Music and Movement: A Study of the Effectiveness on Letter and Sound Recognition within an Early Childhood Setting

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Abstract

The purpose of this study is to show how music can be used to develop early childhood literacy. Music innately engages our bodies to function and has been incorporated into several aspects of our lives, most recently within education. The research that follows indicates several aspects of learning that support this study. For example, structurally the brain processes music and language in essentially parallel ways. Furthermore, the use of multi-sensory approaches increases functions within both hemispheres of the brain allowing greater retention. Additionally, repeated exposure to specific elements adds to this retention and helps with recollection from long-term memory. The goal of this quantitative matched-group study was to examine the effect of multi-sensory music and movement techniques to increase literacy skills and what affect the techniques had on recall.

The six-week study consisted of children from two separate AppleTree Christian Learning Centers who were chosen randomly. They responded to a pretest, participated in specific music and movement activities, and then answered a posttest. The music and movement activities included the use of Exercise ABC cards in addition to the song Alphabet in Motion.

The results supported the use of music and movement techniques by indicating a positive correlation with increased literacy skills involving lowercase letter recognition, uppercase letter recognition, and letter-sound recognition.
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Chapter One: Problem

Introduction

The focus on Early Childhood Education has been growing dramatically over the last decade. It began in 2002 when President Bush introduced the *Good Start, Grow Smart* Early Learning initiative shortly after the signing of the *No Child Left Behind* Law (A tribal guide, 2004, p. 1). The execution of this program helped to strengthen early learning for all young children across the country. According to the National Center for Education Statistics, during 2005 57.2% of all children three to four years of age were cared for in center-based programs (early learning centers, nursery schools and preschools) as opposed to 40.7% who were cared for in home-based care or had no regular non-parental arrangement (Child care, 2006).

Eleven years after the Bush Administration committed to meet the needs of young children, President Barack Obama announced the Preschool for All initiative. It was a partnership with all 50 states that involved low and moderate-income families with four-year-old children. Its purpose was to provide high-quality preschool for all children as well as promote full-day kindergarten (Early childhood learning). President Barack Obama stated:

If we make high-quality preschool available to every child, not only will we give our kids a safe place to learn and grow while their parents go to work; we'll give them the start that they need to succeed in school, and earn higher wages, and form more stable families of their own. By the end of this decade, let's enroll 6 million children in high-quality preschool. That is an achievable goal that we know will make our workforce stronger.

(Sweet, 2014)
Since the introduction of this initiative, many school districts have begun to include a full-day kindergarten program that focuses on the Common Core State Standards. These standards guarantee all children a public education preparing them for life skills in grammar and math after completing high school by providing detailed curriculum guidelines at each grade level (What parents, 2015). Many have questioned such a large focus on Early Childhood Education, why it is significant and if it truly makes a difference in a child’s life as to whether or not they obtain a high-quality education prior to entering kindergarten.

The focus on education from kindergarten through third grade has been on the radar for educators and parents for quite some time as K-3 education has typically been viewed as the ‘start’ of their education. However, with ‘early childhood education’ becoming more of a common phrase amongst educators, the view has been broadened. “Early Childhood Education involves any group program serving children from birth to age eight that is designed to promote children’s intellectual, social, emotional, language, and physical development and learning” (Kostelnik, Sodeman, & Whiren, 2011, p. 99). Early childhood professionals have long recognized the importance of providing high-quality learning environments for children that are rich with vocabulary and allow for different experiences. Surroundings and personal relationships play a role to enhance learning for all children, especially while they are young (Early childhood, 2013, p. 9). Young children are like sponges, absorbing everything they encounter through their daily experiences. Children who are provided with language-rich environments and opportunities for social interactions further their development, where as the children who lack these experiences may be developmentally behind in some or several aspects. Some children may be shy and withdrawn socially, others may lack the vocabulary to communicate properly with those around them, and others yet may lack the cognitive ability to
correctly categorize due to their lack of experiences. In order to develop learning to read skills, children must mature in a setting filled with verbal correspondence. Unfortunately, if a beginning Kindergarten child lacks pre-requisite literacy skills they often fall behind and remain behind throughout their school years (Good start).

“During the first year of life, an infant’s brain grows to about 70% of its adult size; by age three, the human brain develops to 90% of its full adult growth and establishes most of the structures that will guide all future emotional, behavioral, social, and psychological functioning later in life” (Wittmer & Petersen, 2009, p. 93). With the knowledge of brain development being so critical, the focus on early childhood programming has increased across the country to ensure that each child has an option for a successful early education. Some parents do not see the importance of enrolling their children in an early childhood setting or cannot afford to provide them with the education that is essential at this age. According to the National Kids Count, a project of the Annie E. Casey Foundation to track the well-being of children in the United States, there were 127,000 or 54% of children between the ages of three and four in Michigan who did not attend any type of preschool (Annie E. Casey, 2015). With such a high percentage of children who are not attending preschool and are not prepared for the academic and social expectations of Kindergarten, early education is a vital component that must reach more children. Some basic entry-level Kindergarten skills include: recognition of numbers and letters, enjoyment of books, and an adequate vocabulary in order to communicate. These are the foundation of learning that America should provide to children before entering formal education (Bush, 2002). With everything children are required to understand by the time they enter elementary school, a strong foundation in language skills is needed to guide them across all spectrums.
Early childhood settings vary dramatically. However, certain elements are essential to construct a successful program. Daily interaction is one such component. According to Barclay, an Early Childhood Education and reading professor at Western Illinois University, oral language establishes a baseline for literacy learning later in childhood (2010, p. 139). Daily interactions with peers, caregivers and other children or adults in their lives add to their daily experiences and oral language experience. Singing and music are critically important as children play and interact with rhymes and stories. They begin to build basic vocabulary, developing comprehension skills and learning elements of a narrative (McEwing, 2011, p. 29). Most children are more engaged and focused when they are interacting and exploring as opposed to sitting and observing. Research has indicated a connection between music and movement and how it influences learning overall, but more specifically language development and literacy skills.

**Purpose of the Study**

Children who are immersed in a language-rich environment tend to have larger vocabularies and acquire literacy skills more easily. Research also shows us that brain connections during the first three years of life occur abundantly through exposure to both music and movement (Carlton, 2000). Even with the high-quality programs that young children are enrolled, oftentimes, music and movement are overlooked when implementing curriculum. Teachers are so focused on the content and standards they must prepare children to acquire that they often overlook a young child’s inability to focus for long periods of time due to learning expectations of content and standards. Without activity or a form of engagement, brain development cannot occur (Cooper, 2010, p. 24). With that in mind, the purpose of this study was to discover if a relationship existed between music and movement activities and increased
literacy skills, more specifically letter and sound recognition of the alphabet, when integrated more regularly during circle time. The research investigated three categories including lowercase letter recognition, uppercase letter recognition and letter-sound recognition to determine whether children who participated in specific music and movement interventions showed an increase in recollection of these literacy skills.

