A Comparison of Three Selected Music/Reading Activities on Kindergarten Students' Scores of Listening Comprehension, Story Recall and Preferences for the Three Selected Activities

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A COMPARISON OF THREE SELECTED MUSIC/READING ACTIVITIES ON
KINDERGARTEN STUDENTS' SCORES OF LISTENING COMPREHENSION, STORY
RECALL AND PREFERENCES FOR THE THREE SELECTED ACTIVITIES

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ABSTRACT

The purpose of this study was to examine the effects of three selected music/reading activities on Kindergarten students’ scores of implicit and explicit story comprehension, on- and below-level story comprehension, recall abilities, and preferences for activities. Forty Kindergarten children served as participants. The control condition was reading story with no music (RO). The two experimental music conditions were: (1) reading story with choral refrain throughout (CR) and (2) reading story with instrumental response throughout (IR). Participants in the study were children ages 4-6 years old with a mean age of 5.4. The Florida Assessment for Interventions in Reading (FAIR) and Developmental Reading Assessment (DRA) were used to assess participants’ story comprehension. A pictorial Likert scale was used to assess participants’ preferences for the three selected activities. Results indicated a significant difference in overall FAIR scores between the read only and instrumental response conditions as well as between the read only and choral response condition, with the read only group producing higher scores. A significant difference also existed in explicit FAIR scores between the read only and instrumental response conditions, with the read only group producing higher scores. No significant difference was found in overall DRA scores, implicit scores, on-level/below-level scores or preferences for activities. Though previous research has supported the use of choral and instrumental interventions to enhance the story comprehension skills of second-grade students, findings of the present study indicate that such interventions are not effective for younger children, and suggest that children as young as Kindergarten may not possess the maturity or musical exposure to engage in listening tasks while playing or singing.
CHAPTER ONE
INTRODUCTION

Reading and comprehension are widely considered to be the most important, pervasive skills a child will learn as it affects all aspects of social and academic success (Bell, 2010; D’Agrossa, 2008; Darrow, 2008; Gromko, 2005). It is because of this universal influence that fluent reading and comprehension are the ultimate goals of educators (Bell, 2010; Kassner, 2002; Kirmizi, 2010; Register, Darrow, Standley, 2007). Comprehension is the complex process of deriving meaning from visual or aural symbols, such as text or language, internalizing the meaning and transferring information to other domains (Azan, 2010; D’Agrossa, 2008; Kirmizi, 2010). Specific instruction is therefore needed to transition the student from traditional memorization abilities to independent, mature interpretation of material (Azan, 2010; Pressley, Almasi, Bergman, Brown, El-Dinary, Gaskins, Schuder, 1992). However, the methods by which teachers present lessons on comprehension remain a topic of debate and have been subject to several paradigm shifts over the past several decades (D’Agrossa, 2008; Pressley et. al., 1992; Register et al., 2007).

Unfortunately, 30% of school aged students experience difficulties in reading and 17% of school-aged children have a specific learning disability (SLD). Students who do not receive a quality foundation in early literacy skills risk never resolving the disparity with their more able peers (Azan, 2010; Bell, 2010; Darrow 2008; Register, et al., 2007). Higher level skills, such as comprehension, in turn suffer. Additionally, poor readers at the end of first grade are often found to be poor readers by the end of fourth grade (Bell, 2010). Research indicates that children who cannot read by the 4th grade have an increased chance of discontinuing their education prior to high school graduation (Azan, 2010). In an effort to mitigate this educational risk, public policy has turned towards identifying early indicators of poor academic performance such that early intervention can be utilized (Carlson, Fletcher, Foorman, Schatschneider, 2004). Naturally, indicators of success begin in the home (Stewart, 1992). Bell (2010) asserts that parental involvement is the single most important indicator of a child’s ease or difficulty in literacy. Parental modeling of proper grammar, clear enunciation, vocabulary, sentence phrasing and print awareness prepares children to develop these skills in subsequent years (Scott, 2004). With changing family dynamics, however, children have limited time to interact with adults and increased opportunities to be alone (Ketch, 2005). In fact, daily educational interaction between
mothers and children was reported at 12.2 minutes and one-on-one conversation averaged 9.5 minutes (Scott, 2004). The resulting lack of stimulation and interaction contributes to the increased probability of the child developing a learning disability language delay, or speech delay (Azan, 2010; Kranowitz, 2005; Miller, 2006). High quality early education and intervention programs are therefore necessary to increase the child’s future success (Bell, 2010; Carlson et al., 2004; Register, 2001).

