a picture walk through of the book. (Gammons, 2014)</td>
</tr>
<tr>
<td>Animals Exercising, Jack Hartmann from “Sing and Move at the Animal Zoo”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill: Syllable segmentation and counting</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson Four</strong></td>
<td>ABC Animal Jamboree by Andreae Giles</td>
<td>Skill: Letter sound connection. After reading the first few pages, the rest of the book had the illustrations covered, showing only the letter on that page, the children brainstormed animals that could start with that letter.</td>
</tr>
<tr>
<td>Do Like the Animals Do, Jack Hartmann from “Excersongs”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill: Listening and repeating sounds and words (Hartmann, 2017)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson Five</strong></td>
<td>Dancing Feet by Lindsey Craig and Marc Brown</td>
<td>Skill: Making connections and making hypothesis. During the first reading of the book the children had to hypothesize which animal would be making the foot prints shown in the illustration. During the second reading the children created a movement to go</td>
</tr>
<tr>
<td>Lesson Six</td>
<td>Lesson Seven</td>
<td>Lesson Eight</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Hey Diddle Diddle, The Learning Station, from Rock-n-Roll Nursery Rhymes</td>
<td>Farm Yard Beat by Lindsey Craig and Marc Brown</td>
<td>Peanut Butter and Jelly: A Play Rhyme by Nadine Bernard Westcott</td>
</tr>
<tr>
<td>Skill: language development through the assimilation of words that rhyme. (The Learning Station, 2016)</td>
<td>Skill: Making connections. The children were each given a musical instrument. They played one beat for each word read. Ex for the line of text, Peep! Peep! Peep! Peep- peep! The child would play the triangle 5 times. (Gammons, 2014)</td>
<td>Skill: Retelling and sequencing Children sequenced pictures of the process of making a peanut butter and jelly sandwich as told in the book.</td>
</tr>
<tr>
<td>Lesson Seven</td>
<td>Lesson Eight</td>
<td>Post Test</td>
</tr>
<tr>
<td>Groovin Peanut Butter and Jelly, Jack Hartmann from “Hip-Hip Alphabop 2”</td>
<td>Rockin Hip-Hoppin Apples &amp; Bananas, Jack Hartmann from Hip-Hop Alphebop 2”</td>
<td>Eating the Alphabet by Lois Ehlert</td>
</tr>
<tr>
<td>Skill: action words, sequencing and oral language (Hartmann, 2017)</td>
<td>Skill: long vowel sounds (Hartmann, 2017)</td>
<td>Skill: Letter sound connection Children drew a food out of a picnic basket. Then they matched that food with the letter it began with.</td>
</tr>
</tbody>
</table>
Appendix C
Brigance Core Assessment

BRIGANCE® Screen III Five-Year-Old Child Data Sheet

<table>
<thead>
<tr>
<th>Page</th>
<th>Domain</th>
<th>Item</th>
<th>Description</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Academic/Cognitive/Literacy</td>
<td>1C</td>
<td>Knows Personal Information</td>
<td>停止所有不正确的响应</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3C</td>
<td>Gross Motor Skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4C</td>
<td>Visual Motor Skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6C</td>
<td>Recognizes Alphabet (1 point per group)</td>
<td>停止所有不正确的响应</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7C</td>
<td>Sorts Objects by Size, Colour, Shape</td>
<td>停止所有不正确的响应</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8C</td>
<td>Counts by Rote (1 point per group)</td>
<td>停止所有不正确的响应</td>
</tr>
<tr>
<td>50</td>
<td>Academic/Cognitive/Mathematics</td>
<td>9C</td>
<td>Matches Quantities with Numerals</td>
<td>停止所有不正确的响应</td>
</tr>
<tr>
<td>51</td>
<td></td>
<td>10C</td>
<td>Determines Total of Two Sets</td>
<td>停止所有不正确的响应</td>
</tr>
<tr>
<td>52</td>
<td></td>
<td>11C</td>
<td>Reads Uppercase Letters or Reads Lowercase Letters</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td></td>
<td>12C</td>
<td>Experience with Rhythm and Texture</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td></td>
<td>13C</td>
<td>Verbal Fluency and Articulation</td>
<td>停止所有不正确的响应</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total Score = 100</td>
<td></td>
</tr>
</tbody>
</table>

### Appendix D

Brigance Reading Readiness Scale

#### Teacher Report and Scoring Form—Reading Readiness Scale

<table>
<thead>
<tr>
<th>Child’s Name</th>
<th>Date of Screening</th>
<th>Year</th>
<th>Month</th>
<th>Day</th>
<th>School/Program</th>
<th>Teacher</th>
<th>Examiner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent(s)/Caregiver(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Directions:** Read each item and circle the response that best reflects the child's behavior or skill level.