**Justification of the Study**

This study was designed to enhance best practices in Early Childhood settings when teaching alphabet letter and sounds recognition. If the results indicate that the daily use of the music and movement intervention increased children’s alphabet knowledge, then it would be safe to presume that music and movement activities helped aide in the process of learning and could then lend itself to other children of different ages and/or other content areas.

**Research Question**

The researcher examined the question, “Will exposing children to music and movement activities during literacy time help to increase literacy skills, specifically letter and sound recognition, for children who are enrolled in an early childhood preschool setting?”

**Definition of Terms**

**Child(ren)**

Constitutive Definition: A young person whose age ranges between birth (infancy) and full-grown.

Operational Definition: Persons who are enrolled in preschool and are between the ages of three and four.
Movement

Constitutive Definition: Moving specific components or all of one’s body or moving from one place to another.

Operational Definition: Mimicking specific actions that are indicated on alphabet cards, actions demonstrated by the teacher, or freestyle motions when music is played.

Circle Time (Group Time)

Constitutive Definition: A time when children come together simultaneously for a structured learning experience, typically in a form of a circle or located on a large area rug.

Operational Definition: Children meet in a group setting on an area rug in the corner of the room for specific instruction involving calendar concepts, the day’s schedule, and weekly theme concepts in addition to the music and movement intervention.
Chapter Two: Literature Review

Similar to the interlocking highways many of us encounter on a daily basis, many researchers have thought that our brains were essentially roads or connectors that were intertwined. These connections that occurred stored information in specific areas of our brain to be recalled at a later time. In essence, researchers believed that our brains assisted us as we travel the highways of becoming life-long learners.

Dr. Robert Marzano, who cofounded the Marzano Research Center located in Colorado, believed that children should be active participants in their repeated learning experiences in order to make specific connections. Children should be encouraged to take what is repeatedly presented to them and relate it to different areas within their own lives. This would make the skill and/or subject more prevalent and more memorable with each exposure. To help engage and encourage students, Marzano included the use of games and stimulations (Overview, 2012). By utilizing these strategies, children would be able to make strong connections with a multi-sensory approach as opposed to a black and white approach of note taking or the use of flashcards.

Tony Buzan, a British psychologist and author, suggested that since the brain works by association, repeated exposure to the same concept(s) using multiple senses created additional links or connections in the brain. These connections then allowed the learner to recall the specific skill(s) when any one of the senses was ignited (Velayanikal, 2011). Buzan recognized that to reveal the immeasurable potential of the brain, a prevalent instrument such as his creation of the Mind Map, was a unique tool that could be utilized to stimulate the brain. The Mind Map was a very visual technique that helped access different areas within the brain and used multiple attributes, such as words, images, numbers, rhythms and colors (Levy, 2004, p. 14). Buzan envisioned the right and left hemispheres of the brain connecting in such a way to increase
memory recall. It was further suggested that adding colors into the mapping process helped to increase retention. The mind map is just one sample, which allows these connections to be produced by using multiple sensory inputs to help retention for later retrieval (Johnson, 2011).

Figure 2.1: Mind Mapping (Buzan, 2011).
Another aspect of the brain is sending learning into long-term memory by using rhymes. Rhyming is an approach that allows the brain to create specific connections and helps send specific information into long-term memory. Pam Schiller, an early childhood consultant and author, states that songs and rhymes are critical in the development of sound sensitivity. Interaction with both of these elements, either together or separately, develops what she refers to as sound sensitivity. Repeated experiences with rhymes and songs continue to wire the brain for sound sensitivity and in turn creates additional connections within the brain. Repetition serves to strengthen this sensitivity. Schiller further stated that wiring for these essential skills would fall within specific developmental windows of time to increase these connections (Schiller, 2008). Children who are between birth and age five are within this critical window of time and with repeated exposure have increased literacy development. Additional studies into brain research indicate how best practices in education can be utilized to strengthen retention.

All learning enters the brain through one of the five basic senses (taste, touch, smell, sound, and sight). By incorporating several senses into any one specific learning process, the retention rate increased for that skill and further connections could be produced. These senses are sharply in tune with the surrounding environment. Everyone is wired with an innate ‘fight or flight’ response. Within a specific environment, if a child received too much negative or threatening stimulus, the signals that are sent to the brain to calm the fear or negative thoughts are not received. When a child is in this ‘fight or flight’ response higher-level thinking and processing is unable to occur. Further connections within the brain are unable to be made due to the threatening external input. Providing an environment that positively stimulates a child’s brain is a critical component of aiding children to process language. Crossner (2007) stressed the importance of providing a safe and nurturing environment for all children to aid in the processing
of language. When children were provided with a stress-free environment, their brains were allowed to make the necessary neural connections involving language (p. 3).

A closer look at brain research explained why this safe, non-threatening environment was critical to processing language skills. According to Rushton & Juola-rushton (2008), the brain consisted of four different sections, otherwise referred to as ‘lobes’. These lobes had their own individual functions yet worked together for thinking and processing to occur. Within these lobes was an area referenced as the amygdale and was deemed the ‘emotional area’ of the brain. When children received any type of outside stimuli it was routed through one of two routes in the brain, either the prefrontal cortex or the amygdala. The prefrontal cortex was where thought and judgment making occurred, in other words, rationale thinking. The amygdala was where the stimuli was either deemed threatening or not based on the reaction in the prefrontal cortex. If there was rationale thought as to why certain stimuli were not threatening, then the prefrontal cortex calmed any type of fear that could inhibit thinking and/or processing of the information (p. 88). The inner workings of the brain in regards to how children process language spans far beyond these four areas as medical advances have allowed us to use specific techniques to pinpoint what areas in the brain respond to specific stimuli.

According to Sandra Crossner (2007), a professor at Ohio Northern University:

New advances in brain research have allowed scientists to understand how the physiology of the brain enables human beings to learn language. It appears that the brain is most plastic, or flexible, in young children. This plasticity is connected to a critical period for learning language easily. This critical period makes it easiest to acquire language before the age of eight or nine, when the ability begins to shut down. (p. 2)
Therefore, the learning process of acquiring letter recognition and sound identification must take place before this shutting down begins.