The translation of this goal into a functional, affordable application in schools has been a process. In 1997, Congress requested the National Reading Panel convene to research different methods of teaching reading and assess them for effectiveness (Gromko, 2005). The findings, published in 2000, described the practices for the components of reading including phonemic awareness and phonics instruction, fluency, comprehension and text comprehension (D’Agrosa, 2008). In 1997, the US Department of Education enacted an “America Reads Challenge,” establishing the goal that all children would enter school ready to learn and every adult would be literate. Millions of dollars went towards this effort and funds were often used by the states to acquire a model reading program. From these programs it was established that test scores often increased when children had more time to read and when the student-teacher ratio decreased (Bernstorf & Hansen, 2002). The Secondary Educational Act, also known as No Child Left Behind of 2001, was presidential legislation aimed to teach every child in the nation to read. A major goal of this legislation was to efficiently screen children early for reading disability or failure so they could receive the appropriate early intervention instead of being mislabeled within the school system (Carlson et al., 2004; Register et al., 2007). Federal grants went to the states to continue the research in effective teaching such that teachers would only employ “scientifically-based instruction and teaching methods” (p. 2, Azan, 2010). This continued investigation, part of the READING FIRST section of No Child Left Behind, was well intentioned but could not definitively isolate a best practice method suitable for all children to increase test scores (Carlson et al., 2004). Additionally, many experts warned that the goal of increased test scores misplaces the focus of improved reading instruction and highlights an intention/function fallacy (D’Agrosa, 2008; Darrow, 2008; Register et al., 2007).

The National Council of Teachers of English asserted in 1996 that literacy, if accepted as a method of representing ideas through symbols, should be transferred to different mediums to construct meaning. Music is one such medium (D’Agrosa, 2008). The National Association for
the Education of Young Children asserts that early intervention programs should have a variety of “individual or quiet activities and active movement while allowing for the children to choose from a wide range of experiences that represent an array of developmental interests and abilities.” (Register, 2001, p. 240). Educators are able to reach more children if information is presented in a multimodal model, and music’s inclusive nature allows for a wide range of abilities, participation, and learning styles (Miller, 2002). Parallels between music and literacy abound, including cueing systems, pitch discrimination, sequencing, predicting, phrasing, and symbolic representation of material (Azan, 2010; Kashani, Sajjadi, Sohrabi, Younespour, 2010; Kolb, 1996; Scott, 2004). Unfortunately, the positive benefits of music on reading and other academics often come second to the direct application of reading instruction. Gains made in increased time devoted to reading and smaller class sizes are often made at the expense of music education, physical education and art education (Flohr, 2006). Additionally, arts educators frequently teach reading directly even though it is not their area of expertise or must read text in class that does not support their discipline (Bernstorf & Hansen, 2002; Kassner, 2002). Kassner (2002) asserts that the daily gain of cutting time out of arts classes to supplement the 90-120 minutes of reading students already receive may do more damage to the arts programs than any gains made by the additional direct reading instruction by an arts teacher. Rather, it is the transfer of concepts between disciplines where students may maximize their success. Transfer of concepts allows the music teacher to remain primarily focused on music education while providing students with a multidimensional educational experience. Depriving students of creative, sensory experiences may in fact negatively affect comprehension and critical thinking, because students do not possess creative tools to demonstrate deep thought (Bernstorf & Hansen, 2002). It is, therefore, imperative that the symbiotic relationship between music and comprehension finds support in economical, evidence based practices (Kassner, 2002; Register, 2004).

**Purpose of the Study**

Providing children with effective means to improve comprehension skills is of utmost importance (Bell, 2010; D’Agrossa, 2008). Research indicates that a multimodal approach to comprehension instruction is an effective way to reach children with a variety of preferred learning modalities (Register, 2001). Music activities provide a multimodal experience that allows for a wide range of learning abilities and participation (Miller,
2002). However, music therapists historically have not been able to produce significant improvements in comprehension scores in school age children. The purpose of this study is to clarify the music/comprehension relationship by examining the mechanisms by which music affects comprehension, specifically implicit and explicit comprehension scores. This study also investigates music activities’ effect on on-level/below-level comprehension scores, recall, and preference for the music/reading activities.
CHAPTER TWO
REVIEW OF LITERATURE

Emergent Literacy

The well-intentioned goal of identifying poor readers early in their academic career is predicated on knowing what skills establish the foundation for reading achievement and comprehension and how these skills should be taught. These foundational skills, also known as emergent literacy, include but are not limited to phonemic/phonological awareness, decoding and vocabulary, knowledge of language, and expectations of reading (Miller & Stahl, 1989). A student may experience difficulties in many academic subjects, but the root of the difficulty often relates to poor understanding of literacy skills (Bell, 2010). However, much debate surrounds teaching acquisition of these skills in isolation or emphasizing comprehension as the synergy of these skills (Cantrell, 1998). This debate stems from the research during the 60s, 70s and 80s and the resulting paradigm shifts in education (Register et al., 2007). “Emphasis on phonics gave way to whole-language instruction, which was replaced by scripted phonics and standardized testing” (Darrow, 2008, p. 34). Though emergent literacy received much attention during this time, comprehension itself received little attention and was essentially reduced to memory tests. Comprehension testing was primarily a question/answer format with little focus on the interaction and application of specific comprehension strategies to improve reading and understanding (Azan, 2010; Pressley, et al., 1992).