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Options</th>
<th>Comments/Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does this child listen attentively to stories when he/she is being read individually?</td>
<td>No, Yes</td>
<td>Do you have any concerns about how well this child will do learning to read? &lt;br&gt; If yes, please list.</td>
</tr>
<tr>
<td>2</td>
<td>When this child is read a book, does he/she ask questions? &lt;br&gt; (e.g., <em>Why is the kitten crying? Where is the kitten?</em>)</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>If you ask this child “Who is this book about?”, can he/she name the characters? &lt;br&gt; (e.g., <em>puppy, firefighter, ballerina or the character’s name</em>)</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>If you ask this child “What happens in the story?”, can he/she recount the main events of the story?</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Can this child point to the front and back of the book?</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>If, when you are reading a book to this child, you point to a word (any word except the last word) in a line of text and ask “Which word do I read after this word?”, would he/she point to the next word to the right?</td>
<td>No, Yes</td>
<td>Have you observed responses or reactions from this child that cause you to suspect he/she may have a vision or hearing problem? &lt;br&gt; If yes, please indicate the nature of the suspected problem.</td>
</tr>
<tr>
<td>7</td>
<td>If, when you are reading a book to this child, you point to the last word in a line of text and ask “Which word do I read after this word?”, would he/she point to the first word in the next line?</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Can this child identify rhymes? &lt;br&gt; (e.g., hat, bat; tree, see)</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Does this child read at least five informational words he/she is likely to see in the environment? &lt;br&gt; (e.g., <em>STAY, GO, IN, OUT, ENTER, WALK, CAUTION</em>)</td>
<td>No, Yes</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Does this child read at least ten sight/high-frequency words? &lt;br&gt; (e.g., a, go, is, my, run, do, can, down, come, yes)</td>
<td>No, Yes</td>
<td>Reading Readiness Level: &lt;br&gt; (See Table I. Interpreting Reading Readiness Scores on page 93.) &lt;br&gt; Below Average ___ &lt;br&gt; Average ___ &lt;br&gt; Above Average ___</td>
</tr>
</tbody>
</table>

**Raw Score—Number of “Yes” responses: ___/10**
Appendix E
Brigance Reading Readiness Score Sheet

Reading Readiness Scale

Overview
The Reading Readiness Scale focuses on the development of the child’s skills and behaviors that demonstrate emergent literacy skills.

Domain
Academic Skills/Cognitive Development: Literacy

Skill
Demonstrates skills and behaviors that show a readiness for learning to read

Note
In some cases, a read-to-me book may be used to help confirm some skills. (For example, give the book to the child and ask the child to identify the front and back of the book.)

Forms
• Copy of the Parent Report on page 121 (if the parent will be providing information about the child’s skills and behaviors).
• Copy of the Teacher Report and Scoring Form on page 123.

Scoring Information
One point is given for each “Yes” response. The total possible raw score is 10. If needed, the raw score can be converted to a standardized rating by using Table I. Interpreting Reading Readiness Scores below.

Table I. Interpreting Reading Readiness Scores

<table>
<thead>
<tr>
<th>Typical Kindergarten Age</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-0 through 5-5</td>
<td>≤ 6 points</td>
<td>7 to 9</td>
<td>≥ 9 points</td>
</tr>
<tr>
<td>5-6 through 5-11</td>
<td>≤ 6 points</td>
<td>7 to 9</td>
<td>≥ 9 points</td>
</tr>
</tbody>
</table>

Directions
Assess the child’s mastery of these skills and behaviors by one of the following methods:
• The parent completes the Parent Report.
• The teacher completes the Teacher Report and Scoring Form.
• The teacher interviews the parent and records the parent’s responses on the Teacher Report and Scoring Form.
(See Administration Methods on page 119.)

Reading Readiness Skills

1. Listens to stories (read to him/her individually)
   Ask: Does ______ listen attentively to stories when he/she is being read to individually?

2. Asks questions about stories
   Ask: When ______ is read a book, does he/she ask questions?
   Criteria: Give credit if the child asks questions that show interest in the story (e.g., Why is she crying? Where is the kitten?).

3. Talks about story characters
   Ask: If you ask ______ “Who is this book about?,” can he/she name the characters?
   Criteria: Give credit if the child uses a general term for a character (e.g., people, firefighters, bAlligator) or uses the character’s name.