This critical period has been a subject undergoing intense study amongst Early Childhood educators over a considerable span of time as more and more research has surfaced on this topic. Advances in technology have brought to light several ways to view the responses of the brain of an infant and/or child. According to Kuhl (2011), many of the technological advances that were used to determine how young children process language were considered noninvasive. These noninvasive techniques include Electroencephalography (EEG), Magnetoencephalography (MEG), Functional magnetic resonance imaging (fMRI), and Near-Infrared Spectroscopy (NIRS) (p. 2). An EEG measured the response of the brain through different sensors that were placed strategically upon the scalp (Light et al., 2010). A MEG, also used sensors that were designed to record and show the faint responses of the brain that are not normally picked up through EEG’s (Hari & Parkkonen, 2015, p. 4). Although fMRI’s were considered invasive, they were used less frequently with infants simply due to the nature of the procedure. Unlike EEG’s and MEG’s, fMRI’s measured the blood-oxygen level’s response to brain activity as opposed to measuring brain activity directly. In order to properly measure these levels, the procedure required the participant to remain immobile throughout its entirety. NIRS was similar to an fMRI in the respect that it also could measure the blood-oxygen and blood hemoglobin levels in specific areas of the brain when certain stimuli were provided (Kuhl, 2011, p. 3). These techniques have proven to be extremely beneficial in understanding how children’s brains specifically process language.

Now that students have acquired learning stored in their long-term memories, it is time to discover how it becomes important to them. They need to somehow use it or recall/retrieve it.
The actual storage of information is called encoding. In essence, using it is called decoding the information. This can also be referred to as re-accessing it or remembering it (Mastin, 2010). This would be very similar to watching a DVD or playing a CD. Quite often all of the input that evolved around the learning that entered the brain through any of the five senses would also be recalled. There are two methods to this decoding process: recognition and recall. “Recognition is the association of an event or physical object with one previously experienced or encountered, and involves a process of comparison of information with memory. Recall involves remembering a fact, event or object that is not currently physically present (in the sense of retrieving a representation, mental image or concept), and requires the direct uncovering of information from memory” (Mastin, 2010). Once this cycle of encoding and decoding has taken place a new connector of learning has been established in the student’s long-term memory.

Regardless of individual, cultural or personal background, there was a progression of learning individuals would go through when acquiring language: listening, speaking, reading and writing. Infants thrived in safe and nurturing environments that were rich with language and personal interaction. When given the opportunity to listen when people spoke or sang, they were able to then begin to process the language that they understood about their own language prior to them actually being able to speak (News you can use, 2012).

Barclay (2010) declared that oral language was a vital component to the foundation of language development (p. 139). With this foundation set, it provided children with the necessary skills for future literacy learning. This set the stage for the first step in acquiring language; listening. At an early age, children should be spoken to, read to, and sung to. Within a short period of time, the youngest infant will respond to a familiar voice or a known song/tune. Based on these findings, the proposed research involved children between the ages of three and four.
Ironically, according to Runfola, Etopio, Hamlen & Rozendal (2012), there were some remarkable similarities in the progression of language and musical development. (A comparison is not intended for the purpose of this study.) The structure of grammar and music were not common cross-culturally and each culture had some type of unique form of language and music used to communicate (p. 9).

In the table below, Runfola et al. (2012) outlined some of the similarities among music and language development (p. 9).

Table 1: Similarities between music and language development

<table>
<thead>
<tr>
<th>Language</th>
<th>Music</th>
</tr>
</thead>
<tbody>
<tr>
<td>The notion of language is universal. Every culture uses language to communicate.</td>
<td>Singing is universal. Every culture has its own form of music.</td>
</tr>
<tr>
<td>Grammatical structure in language is not universal.</td>
<td>The way music is structured in various cultures is not universal.</td>
</tr>
<tr>
<td>Language development begins with an extensive listening period.</td>
<td>Music development should begin with an extensive listening period.</td>
</tr>
<tr>
<td>Children begin with cooing and laughing. They engage in vocal play. Eventually, babies babble in context and attempt words.</td>
<td>Children also engage in music babble. Eventually they begin to respond purposefully to the music sounds they hear.</td>
</tr>
<tr>
<td>Children's initial attempts at language are not always precise and accurate. However, they eventually &quot;break the code.&quot;</td>
<td>Children's initial attempts at singing and chanting are not always accurate. They will break the code and imitate music patterns with accuracy.</td>
</tr>
<tr>
<td>After listening and speaking for approximately six years, children are asked to read and then write.</td>
<td>After listening and singing with accuracy, children then read and write what they can already perform.</td>
</tr>
</tbody>
</table>


The similarities between language and music development could be linked to how the brain functioned and processed certain sounds. Patel believed that producing musical form and grammar were comparable since they both were constructed with sequence and context (2012). According to Woodall and Ziembroski (2012), when music was used, the brain utilized both the
right and left hemisphere and operated on a higher level. Children’s listening accuracy and ability to develop language can be nurtured by utilizing sound sequences as well as rhyme rhythm (Runfola et al., 2012). Through the use of EEG’s, researchers learned the effects that music had on brain waves during this critical time which allowed the brain to be more receptive to language learning. Complex thinking, according to some studies, and brain function in general was fostered more while listening to music (Woodall & Ziembroski, 2012). Key ideas advocate that musical experiences triggered certain areas of the brain and helped keep the brain flexible (Kuzmich, 2010, p. 8). Continuous research stated that the domino affect of learning sound awareness, words, and language was influenced by the use of music (The impact of music). In addition to providing rich experiences in music, movement was also considered a language that could contribute to how these languages were processed. These findings reinforced the use of music in this research.

Movement was used cross-culturally to communicate non-verbal meanings and amplify language development. It was often linked with music to further enhance what was being presented. According to Dee Coulter, a neuroscience educator, intelligence was developed in part through music, movement, and song. When children moved through space and time, words had greater meaning (Pica, 2010, p. 72). Providing children with these types of movement experiences increased their language processing while different areas of the brain were being accessed. Providing specific movements that utilize bilateral coordination, the use of both sides of the body simultaneously, accessed both hemispheres of the brain; very similar to when music was used (Parlakian, 2010, p. 16). Raisner (2002) supported the concept that a strong bond existed between literacy development and rhythm. He believed that rhythm and music could and
should be used to increase literacy. These findings established a strong cause and effect justification to include movement as part of this study.

The second step in acquiring language was speaking. Language should not be developed in isolation, but rather in meaningful everyday interaction. Toddlers first begin to speak words, then phrases, and finally sentences. Young children’s progression through language development was strengthened when they are provided with environments that surrounded them with ample opportunities to interact with others and test their theories on language. The more children are provided the opportunity to interact with others around them and have repeated experiences the more likely they will be to mimic what is occurring around them. Children’s vocabularies grew in an environment where teachers provided interaction with music from different dialects. (Runfola et al., 2012, p. 10). Music is also a tool that enhances learning and makes education fun. It allows both educators and students to function ‘outside the box’ in a creative two-way expressive form of communication.