The assessments used to identify predictive emergent literacy skills were severely biased and only as accurate as the ideology from whence they originated. Therefore, ideology influenced the assessment just as the assessment influenced the child’s responses. Much of the research available today is limited to the types of samples, choice of assessments and the prevalence of Type I and Type II errors. It is possible to gain high correlation between a measure of reading outcome and longitudinal reading outcome but to also have high rates of error, making implementation of focus on the measure of reading outcome difficult. Therefore, much of the literature presents conflicting results (Carlson et al., 2004). In a controlled, experimental environment, emergent literacy skills are isolated as much as possible to reduce outside influence on the data. This type of micro managing of teaching and learning is often incompatible with how a child develops and how a classroom operates. However, results from the experiments
conducted in the 70s and 80s were applied to the classroom despite warnings of the differences between classroom and controlled environments (Pressley et al., 1992).

**Family/demographics as predictors of comprehension.** The global influence of early exposure to literacy in the home is widely supported in the literature. Even in the womb, a child attends to the mother’s language and speech patterns,(Adamek, M. et al., 2000; Scott, 2004; Standley, 2003). “Many studies reveal that the first four years of children’s lives are critical to intelligence and development” (Scott, 2004, p.20) and because these formative years typically occur in the home, parental involvement is paramount (Bell, 2010; Stewart, 1992). Exposing young children to age appropriate print, modeling reading behaviors and exploring books before formal schooling begins is associated with a stronger foundation in Kindergarten literacy and future success in reading and writing (Bell, 2010; Carlson et al., 2004; C. Morrow, personal communication, October 27, 2012). Skills such as auditory and visual discrimination, finger agnosia, praxis, and left to right discrimination are also good predictors of reading achievement (Carlson et al., 2004; Register et al., 2007). Engaging children in conversation or telling stories to children facilitates cognitive development, critical thinking and listening skills, language development, story form and improved interpretation by the child, all of which are prerequisites for comprehension (Azan, 2010; Bell, 2010; Ketch 2005; Kashani et al., 2010; Ketch, 2005; Mason, Norris, Phillips, 1996; Miller & Stahl, 1989; Scott, 2004). Additionally, family literacy significantly predicted Kindergarten comprehension in first and second grade in a study by Cooper, Roth and Speece (2002). Variables that can negatively affect a child’s early experience with reading include but are not limited to family literacy, English as a second language, socioeconomic status, attending a low achieving school, parental reading disability (which accounts for 31-62% of children later labeled with a reading disability), home life and amount of time available for parent/child interaction (Azan 2010; Bell, 2010; Mason et al., 1996).

Interestingly, Scarborough (1998) found that SES, home literacy, familial incidence of reading problems, gender and the age the child entered school were not strongly related to reading outcomes. The socioeconomic status of the group of children attending the school was a direct predictor of reading and highly related to the reading level of the group. However, the socioeconomic status became weakly related when the individual child’s family was used as a predictor (Carlson et al., 2004). This finding may speak more towards group behavior and social disparities than individual differences. Furthermore, in a meta analysis, home literacy had a weak
correlation of .28 with reading outcomes. Mason et. al. (1996) investigated the differences in teaching early literacy concepts in the home, school and a combination of the environments. Results indicate that literacy concepts improved in Kindergarten and this improvement increased reading achievement over the next two years for all groups. However, the strongest and most long lasting effects were for the school only condition, which demonstrated effects into the fourth grade (Mason et al., 1996). These results suggest that though familial influence important, it is not the single most predictive factor or influence on reading outcomes.

**Phonological/phonemic awareness as predictors of comprehension.** During the 70s and 80s, emphasis on phonological awareness emerged as the predominant component of reading success (Carlson et al., 2004). Phonological awareness is “... the ability to aurally discriminate between sounds or to be sensitive to all units of sound.” (Bernstorf & Hansen, 2002, p. 18). Phonemic awareness is “the ability to recognize that a spoken word consists of individual sounds or phonemes” (Gromko, 2005, p. 199), where a phoneme is the smallest units of sound (D’Agrosa, 2008). This skill is evident when a child breaks down an unfamiliar word into its smallest units of sound to “sound out” the word. For instance, dog is reduced to its individual phonemes: /d/ /o/ /g/ (Bernstorf & Hansen, 2002; C. Morrow, personal communication, October 27, 2012; Mizener, 2008). This letter-sound approach to reading assumes proficiency in the child’s auditory discrimination skills. Lamb and Gregory (1993) found that children’s scores on auditory discrimination tests positively correlated to tests of phonemic awareness (Flohr, 2006; Gromko, 2005). Many researchers claim that phonological awareness is critical to reading achievement because of its pervasive nature in all aspects of reading achievement (Mason et al., 1996). Carlson et. al. (2004) demonstrated that phonological awareness and naming speed were good Kindergarten predictors of multiple reading outcomes in first and second grade. A deficit in phonological/phonemic awareness renders the child unable to independently learn new words and expand vocabulary to improve comprehension (Bell, 2010).