4. Identifies oral rhymes
   Ask: Can ______ identify rhymes? (e.g., hat-bat; tree-bee)

5. Reads some informational words commonly seen in the environment
   Ask: Does ______ read at least five informational words he/she is likely to see in his/her environment? (e.g., STOP, GO, IN, OUT, ENTER, WALK, CAUTION)

6. Reads at least ten sight/high-frequency words
   Ask: Does ______ read at least ten sight/high frequency words such as a, go, is, my, run, do, can, down, come, and yes?
Teacher Report and Scoring Form

INTRODUCTION

Purpose: The Teacher Report and Scoring Form is used to capture and record information about the child’s emergent literacy skills. If the teacher has had the opportunity to observe the child, the teacher records those observations on the form by circling responses that best reflect the child’s skill levels. If a parent/caregiver completes the Parent Report, providing information about the child’s skill levels, the teacher transfers the parent’s responses to the Teacher Report and Scoring Form.

Design: The Teacher Report and Scoring Form includes the same items as the Parent Report. The major difference is that the point values for the items and the blanks for entering scores are not included on the Parent Report.

When Should the Teacher Report and Scoring Form Be Used?
The point values for calculating scores and the blanks where the scores are recorded are found only on the Teacher Report and Scoring Form. Thus, the form should be used when scores are to be calculated. This includes when either the parent, the teacher, or both provide information about the child.

The parent provides the information about the child by circling the responses on the Parent Report that best describe the child’s skills and behaviors. To calculate a score, the teacher will transfer this information to a copy of the Teacher Report and Scoring Form.

If the teacher is providing the information about the child, the teacher circles the response for each item on the Teacher Report and Scoring Form that best reflects the child’s skills and behaviors. The teacher then tallies the total number of “Yes” responses for the Raw Score.

If the teacher interviews the parent to obtain information about the child, the teacher circles the response for each item on the Teacher Report and Scoring Form that best reflects the child’s skills and behaviors, as reported by the parent. The teacher then tallies the total number of “Yes” responses for the Raw Score.

Completing the Teacher Report and Scoring Form: As indicated in the Directions on the form, the teacher should read each item and circle the response that best reflects the child’s skill or behavior—“No” or “Yes.” If there is uncertainty about a child’s skill level or behavior, the teacher may wish to do additional observations.

Scoring Directions: After responding to all ten items on the form, count the number of “Yes” responses to compute the raw score. Then use Table I. Interpreting Reading Readiness Scores on page 124 to interpret the child’s emergent literacy skills as below average, average, or above average.
Appendix F
Pearson’s correlation coefficient formula

\[ r = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}} \]

<table>
<thead>
<tr>
<th>Participant</th>
<th>X: Reading Readiness Scale Pre-test</th>
<th>Y: Reading Readiness Scale Post-test</th>
<th>(xy)</th>
<th>(x^2)</th>
<th>(y^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
<td>5</td>
<td>35</td>
<td>49</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>6</td>
<td>30</td>
<td>25</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>8</td>
<td>56</td>
<td>49</td>
<td>64</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>7</td>
<td>63</td>
<td>81</td>
<td>49</td>
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<td>9</td>
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<tr>
<td>10</td>
<td>9</td>
<td>9</td>
<td>81</td>
<td>81</td>
<td>81</td>
</tr>
</tbody>
</table>

Mean = 7.5 7.2
Sum = 558 583 544
\(r\) = 0.785734
\(df\) = 8
\(r_{crit}\) = 0.632

<table>
<thead>
<tr>
<th>Participant</th>
<th>X: Core Assessment Pre-test</th>
<th>Y: Core Assessment Post-test</th>
<th>(xy)</th>
<th>(x^2)</th>
<th>(y^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18</td>
<td>19.5</td>
<td>351</td>
<td>324</td>
<td>380.25</td>
</tr>
<tr>
<td>2</td>
<td>33.5</td>
<td>28.5</td>
<td>954.75</td>
<td>1122.25</td>
<td>812.25</td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td>29</td>
<td>957</td>
<td>1088</td>
<td>841</td>
</tr>
<tr>
<td>4</td>
<td>31</td>
<td>25</td>
<td>775</td>
<td>961</td>
<td>625</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>31</td>
<td>930</td>
<td>900</td>
<td>961</td>
</tr>
<tr>
<td>6</td>
<td>13.5</td>
<td>21.5</td>
<td>290.25</td>
<td>182.25</td>
<td>462.25</td>
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<tr>
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<td>20</td>
<td>300</td>
<td>225</td>
<td>400</td>
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<tr>
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<td>19.5</td>
<td>25</td>
<td>487.5</td>
<td>380.25</td>
<td>625</td>
</tr>
<tr>
<td>9</td>
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<td>31</td>
<td>806</td>
<td>676</td>
<td>961</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
<td>36</td>
<td>1080</td>
<td>900</td>
<td>1296</td>
</tr>
</tbody>
</table>

Mean = 24.95 26.65
Sum = 6931.5 6759.75 7363.75
\(r\) = 0.754966
\(df\) = 8 degrees of freedom N-2
\(r_{crit}\) = 0.63 Critical value of r