The third and fourth step in acquiring language, reading and writing, are beyond the scope of this study. They do however heavily depend upon the development and understanding of basic letter identification and letter sound identification. Highly developed, extensive reading skills are essential to success in school as well as critical components in the process of becoming life-long learners. This process begins at a very early age. Knowing how the brain processes language is most helpful to educators and curriculum designers. It gives them direction as to how information should best be presented to learners. Thus developing a framework for Best Practice in Early Childhood Education and creating the concept of putting instruction theory into practice.

Over the course of several decades, well-known individuals from all walks of life have been added to the list of experts that advocate early childhood learning. Whether this learning is
in the form of a formal educational program or mere exposure to the written word, the general consensus is the same: all children need to be exposed to language at an early age. For example, Mem Fox, a renowned children’s book author and educational specialist, once said the exposure to this language follows a progression and should begin at an early age. First the child hears sounds, then words, then music, then rhymes, and finally stories (2001).

Based on the above brain research and early childhood literacy skills research, the researcher believed this study regarding the effects of music and movement on pre-school learning of letter recognition, upper and lower cases, as well as sound recognition was valid. Hopefully, the results of this study will positively impact best practice in education.
Chapter Three: Methodology

This research was designed to identify any relationship between music and movement activities and increased literacy skills. It documented the quantitative matched-group outcomes of children’s pre and post-test scores for those who were enrolled in AppleTree’s Preschool program who participated in a specific music and movement intervention. It exemplified the outcomes for children who encounter music and movement curriculum on a regular basis as compared to those children who do not receive this type of curriculum.

The purpose of this research was to examine if the use of music and movement curriculum would increase, decrease or have no effect on literacy skills amongst preschool children. The research focused on the following question:

Will exposing children to music and movement activities during literacy time help to increase literacy skills, specifically letter and sound recognition, for children who are enrolled in an early childhood preschool setting?

The research investigated three separate literacy categories, which included recognition of uppercase letters, lowercase letters, and sound recognition. Participants met one-on-one with the teacher to determine their initial knowledge within each category.

Description of Action

Research instruments that were used consisted of a pretest and a posttest. The pretest was used to establish a baseline for all participants as far as their knowledge of literacy skills. The posttest was administered after participants received four-weeks of the intervention to detect if any scores had increased. Post testing administration also took place with participants that did not initially receive the intervention. This information served as reference information in the study.
Population and Sample

The researcher selected children who were enrolled in AppleTree Learning Center’s Preschool Program. Both of the selected centers were under the same corporate name and ownership and their children’s ages ranged between three and four years. The two AppleTree locations were chosen for three reasons:

1. AppleTree’s Quality Assessor designed ready-to-follow lesson plans that were scripted for the classroom teachers and each lesson provided a list of materials.

2. Some of the children who were once enrolled at the Monroe AppleTree had transferred to the Knapp AppleTree upon its opening in 2012.

3. The location of each site in relation to where the researcher was employed (Monroe AppleTree) and the convenience of delivering and picking up materials.

Participants from each AppleTree location were randomly selected in accordance with the distribution and return of the consent forms (Appendix A) by the parents and/or guardians of the participating children. Consent forms were distributed via classroom mail and parents were instructed to return signed forms to a lock box, which was located in the main front office at each AppleTree location.

The number of participants, including the percentage of girls vs. boys, from each location was as follows:

Monroe AppleTree - 12 participants; 40% boys, 60% girls
Knapp AppleTree - 16 participants; 60% boys, 40% girls
Instrumentation

The study consisted of obtaining data for three separate literacy areas. The knowledge of uppercase letters was the first set of data that was collected followed by knowledge of lowercase and then sounds. Data was collected using the following instruments:

1. Teaching Strategies Assessment Opportunity Cards: Alphabet Recognition Game (Appendix B)
2. Laminated uppercase and lowercase alphabet cards (Appendix C)
3. Letter/Sound Identification Assessment: Score Sheets (Appendix D)

The Regional Manager of Appletree Learning Centers, Christina Finch, approved the testing and implementation of the intervention. The Aquinas College Institutional Review Board (IRB) proposal for this research was approved on January 28, 2015, number 2014-073.

Data Collection Procedures

This study began in mid March and continued through the beginning of May. Over the duration of a four-week period, children were exposed to a music and movement intervention, which consisted of using Exercise Alphabet Cards and an alphabet in motion song. Children from the Knapp AppleTree who participated were considered the control group, which according to Tuckman and Harper (2012) is a group whose experience is equivalent to the experimental group other than they would not receive the treatment or intervention (p. 123). The Monroe AppleTree participants were the experimental group as they received identical instruction that the Knapp AppleTree plus the music and movement intervention.

The teachers were provided with a packet that listed the contents on the outside of the sealed envelope (Appendix E) in addition to providing them with instructions for their specific location. The Monroe AppleTree was provided with instructions to conduct pretests to the
children two weeks prior to the intervention beginning, administer the four-week intervention, and conduct the posttests with the children during the last two weeks. The Knapp AppleTree was provided with instructions to pretest the children, provide normal curriculum (that was identical to the curriculum utilized by Monroe AppleTree), administer the posttest to children, and then provide the four-week intervention to the children. The teachers at the Knapp AppleTree had no knowledge of what the intervention consisted of until the final day of post-testing. This was to ensure that test scores were not skewed by the influences of the teachers. Despite the children at the Knapp AppleTree being the control group, they were offered the intervention once the study was completed.

Teachers at both locations were provided with a copy of the *Teaching Strategies Assessment Opportunity Cards: Alphabet Recognition Game* and were instructed to follow steps one through five that was listed beneath the section entitled ‘What You Do’ to pretest all children. Also included in the packets were pre-cut laminated lowercase and uppercase alphabet cards and two letter/sound identification assessment score sheets for every participant in the study. The *Alphabet in Motion* song from the CD *Can a Jumbo Jet Sing the Alphabet* (Appendix F) was initially included in the Monroe AppleTree teacher packet and later added to the Knapp AppleTree’s packet.