The influence of phonological/phonemic awareness as a reliable predictor of reading outcomes varies across time and on the assessments used. It may be more auspicious to measure the influence of this skill towards the middle or end of the Kindergarten year (Carlson et al., 2004). Carlson et. al. (2004) demonstrated that at beginning of Kindergarten, knowledge of letter names was more predictive of reading outcomes than knowledge of the phonemes. However, at the end of Kindergarten this correlation weakens and phonological awareness becomes more
predictive. Scarborough (1998) asserts that phonological awareness is not a good Kindergarten predictor of future achievement, especially when measured at the beginning of the year. A child who received inadequate experiences with reading prior to entering Kindergarten will test poorly on any measure of reading outcomes whether or not that child becomes a good reader in subsequent years. A child with a reading disability will often test poorly on measures of reading achievement at the onset of Kindergarten as well. Therefore, the variability of prior exposure to reading weakens the reliability and validity of a phonological/phonemic awareness assessment to a) identify possible reading disabilities and b) to differentiate good readers from poor readers (Carlson et al., 2004). Cooper et. al (2002) noted that in Kindergarten phonological skills are predictive of single word reading in first and second grade. However, in later years when reading becomes a meaning-based activity and not a decoding task, semantic abilities emerge as more important.

**Decoding and vocabulary as predictors of comprehension.** Fluency of reading, decoding and vocabulary have been identified as prerequisites to fluent comprehension. Effective and fluent readers decode words quickly, have large vocabularies and high word recognition (Kirmizi, 2010). If the process of reading and developing comprehension skills is assumed to be linear, the child must first be able to decode words such that meaning can be assigned (Register et al., 2007). A varied vocabulary increases the likelihood that the child will make appropriate inferences from the text and think abstractly because more words are understood (Bell, 2010; Cooper et al., 2002). This perspective places emphasis on alphabetic letter recognition and phonemic-sound patterns because “...increased knowledge of early literacy concepts [leads] to subsequently higher reading comprehension ability... word reading is a direct precursor to reading comprehension.” (Mason et al., 1996, p. 192). If phonological awareness is lacking, the child will be unsuccessful in decoding the word to expand vocabulary and comprehension may in turn suffer (Bell, 2010; Register et al., 2007).

Though decoding is strongly associated with comprehension (Bernstorf & Hansen, 2002), it “is dependent upon sensitivity to the sound structure of language rather than to comprehension.” (Register et al., 2007, p. 25; Darrow, 2008). Differentiating words that rhyme from words that sound different is a skill separate from understanding and applying the word’s definition. A fluent reader reading aloud but with immature comprehension will sound the same as a fluent reader with developed comprehension. Conversely, a child who is not a fluent reader
may have advanced comprehension skills (Kirmizi, 2010). For this reason, Kindergarten assessments of comprehension involve listening comprehension rather than reading comprehension (Feitelson, Goldstein, Iriqi, Share, 1993). When students have difficulty with decoding and reading comprehension, interventions typically address deficits in decoding and not deficits in comprehension. This stems from the idea that decoding precedes comprehension skills and advancement can not be made until this emergent literacy skill is mastered. "It is not sufficient to simply decode word meaning to comprehend a reading text. To achieve comprehension in reading, an effective reader should be able to successfully implement such practices as relating the text with his or her own background knowledge, summarizing information, drawing conclusions, and posing questions at the text." (Kirmizi, 2010, p. 4752). Aarnoutse, Brand-Gruwell and Van den Bos (1998) investigated teaching these comprehension strategies to fourth grade students with learning disabilities, poor decoding skills and poor comprehension skills. Results indicate that the strategies group performed better on strategic reading and listening tests than did the control group. This study demonstrates that comprehension strategies are effective for students with poor decoding abilities and poor comprehension skills as well as for students with learning disabilities. Maintenance of skills was not demonstrated, possibly due to the length of the study (Aarnoutse et al., 1998).

**Oral language as a predictor of comprehension.** “Measures of general oral language have also been repeatedly found to be strongly related to early reading achievement, especially in the domain of reading comprehension.” (Carlson et al., 2004, p. 266). Conversation establishes the basis for critical thinking and allows children to make connections between personal schema and the world. In subsequent years, this skill transfers to applying background knowledge to text to improve understanding and comprehension (Ketch, 2005; Register, 2001). Children with strong oral language skills often have strong literacy skills. Oral language gives students an understanding of the sounds and structure of the language, as well as vocabulary. All of these abilities contribute to students’ abilities to decode and understand printed word (Bell, 2010). Therefore, an oral language-reading relationship exists in conjunction with phonological awareness and decoding abilities. The oral language-reading relationship, though considered important, has not received as much attention as phonological/phonemic awareness’s influence on early reading skills (Bell, 2010; Cooper et al., 2002). This approach to research may appear counterintuitive as the expression and reception of language orally occurs before the sound-letter
relationship is made. In fact, Kindergarten students in Florida receive listening comprehension testing as opposed to reading comprehension testing because they are developmentally immature to perform on the latter (Feitelson et al., 1993).

Carson et al. (2004) found that oral language and vocabulary may be strongly associated with success in reading comprehension. Storch and Whitehurst (2002) also demonstrated that preschool oral language is a predictor of third and fourth grade reading comprehension. Snow (1995) found that oral definitions in Kindergarten and first grade were the best predictors of decoding, reading comprehension and spelling across grades (Cooper et. al., 2002). Investigations by Cooper et. al. (2002) support Snow (1995) that oral language is a predictor of reading comprehension. Additionally, Cooper et. al. (2002) demonstrated that phonological awareness did not predict kindergarten reading comprehension in grades 1 and 2, while semantic abilities did predict comprehension. One proposed rationale for this relationship may be that phonological awareness aid in decoding while oral language skills may be more influential as a higher order process, such as comprehension (Cooper et. al., 2002).