The classroom teachers administered pretests to all participating children. The results of these pretests were then submitted to the researcher via lock box that remained in the classroom until testing was completed. When all of the participants had been tested, the researcher entered the results anonymously from each specific AppleTree Learning Center into a password protected Excel document. Each score from the corresponding area on the pretest was entered accordingly; lowercase recognition, uppercase recognition, and sound recognition.
Throughout the first week of their assigned segment using the intervention, teachers introduced the Exercise ABC cards (Appendix G) and demonstrated the movements that corresponded to each card. The motions that coincided with the *Alphabet in Motion* song were also demonstrated and then mimicked by the children to ensure they were familiar with the movements. The classroom teachers utilized the following schedule for the first week of the intervention:

Day 1: Introduction of the Exercise ABC Cards and the *Alphabet in Motion* song from the CD *Can a Jumbo Jet Sing the Alphabet*

Day 2: Practice using the Exercise ABC Cards

Day 3: Practice using the *Alphabet in Motion* song from the CD *Can a Jumbo Jet Sing the Alphabet*

Day 4: Practice using the Exercise ABC Cards

Day 5: Practice using the *Alphabet in Motion* song from the CD *Can a Jumbo Jet Sing the Alphabet*

Once the introductory week had been completed, teachers were instructed for the remaining three weeks to begin circle time by posing the following question to the children; “What activity would we like to start with today, the alphabet exercise cards or the alphabet song?” As the children progressed through the cards, teachers were to prompt them to come up with other movements that consisted of the same beginning sounds. For instance, if a child was presented with the “Ss - Sit Ups” card they could suggest ‘skip’ for the motion as they both begin with the same sound.

Once children completed four weeks of the intervention, teachers administered a posttest to all participants. Again, they were asked to reference and follow instructions from the
Teaching Strategies Assessment Opportunity Cards: Alphabet Recognition Game, steps one through five, to conduct the testing. Completed posttests were then placed into the same lock box that was used to collect the pretests. This box again remained in the classroom until testing by all participants was completed. The researcher then removed the lock box and entered the new data into the password protected Excel spreadsheet that contained each participants pretest scores.

Data Analysis

All data from the pretest and posttests was entered into an Excel spreadsheet. Each test was broken down into three separate testing areas that included uppercase recognition, lowercase recognition and sound recognition. Through the use of the Pearson product-moment correlation coefficient, or the PPMCC, the correlation between increased literacy skills and music and movement activities were determined.
Chapter Four: Findings

For the purpose of the study, the researcher examined the question, “Will exposing children to music and movement activities during literacy time help to increase literacy skills, specifically letter and sound recognition, for children who are enrolled in an early childhood preschool setting?” With reference to this question, the researcher investigated how literacy skills within an Early Childhood classroom was affected by utilizing music and movement interventions on a daily basis during morning circle time. Data from three separate categories (lowercase recognition, uppercase recognition and letter-sound recognition) were collected and analyzed to illustrate, at this specific developmental stage, each participant’s knowledge within these categories prior to and after implementation of the intervention. The researcher considered that using multiple sensory inputs (sight, sound, and touch/movement) would increase retention of these literacy skills.

Children between the ages of three and four who were enrolled in AppleTree Christian Learning Center’s preschool program were the participants of the study. Both classrooms consisted of one Lead teacher, one classroom assistant teacher and no more than twenty children. AppleTree Christian Learning Centers are licensed facilities that abide by the state of Michigan childcare center rules for caregiver to child ratio. The caregiver to child ratio for preschoolers, three years of age until age four is 1 caregiver to 10 children or commonly depicted as 1:10 (State of Michigan, 2014, p. 22). The classrooms themselves are only built to accommodate a maximum number of twenty children.

At all AppleTree Centers, teachers follow the same structured routine, however the activities depicted in Figure 4.1 can occur at different times throughout the morning/afternoon depending on the specific classroom. The activity guide shows these activities occurring during
the ‘morning’ (or ‘afternoon’) as opposed to listing individual times. The overall daily routine involved 45 minutes of outside play, circle time, exploring learning centers and implementing small and large groups throughout the day.

Figure 4.1: AppleTree Christian Learning Center’s Preschool Activity Guide

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>MORNING</td>
<td>Greetings and Arrival, Wash Hands, Restroom &amp; Explore Learning Centers (child choice)</td>
</tr>
<tr>
<td></td>
<td>Hand Washing, Breakfast &amp; Hand/Face Washing</td>
</tr>
<tr>
<td></td>
<td>Circle Time/Large Group</td>
</tr>
<tr>
<td></td>
<td>Welcome Songs, Community Meeting, Andre’s Daily Visual Schedule, Classroom Helpers, Weather</td>
</tr>
<tr>
<td></td>
<td>Outside Play (45 minutes, weather permitting) or Gross Motor Play in the Gym (45 minutes)</td>
</tr>
<tr>
<td></td>
<td>Small Groups &amp; Explore Learning Centers (child choice)</td>
</tr>
<tr>
<td>11:15</td>
<td>Hand Washing</td>
</tr>
<tr>
<td>11:30</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:00</td>
<td>Hand/Face Washing, Restroom &amp; Prepare Rest Mats</td>
</tr>
<tr>
<td>12:15-2:00</td>
<td>Rest Time</td>
</tr>
<tr>
<td></td>
<td>children whom do not wish to rest and/or those who wake early will be given quiet play options</td>
</tr>
<tr>
<td>2:00-2:30</td>
<td>Put Nap Items Away &amp; Restroom/Hand Washing</td>
</tr>
<tr>
<td>AFTER NOON</td>
<td>Circle Time/Large Group/Music and Movement Activity</td>
</tr>
<tr>
<td></td>
<td>Hand Washing, Snack &amp; Hand/Face Washing</td>
</tr>
<tr>
<td></td>
<td>Outside Play (45 minutes, weather permitting) or Gross Motor Play in the Gym (45 minutes)</td>
</tr>
<tr>
<td></td>
<td>Hand/Face Washing &amp; Clothing Checked for Going Home</td>
</tr>
<tr>
<td>4:30-6:00</td>
<td>Explore Learning Centers (child choice)</td>
</tr>
<tr>
<td></td>
<td>Good Byes/Children Depart</td>
</tr>
</tbody>
</table>

Child choice learning centers consist of the following areas: Discovery (science/sensory), Sand and Water Tables, Blocks and Cars, Home Living (dramatic play), Table Toys & Puzzles (early math/cognitive), Books & Writing (early literacy), Music, Computer/Listening, and Art. Specific areas of the classroom are dedicated to these learning domains and children may choose to play in these areas during center time.
The music and movement intervention occurred daily during the children’s morning circle time at each location. Children who attended the Monroe location received the intervention during the four weeks prior to the posttest, whereas the children who attended the Knapp location received the intervention once the posttests were completed. Of the original eighteen participants at Monroe who gained consent to participate, twelve were factored into the final results. Of the original nineteen participants at Knapp who gained consent to participate, sixteen were factored into final results. These changes in participants were due to children completely withdrawing at some point during the study or an overall lack of attendance, which lead to the inability to gain initial test results, final test results, or both.

At the Monroe location, the Lead teacher had recently completed her Child Development Associate Credential, or CDA, and was scheduled to work an earlier shift from 5:45 a.m. to 2:45 p.m. The assistant teacher had taken several courses at a local university, one-quarter of them pertaining to education courses and childhood development and was scheduled to work a later shift from approximately 8:15 a.m. to 5:15 p.m. Due to the Lead teacher’s scheduled shift, oftentimes, but not always, the assistant teacher would resume the responsibility of conducting morning circle time with the children with the help from a classroom assistant who covered the Lead teacher’s break. On certain days morning circle time was postponed until the Lead teacher returned from her scheduled break so that she was able to conduct the intervention in addition to their normal routine. In the midst of the study, the Lead teacher was offered and accepted a promotion within AppleTree and transferred to another location. The introduction of a new Lead teacher occurred during the second week of the implementation of the intervention; the assistant teacher stayed constant throughout the study. During this transition period, most often the assistant teacher resumed responsibility of the intervention to ensure that it was being conducted
properly each day and that the posttests were administered within the allotted time frame. However, the switch in Lead teachers negatively impacted the children.

The teachers at the Knapp location had some similarities in their background as well as their scheduled shifts. The Lead teacher at the Knapp location had her Bachelor’s in Elementary Education with a major in English. She was scheduled to work from 7 a.m. to 4 p.m. The assistant teacher had taken some courses at a local university and was scheduled to work a later shift from approximately 8:30 a.m. to 5:30 p.m. The Lead teacher assumed full responsibility of conducting morning circle time with the children with some help from her classroom assistant. The Lead teacher and the assistant remained constant throughout the entire study.

A Pearson product-moment correlation coefficient (PPMCC) was utilized to assess and compute the relationships between specific music and movement instruction and scores in separate literacy areas at both AppleTree locations. The PPMCC is a linear measure of association that exists between two elements. In common terms, it utilizes ‘dots’ to pinpoint data on a graph and then uses a line of ‘best fit’ to show how far the data moves away from the line. The coefficient, or ‘r’ value, can extend from +1 to -1. If the data did not showed a relationship the r-value would be zero. Positive correlations show the value of both variables increasing, whereas negative correlations show the value of one variable increasing and the other value decreasing. On the graph, the plot of a positive correlation would go from zero and reach up to the right. Figure 4.2.1 depicts different correlation coefficients to show the different types of relationships (Pearson, 2013).
On the graph, the plot of a positive correlation would go from zero and reach up to the right. A negative correlation would be reversed. Figure 4.2.2 depicts samples of positive and negative correlations using scatterplots.

Figure 4.2.2: Types of Correlations (Pearson, 2013)

Uppercase recognition was the first area that was tested among participants. Figures 4.3.1, 4.3.2, 4.4.1 and 4.4.2 depict the results of uppercase recognition at both AppleTree locations.
Figure 4.3.1: Monroe AppleTree Uppercase Recognition
<table>
<thead>
<tr>
<th>Variable</th>
<th>Uppercase Pretest</th>
<th>Uppercase Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uppercase Pretest</td>
<td>R</td>
<td>1.</td>
</tr>
<tr>
<td>Uppercase Posttest</td>
<td>R</td>
<td>0.8</td>
</tr>
<tr>
<td>Variable vs. Variable</td>
<td>R</td>
<td>Number of valid cases</td>
</tr>
<tr>
<td>Uppercase Posttest vs. Uppercase Pretest</td>
<td>0.8</td>
<td>12</td>
</tr>
</tbody>
</table>
Figure 4.4.1: Knapp AppleTree Uppercase Recognition
Table 4.4.2: Knapp AppleTree Uppercase Recognition

<table>
<thead>
<tr>
<th>Correlation Coefficients Matrix</th>
<th>Uppercase Pretest</th>
<th>Uppercase Posttest</th>
<th>Variable vs. Variable Pretest-Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uppercase Pretest</td>
<td>R</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Uppercase Posttest</td>
<td>R</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>Variable vs. Uppercase Posttest</td>
<td>R</td>
<td>0.88</td>
<td>Number of valid cases</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
The Monroe location displayed a very strong positive relationship (r = .80) between daily music and movement instruction and uppercase recognition. The Knapp location also showed a very strong positive relationship (r = .88) with the use of normal daily instruction. The second literacy skill that was tested following uppercase recognition was lowercase recognition. The Monroe location showed to have a weak positive relationship (r = .27) whereas the Knapp location showed to have a very strong positive relationship (r = .94). Figures 4.5.1, 4.5.2, 4.6.1 and 4.6.2 depict the results of lowercase recognition at both locations.
Figure 4.5.1: Monroe AppleTree Lowercase Recognition
## Correlation Coefficients Matrix

<table>
<thead>
<tr>
<th>Variable vs. Variable</th>
<th>Lowercase Pretest</th>
<th>Lowercase Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowercase Pretest</td>
<td>R</td>
<td>1.</td>
</tr>
<tr>
<td>Lowercase Posttest</td>
<td>R</td>
<td>0.27</td>
</tr>
<tr>
<td><strong>Variable vs. Variable</strong></td>
<td><strong>R</strong></td>
<td><strong>Number of valid case</strong></td>
</tr>
<tr>
<td>Lowercase Posttest vs. Lowercase Pretest</td>
<td>0.27</td>
<td>12</td>
</tr>
</tbody>
</table>
Figure 4.6.1: Knapp AppleTree Lowercase Recognition
Figure 4.6.2: Knapp AppleTree Lowercase Recognition

<table>
<thead>
<tr>
<th>Correlation Coefficients Matrix</th>
<th>Lowercase Pretest</th>
<th>Lowercase Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>1.00</td>
<td>R</td>
</tr>
<tr>
<td>Lowercase Pretest</td>
<td>R</td>
<td>0.94</td>
</tr>
<tr>
<td>Variable vs. Variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of valid case</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Lowercase Posttest vs. Lowercase Pretest</td>
<td>0.94</td>
<td></td>
</tr>
</tbody>
</table>
Sound recognition was the last literacy skill that was tested at both locations. The Monroe location showed a weak positive relationship ($r = .24$) whereas the Knapp location showed no relationship ($r = -.09$). Figures 4.7.1, 4.7.2, 4.8.1 and 4.8.2 depict the results of sound recognition at both locations.
Figure 4.7.1: Monroe AppleTree Sound Recognition
## Figure 4.7.2: Monroe Apple Tree Sound Recognition