As with the other predictors of reading outcomes, the impact of oral language is limited to the variables controlled for during the study. For instance, oral language accounted for 13.8% of variance in second grade students’ reading comprehension and 19.7% for word recognition. When IQ was controlled for, however, the values dropped to 3.6% and 1.2% respectfully. In another study, Catts, Fey, Zhang, and Tomblin (1999) followed good and poor readers from Kindergarten to second grade. Results indicate that oral language did account for significant variance in predicting second grade reading comprehension and word recognition while IQ was controlled for (Cooper et al., 2002). In a study by Carlson (2004), oral language was not found to be as good of a predictor of passage comprehension as phonological awareness. However, Catts et. al. (1999) demonstrated that oral language in Kindergarten was a predictor for reading comprehension in second grade, even when controlled for phonological awareness and reading speed. The difference between the two studies may be due to sample size and choice and amounts of tests used and not necessarily that one predictor is better than another. Miller and Stahl (1989) demonstrated that gains in oral language were associated with lower reading skill because the child relied heavily on oral skills to the detriment of reading skills. Though oral language and reading develop similarly, reading skills must be specifically taught. Therefore,
further investigation is necessitated to identify the exact mechanisms that allow for transfer between oral language and reading outcomes (Cooper et. al. 2002).

**Awareness of reading and motivation as predictors of comprehension.** Prediction of future reading outcomes is not limited to the aforementioned emergent literacy skills. Awareness of how and why we read is a statistically significant predictor of later reading comprehension and reading achievement (Stewart, 1992). Additionally, the expectancy-value framework asserts that performance, effort, and persistence are influenced by how well the student believes he/she will do and whether or not the information is valued by the student (Anmarkrud & Braten, 2009).

Educating young children on the “hows” and “whys” of reading is paramount. This awareness is a statistically significant predictor of reading comprehension when pretested in the 3rd and 5th grade. “The premise is that the reader who consciously knows what he or she is doing while reading is a more sophisticated reader and achieves a better understanding of the text. In the same vein, when children are discussing how they are learning to read, they construct their awareness based on the activities and actions of teachers or parents.” (Stewart, 1992, p. 95). Stewart (1992) investigated Kindergarteners’ awareness of a) how they learn to read and b) their sensitivity to differences in reading instruction at home and in schools. Results indicated that 88% of participants could talk about reading awareness at home and in school with great clarity. Additionally, Stewart (1992) found that Kindergarten students can describe how they are learning to read, children change how they talk about reading over time, Kindergarten instruction on reading influences how the children describe how they are learning, and how children explain reading at home is dependent on the parent’s presentation of materials (Stewart, 1992). Mason et. al. (1996) substantiated Stewart’s findings in a longitudinal study. Results indicate that “...increased knowledge of early literacy concepts led to subsequently higher reading comprehension ability...” (Mason et al., 1996, p.192) and positive effects lasted until the end of 2nd grade for the home group and 4th grade for the school group (Mason et al., 1996).

Unfortunately, many young readers perceive reading as a mysterious activity. They do not know how or why they must learn to read and often possess only ambiguous expectations for themselves. Early readers are easily confused by jargon such as “word” or “sound” in relationship to letters. These misconceptions about reading have been identified in both young and poor readers. In 1940, Brumbage surveyed 700 Kindergarten students in New York. 50% of the participants reported thinking reading would be difficult and that they expected to begin
learning to read in the 1st grade. Brumbage (1940) believed this perspective accounts for lack of reading success more so than poor letter recognition and phonological awareness. Clay (1976) found that 76% of 5 year olds in New Zealand believed that stories were told entirely by the pictures; they did not understand that text told the story and was merely supported by pictures. Additionally, young children were found to not know what reading comprehension strategies were and were therefore unable to coordinate strategies with a reading goal (Stewart, 1992).

Motivation also influences perception of reading and reading outcomes. Guthrie (2007) asserted that motivation was one of the better predictors of success in reading comprehension, though it has unfortunately been devalued in the classroom. Anmarkrud and Braten (2009) studied 9th grade students to discern if reading efficacy and reading task value predicted comprehension. Controlled variables included gender, topic knowledge, achievement in the subject, and different comprehension strategies through a forced order hierarchical multiple regressions analysis. Results indicate that after the variance from these variables had been removed, the additional variance was due to motivation. Only reading task value was a significant predictor of comprehension. The investigators warn that teachers do not overlook motivating students to achieve reading comprehension in an effort to teach comprehension strategies. Suggestions for motivating students include but are not limited to providing interesting and possibly student selected texts with many opportunities for hands-on applications. This approach yields deeper understanding of read material and higher levels of motivation (Anmarkrud & Braten, 2009).