<table>
<thead>
<tr>
<th>Variable vs. Variable</th>
<th>Sound Recognition Pretest</th>
<th>Sound Recognition Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Recognition Pretest</td>
<td>R</td>
<td>1.</td>
</tr>
<tr>
<td>Sound Recognition Posttest</td>
<td>R</td>
<td>0.24</td>
</tr>
<tr>
<td>Number of valid case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sound Recognition Posttest vs. Sound Recognition Pretest</td>
<td>0.24</td>
<td>12</td>
</tr>
</tbody>
</table>
Figure 4.8.1: Knapp AppleTree Sound Recognition
### Correlation Coefficients Matrix

<table>
<thead>
<tr>
<th>Variable vs. Variable</th>
<th>Sound Recognition Pretest</th>
<th>Sound Recognition Pretest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Recognition Pretest</td>
<td>R</td>
<td>1.</td>
</tr>
<tr>
<td>Sound Recognition Pretest</td>
<td>R</td>
<td>-0.09</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable vs. Variable</th>
<th>R</th>
<th>Number of valid cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Recognition Posttest vs. Sound Recognition Pretest</td>
<td>-0.09</td>
<td>16</td>
</tr>
</tbody>
</table>
The number of children who were enrolled full-time as opposed to part-time seemed to affect these results. Of the twelve participating children enrolled at the Monroe location, 58.3% attended full-time five days a week, where as 41.7% only attended part-time for a total of four days per week Monday through Friday. Of the sixteen participating children enrolled at the Knapp location, 87.5% attended full-time where as 12.5% only attended part-time. Similar to the children enrolled at Monroe, children who were part-time attended four days per week. Representation of full-time versus part-time enrollment is depicted in Figure below.

Figure 4.9: Enrollment Status at Monroe and Knapp Locations
Children enrolled at the Knapp location were shown to have a very strong positive relationship in two out of the three literacy categories. This location had an overall higher percentage (29.2% more) of children who attended on a full-time basis. In comparison, the Monroe location showed a very weak positive relationship in two out of the three literacy categories. This location had a higher percentage of children who attended on a part-time basis.

In the realm of Early Childhood Education, this study seemed to indicate that the use of these specific music and movement techniques over a short period of time did not necessarily have a strong positive relationship when paired with normal daily activities. However, the findings from this study did overall demonstrate a positive relationship in several of the categories. The overall findings would suggest that these techniques would help children of any age, not just children enrolled in a preschool program, increase retention of literacy skills.
Chapter Five: Discussion

As Early Childhood Educators, it is important to acknowledge that specific teaching approaches are not the only elements that influence a child’s retention of any certain skill. Environmental factors such as home situations and health issues are factors as well. It also has been shown that the specific learning environment, including peers, that surrounds a child is equally as important as the instruction itself and is influential regarding how children process information. There is also a lot to be said for the relationships that children have with adults and how these relationships affect the mind of a child. Preschool teachers must remember that these relationships set the tone for the majority of all learning. Concepts can be presented using highly praised techniques, but if children are uncomfortable, frightened or untrusting, chances are they will not retain much.

Over the last several decades, research has showed educators how language is learned and how specific information is processed. All of these findings indicated the exposure at an early age was most critical. With that information in mind, preschool classroom designed efficient and effective curriculum materials and structure.

The research completed at AppleTree Christian Learning Centers included the use of activities similar to those that are typically presented within a preschool classroom. However, one center utilized the targeted research intervention. The results indicated an overall increase within the three literacy skills (lowercase letter recognition, uppercase letter recognition, and letter sound recognition) at both locations despite the differences in approaches that were presented. Although the research was completed within the designated time period, unexpected environmental factors seemed to have contributed to the test scores and overall retention of these literacy skills.
When doing research, it is safe to say that the unexpected is always to be expected. This was very true of this research. For example, at the Monroe location (where the intervention was used), a new Lead teacher was introduced part way through the study. Initially, none of the students were familiar with or trusted her. This appeared to have resulted in lower scores compared to those children at Knapp whose teachers remained constant throughout the study. Additionally, there were more part-time students at the Monroe location, which also had a negative effect on test results because students were absent for more lessons. The last negative impact on the study was the mobility of students. Several moved or withdrew from the study.

**Future Research**

Although there has been extensive research on the use of music and movement techniques within the classroom and there effects on retention, there is still much to be learned on how to effectively use these techniques. Future studies conducted at AppleTree could include studying children over a longer period of time, be it several more weeks or an entire year. Children who had been enrolled the entirety of the study could also be compared to those who enrolled part way through the study. The study could also be expanded to show longitudinal effects of children who were enrolled as infants and were exposed to music and movement activities starting at infancy.

Additional research might include comparative studies of gender or ethnic backgrounds. A study disaggregating data based on single parent families, language spoken in the family, child’s ranking within his/her siblings, mother’s level of education, and/or family income might provide interesting information.

Additional studies could be replicated using different AppleTree locations or another age-range of children within these facilities. Studies within different childcare/preschool locations,
such as Rainbow, The Goddard School, or Tutor Time as comparison to AppleTree might also prove beneficial.

Recorded music was used during the intervention; however, future studies could include live music through the use of instruments and/or live singing. Recorded music could be sent home to reinforce the concept if desired.

This study looked specifically at the use of music and movement to increase literacy skills, however, applying these techniques in different content areas could prove to be very beneficial. Children could create their own versions of songs (lyrics and music) or movements to help recall information from a variety of content areas at any age. At the early childhood level, children could use music and movement to learn numbers, objects, or basic sequences. The possibilities are endless.

Overall, music and movement has proven to be an effective tool that teachers can utilize within a specific content area or as a transitional activity. It has been a benefit to the teachers and children at AppleTree and can be a benefit to other educators within Early Childhood Education and preschool classrooms.
References

http://www.homeschoolshare.com/ABC_Exercise_Cards.php


doi:10.1002/0471142301.ns0625s52


Dear Parent/Guardian,

Julie E. Scott, the Assistant Director at the Grand Rapids (Monroe) AppleTree Christian Learning Center, is currently working on the final project for her Masters in the Art of Education from Aquinas College. She has discovered that many preschool programs begin when children turn age three and she is interested in conducting research with this particular age group. Your child has been selected as a possible participant in the study entitled “Music and Movement: A Study of the Effectiveness on Letter and Sound Recognition within an Early Childhood Setting”. Your child’s participation in this research study is completely voluntary and there is no penalty if you choose not to participate or to withdraw from the study. Information regarding the study is listed below:

**What is the purpose of the study?**

The purpose of this study is to discover if a relationship exists between music and movement activities and increased literacy skills development, more specifically, letter and sound recognition of the alphabet, when integrated regularly during circle time.

**What will happen if my child takes part in this research study?**

I understand that if my child participates in the research, they will:

Be administered two tests: One pretest to begin the study and a final posttest after four weeks with the music and movement intervention. The tests will be administered in the child’s classroom at Appletree. All tests consist of using an alphabet game as an assessment.