A possible explanation for the perceived ambiguity by young students and its negative affects on motivation is the hastened pace of teaching reading in the school system. Children receive minimal time for exploration during school before receiving formal instruction on literacy and, later, reading. Feierabend (1997) suggests that a full year of reading readiness provides a developmentally appropriate foundation to reading and writing. Additionally, Scott (2004) asserts that even first grade is too early for children to begin reading and writing.

Comprehension

The goal of all prior reading instruction and efforts to establish a developmentally appropriate task analysis in reading is achievement in comprehension (Kirmizi, 2010). Students employ comprehension strategies to make learning more efficient and to properly synthesize information from text (Botsas, 2003; Ketch, 2005; Kirmizi, 2010). Strategic reading for
Comprehension is a complex process that requires awareness of the strategies, transfer ability to recognize what strategy is best suited for the material and appropriate application of the strategy (Botsas, 2003). Proper use of comprehension strategies is what separates good readers from poor readers (Azan 2010; Botsas, 2003; Knight, 1992). "To achieve comprehension in reading, an effective reader should be able to successfully implement such practices as relating the text with his or her own background knowledge, summarizing information, drawing conclusions, and posing questions at the text." (Kirmizi, 2010, p. 4752).

Prior to the 1980s, comprehension in the classroom was not taught as the application of specific strategies. Rather, it was measured in a question and answer format that often assessed basic memory and recall instead of higher level inferential skills or understanding (Azan, 2010). During the late 1980’s, attention turned to how comprehension was taught in the classroom, best teaching practices and the specific strategies used (Pressley et al., 1992). It was discovered that many teachers used more strategies than the students could handle (Azan, 2010). Successful programs taught fewer strategies at a time over a long period of time rather than a rapid succession of individual strategies (Azan, 2010; Pressley et al., 1992). Affording students more time to interact with the strategies assists in transitioning from traditional memory practices to mature interpretation. Successful programs also implemented direct explanations about the strategies, how to apply them to text or listening activities and why the strategies are important for learning (Pressley et al., 1992). In 2000, The National Reading Panel identified the following strategies based on the review of literature and best practice methods: predicting, imaging, questioning, monitoring for understanding, rereading, inferring, summarizing, evaluating and synthesizing (Azan, 2010; Ketch, 2005; Kirmizi, 2010).

**Predicting and imaging.** Comprehension is the process of deriving meaning from the text throughout the reading or listening process (before, during and after reading) (Kirmizi, 2010). Many teachers employ anticipation guides to build interest in the story prior to reading. Anticipation guides can include examining the cover picture, discussing the title, questioning the author's intent, making predictions about the story and applying background knowledge (C. Morrow, personal communication, October 27, 2012; Kirmizi, 2010). Teichert (1996), Ur (1984) and Bransford (1979) all support the use of pre-listening activities to enhance comprehension. In these studies, the pre-listening activity functioned as an advanced organizer for the aural information that followed. It served to activate prior knowledge, help construct mental images,
make predictions and motivate the students (Kashani et al., 2010). The specific manifestation of this strategy, however, is dependent on the story and the abilities of the student. For instance, Anderson and Biddle (1975) found that comprehension as a whole suffered due to the distractions caused by pre-reading questions.

Good readers often create mental images of the text while reading (Azan, 2010; Ketch, 2005). Kashani et. al. (2010) asserts that if listening comprehension uses mental images/models as a strategy, then having visuals aids may assist in the creation of those models (Kashani et. al., 2010). This perspective is supported by research stating that 85% of information learned is through vision (Robb, 2003). Furthermore, the National Reading Panel found that teaching phonemic awareness was more effective if a visual, such as the letter, was used in the lesson than when there was no letter visual. It may be that visual aids enhance the child’s memory by giving the sound a shape (Gromko, 2005). Visual aids facilitate better inferences by the reader, recall of main events and understanding of story schema (Feitelson et. al., 1993; Kashani et. al., 2010). Some research supports that visual annotations facilitate better comprehension and processing than does verbal annotations (Kashani et. al., 2010). In a study by Feitelson et al. (1993), Kindergarten students who received picture stories performed better on listening comprehension tests than those without pictures. This experimental group made better inferences about causal relationships in the story, demonstrated better story structure in retelling and generalized their gains in inference and cohesive story telling into their daily speaking. Students in the control condition, however, had difficulty synthesizing the individual pictures in the story into a fluent story.

Visual aids as a pedagogical technique to teach comprehension strategies greatly benefit teachers and students. However, the most auspicious time to introduce those visuals remains unclear (Kashani et al., 2010). Kashani et. al. (2010) hypothesized the timing of visual aids in a comprehension lesson could affect comprehension and, therefore, conducted a study comparing comprehension results when related visual aids were presented before or during a listening activity. The control condition did not receive a visual aid. Results indicate the visual aids before condition yielded the best results, was the only condition with significance and took the least amount of time to complete. The control condition yielded the lowest results and took the most time to complete. The researchers suggest that the increased scores for both visual aid conditions may speak to visual aids enhancing learning of aurally presented material. Additionally, the
significant improvement in the visual aids before condition may have allowed students to exercise making predictions; a known comprehension strategy. Future implications of this study include generalizations that visuals as a pre-listening activity are an economical use of time and any pre-listening activity, visual or otherwise, have positive affects on comprehension.

**Prior knowledge and questioning.** Anmarkrud & Braten (2009) asserted there is no greater predictor of comprehension and understanding than prior knowledge. Children are better able to make inferences about a story if they possess schematic knowledge transferable to the story. For instance, children who have prior knowledge of or experiences with snow are better able to relate to a story involving snow than children without this knowledge (Azan, 2010). Children as young as Kindergarten and 1st grade demonstrate better monitoring for understanding due to transfer of previous knowledge to text (Gauleney, 1995). Early, intentional practice of transfer is highly important to future academic learning and establishes a foundation for higher level critical thinking (Madsen & Madsen 1983; Miller, 2006).

Two forms of prior knowledge include domain knowledge and topic knowledge. Domain knowledge refers to knowledge in a subject area, i.e. mathematics, while topic knowledge refers to in depth knowledge of a specific topic, i.e. division (Anmarkrud & Braten, 2009). Though children improve on cognitive tasks by virtue of natural development and cumulative experiences, expert knowledge in a domain or topic area can account for cognitive advantages not due to a developmental baseline. Experts have a greater ability to memorize and possess better reasoning skills because of their extensive knowledge base or schemas (Gauleney, 1995). Expert knowledge can also affect which comprehension strategy the student employs and how well the student acquires new strategies (Azan, 2010).

Experts demonstrate improved acquisition of information, retention of information and transfer of information within their area of interest. Gauleney (1995) asserted that effective instruction in comprehension must first be practiced in that area of interest. This task analysis for teaching comprehension strategies beginning in a least restrictive environment is especially important because proper use of comprehension strategies is what differentiates good readers from poor readers (Knight, 1992). Prior knowledge may even be more beneficial to poor readers than to good readers. Literature supports that activating prior knowledge/schemas by asking why questions before reading functions better for poor readers than it does for good readers. Therefore, practical application may be to first present information in the poor reader’s domain.
of expertise to facilitate transfer between prior knowledge and text-based material. Additionally, the positive effects of prior/expert knowledge to poor readers demonstrates that expertise can override previous learning ability (Gauleney, 1995)

Gauleney (1995) conducted a study to determine the effects of prior/expert knowledge and metacognitive knowledge on reading comprehension strategy knowledge. The strategy of interest was asking why questions during reading. Subjects included 4th and 5th grade boys labeled as poor readers but with expert knowledge in baseball. Subjects who practiced this comprehension strategy in the group using baseball related stories demonstrated better and more frequent strategy use, improved recall of text and monitoring for understanding. Overall comprehension for the baseball group was higher than the non-baseball group. Subjects in the baseball group demonstrated generalization of strategy use by using why questioning in other academic areas during school. Gauleney (1995) asserted that domain knowledge facilitates strategy acquisition because of predisposition to the domain. Another explanation for the results is that children operating in their preferred domain, or least restrictive environment, are better able to increase focus by inhibiting distractions.

**Monitoring for understanding and summarizing/recall.** Monitoring for understanding is a complex process that represents a synergy of all comprehension strategies. The reader must have a firm understanding of comprehension strategies and story structure to be able to recognize and address sections of text not initially understood by successfully applying different strategies (Azan, 2010; Kirmizi, 2010). Skilled readers pause periodically while reading to access for understanding and re-read if more clarification is needed (Ketch, 2005). Poor readers' comprehension lacks because they do not apply strategies to monitor for deeper understanding (Azan, 2010). Gauleney's 1995 study of expert knowledge also supports the importance of monitoring for understanding because continually asking why questions allow the reader opportunities to assess the text. Similar to monitoring, summarization and retell, though it is a surface level skill, combines several skills such as focus, ability to organize, sequencing, discerning what is important, auditory memory and listening stamina (Botas, 2003; C. Morrow, personal communication, October 27, 2012; Ketch, 2005).

Re-reading and retell, though part of the monitoring process and the most overt sign monitoring is taking place, does not itself equate to deeper understanding (Ketch, 2005). Monitoring is a meta-cognitive task (Botas, 2003). "Meta-cognitive strategies can be described
as self-monitoring and regulating activities that focus on the product and the process of reading, support readers' awareness of comprehension, and assist in the selection of cognitive strategies as a function of text difficulty, situational constraints, and the reader's own cognitive abilities." (Kirmizi, 2010, p. 4753). Re-reading and retell only function as an opportunity for clarification so that deep processing/comprehension can occur during the second rehearsal. Students who only engage in surface level processing do not achieve comprehension (Botas, 2003). Though comprehension is derived from this meta-cognitive monitoring, monitoring without deeper understanding does not lead to mature comprehension (Botas, 2003; Stewart, 1992).

**Achievement goal theory.** Achievement Goal Theory divides students' reading comprehension goals into two groups: mastery and performance. Mastery oriented students are more cognitively engaged and actively seek knowledge and skill acquisition. These students use meta-cognition and deep processing strategies and typically have high comprehension achievement. Performance oriented students seek public recognition and focus on overachieving rather than skill acquisition. Performance orientation is not correlated with deep processing and demonstrates a maladaptive use of strategies (Botas, 2003).