**How long will my child be in the research study?**

Children participating in the research study will take part in pretests and posttests spanning over four weeks. Participation in the intervention will take approximately ten to twenty minutes per day over the duration of four weeks.

**Are there any potential risks or discomforts that my child can expect from this study?**

There are no anticipated risks or discomforts
What are the benefits of the research?

The data that is collected will provide other Early Childhood Educators with insight on how to more effectively utilized music and movement activities to enhance learning. Your child may benefit from the study and begin to show an increase in letter and sound recognition.

How will the research findings be used?

The results of the research will be used in a Master’s thesis. The results will enhance best practices involving music and movement activities in Early Childhood Education settings when teaching alphabet letter and sound recognition in preschool programs.

How will my child’s anonymity be protected?

Anonymity cannot be ensured due to the nature of the relationship with the researcher.

Will information about my child’s participation be kept confidential?

The information gained from this study will be kept completely confidential. Informed consent forms will be sent home in sealed envelopes through school mail and mailed to parents to ensure a copy has been received. After submissions, all children’s names will be entered into a password protected excel document on the researcher’s password protected laptop and forms will be placed into a sealed envelop and placed into a locked drawer that only the researcher will have access to.

All findings will be reported using group findings; no individual names or responses will be presented in the publications. Test scores will be identified using a code number and stored in a password protected excel document on the researcher’s password protected laptop. Once test scores have been recorded all tests will be shredded.

What are my and my child’s rights if he or she takes part in this study?

You may choose whether you would like your child to participate in this study, and you may withdraw your permission and discontinue your child’s participation at any time without penalty. Your child may refuse to answer any questions that he/she does not want to answer and still remain in the study.
Who can I contact if I have questions about this study?

Please feel free to contact the researcher via email jes005@aquinas.edu if you have any questions. You may also contact the faculty research advisor, Dr. Carol Winkle, by phone at (616) 632-2434, e-mail at winklcar@aquinas.edu or mail at 1607 Robinson Road SE, Grand Rapids, MI 49506. Research results will be provided to those who make a request through written letter or e-mail.

You will be given a copy of this information to keep for your records.

SIGNATURE OF PARENT OR LEGAL GUARDIAN

________________________________________________________________________
Name of Child

________________________________________________________________________
Name of Parent or Legal Guardian
Appendix B
Teaching Strategies Assessment Opportunity Cards: Alphabet Recognition Game

Alphabet Recognition Game

Purpose

Knowing the names of the letters is a predictor of future reading success. There are many ways to observe a child’s knowledge of the alphabet in the context of playful everyday activities. This activity enables you quickly to survey how many uppercase or lowercase letters a child can name.

What You Do

Materials: a set of letter-recognition materials (all uppercase and lowercase letters), either commercially made or teacher-prepared alphabet cards

Objectives for Development & Learning, pages 88

Child Assessment Portfolio, pages 36–38

1. Review the progressions for Dimensions 16a and 16b to determine the appropriate number of letter cards and which cards to use with each child.
2. Spread the cards on the table or floor with the uppercase (capital) letters facing up.
3. Ask the child to find each letter that he or she recognizes, name it, and turn the card over.
4. If the child names at least 10 uppercase letters correctly, repeat the procedure with the lowercase letters.
5. If the child recognizes at least 8 lowercase letters, ask the child about the letters and their sounds. For example, say, “Matt, you found the M in your name. The sound of the letter M is /m/. What are the sounds of some of these other letters?”

Assessing All Children

• Allow a child various ways to identify: point, name, associate the sound.
• Let a child touch the letters to identify the ones he or she knows.
• Provide hand-over-hand assistance if needed.
• Have a child point to the letters as you say their sounds.
• Use other letter manipulatives, such as letter tiles, letter stamps, magnetic letters, etc; use large and/or tactile letters.

Questions to Guide Your Observations

16a. Identifies and names letters

<table>
<thead>
<tr>
<th>Not Yet</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
<th>Level 7</th>
<th>Level 8</th>
<th>Level 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognizes and names a few letters in own name</td>
<td>Recognizes and names as many as 10 letters, especially those in own name</td>
<td>Identifies and names all upper- and lowercase letters when presented in random order</td>
<td>Identifies and names all upper- and lowercase letters in random order</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Level 2: Recognizes and names a few letters in own name

Level 4: Recognizes and names as many as 10 letters, especially those in own name

Level 6: Identifies and names 11–20 upper- and 11–20 lowercase letters when presented in random order

Level 8: Identifies and names all upper- and lowercase letters when presented in random order

16b. Uses letter–sound knowledge

<table>
<thead>
<tr>
<th>Not Yet</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
<th>Level 7</th>
<th>Level 8</th>
<th>Level 9</th>
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<tr>
<td>Identifies the sounds of a few letters</td>
<td>Produces the correct sounds for 10–20 letters</td>
<td>Shows understanding that a sequence of letters represents a sequence of spoken sounds</td>
<td>Applies letter–sound correspondence when attempting to read and write</td>
<td></td>
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</table>

Level 2: Identifies the sounds of a few letters

Level 4: Produces the correct sounds for 10–20 letters

Level 6: Shows understanding that a sequence of letters represents a sequence of spoken sounds

Level 8: Applies letter–sound correspondence when attempting to read and write

Related Objectives

• How did the child interact with the adult during the experience? (Objective 2)
• If letter manipulatives were used, how did the child handle them? (Objective 7)
• How long was the child able to attend to the activity? (Objective 11)
Appendix D
Letter/Sound Identification Assessment Score Sheet

<table>
<thead>
<tr>
<th>Letter/Name</th>
<th>Letter/Sound</th>
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<tr>
<td>B</td>
<td>b</td>
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<tr>
<td>C</td>
<td>c</td>
</tr>
<tr>
<td>D</td>
<td>d</td>
</tr>
<tr>
<td>E</td>
<td>e</td>
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<tr>
<td>F</td>
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Appendix E
AppleTree Teacher Packet – Components

APPLETREE : KNAPP
TEACHER
PACKET

Contents:
1. Alphabet Recognition Game
2. 42 Copies of the Letter/Sound Identification Assessment: Score Sheet
3. Lowercase alphabet cards
4. Uppercase alphabet cards
5. Instructions

APPLETREE : MONROE
TEACHER
PACKET

Contents:
1. Alphabet Recognition Game
2. 42 Copies of the Letter/Sound Identification Assessment: Score Sheet
3. Lowercase alphabet cards
4. Uppercase alphabet cards
5. Exercise Alphabet Cards
6. CD: Can a Jumbo Jet Sing the Alphabet?
7. Instructions