Botas (2003) conducted a study to determine the comprehension goal orientation of 5th and 6th graders with and without a reading delay (RD and non-RD). Results indicate that non-RD students are mastery oriented and less avoidant of reading performance. Because they are more oriented to reading and engaging with text, they reap the benefits of gaining the knowledge in the text and the positive affirmation from teachers for their success. This group demonstrated higher frequency of comprehension strategies employed in more sophisticated ways. They actively monitored for understanding while reading and used elaboration when thinking aloud. In this study, only the mastery oriented, non-RD group correlated with improved comprehension and improved scores on standardized testing. RD students, however, utilized fewer strategies and often applied them in inappropriate ways. This group did not meta-cognitively monitor for understanding as the non-RD students did and they engaged in more surface level processing. Deeper levels of comprehension did not accompany higher frequency of re-reading and rehearsal. Interestingly, RD students engaged in a performance avoidant defense mechanism where they actively avoided areas of text they knew would be difficult. Botas (2003) therefore, advocates that RD students must be in a nurturing, supportive environment that recognizes the importance of successive approximations. These students must be motivated to assume a
mastery-oriented approach to comprehension through non-threatening activities (Botas, 2003). This concept of motivation through non-threatening activities in a least restrictive environment resounds in many of the services schools employ to assist students with disabilities or delays.

**Comprehension Teaching Strategies**

The importance of oral, listening and reading comprehension is paramount. Ironically, attention to best practice teaching methods did not receive much scholarly attention until the late 1980's and early 1990's (Azan, 2010; Pressley et al., 1992). To date, application of best practice methods varies between the states due to educational paradigm shifts and the influence of standardized testing (C. Morrow, personal communication, October 27, 2012). Of particular debate is the emphasis on skill acquisition or transfer (Azan, 2010; Cantrell, 1998).

Two basic ideologies exist regarding how to teach comprehension to children. The *Simple View* is a more linear view that emphasizes achievement in emergent literacy before higher level comprehension strategies can be attained. The *Transactional Strategies Approach* considers comprehension to be a skill apart from emergent literacy and emphasizes the complex relationship between students, teachers and the comprehension strategies themselves (Cantrell, 1998; Pressley, et al., 1992).

**The simple view.** The rationale for this approach to comprehension asserts that comprehension is derived from a strong foundation in emergent literacy skills (Azan, 2010). Effective readers must first be fluent decoders with high word recognition such that vocabulary can mature (Kirmizi, 2010). Decoding skills and oral comprehension must work in concert such that reading comprehension can occur. If either of these two emergent literacy skills are lacking, the result is a reading disability (Aarnoutse et al., 1998).

According to the *Simple View*, the traditional approach to a reading disability is to provide remediation in decoding to the exclusion of oral comprehension. Oral comprehension is not addressed because it is assumed that comprehension can not be cultivated if decoding is not first mastered. However, this approach often has adverse effects such as developmental stagnation in vocabulary, inferential abilities and general knowledge acquisition abilities. This approach can be particularly detrimental because research indicates poor decoders and poor/typical listeners develop into readers who define reading as reading words correctly or regurgitating facts and neglect the inferential aspects associated with comprehension. Aarnoutse et al. (1998) therefore conducted a study to determine if students with reading disabilities who also tested poorly in
decoding and oral comprehension would respond positively to strategic listening comprehension interventions. Results indicate that students in the strategies group performed better on reading and listening comprehension at post test than did the control group. These participants were able to circumvent the issue of decoding such that the deeper processing of strategic comprehension could still be cultivated. The results contradict the Simple View's traditional approach to remediation because it describes the relationship between emergent literacy skills and reading comprehension to be non-linear.

Transactional strategies instruction. Transactional Strategies Instruction (TSI) is derived from a meaning centered approach that deviates from conventional comprehension instruction. TSI, also known as scaffolding or reciprocal teaching, was operationalized in 1992 by Pressley et al. and represents the terminology in this paper (Azan, 2010). TSI advocates for the transaction between the teacher, students and the text itself, where the teacher provides support and guidance for the students as they practice application of comprehension strategies (Azan, 2010). Rather than following a question/answer format where comprehension is assessed via rote memory, TSI allows for "spontaneous teachable moments" where text discussion deviates from the original lesson plan. Children are able to work together to apply prior knowledge, ask questions, and make predictions while the teacher facilitates the discussion (Pressley et. al., 1992). “Moreover, the term ‘transactional’ also emphasizes what effective strategy is not. It is not instruction of isolated skills, a method that induces student passivity, a one-way communication from teacher to students, or explication of black-and-white facts” (p. 535, Pressley et. al., 1992).

TSI often occurs in group settings such as literature circles, book clubs, cross-age conversations, whole class discussions and small groups (Ketch, 2005). The teacher begins the discussion with ideas about how the lesson will develop, but allows the student/teacher discussion to shape the direction of the transaction. Though this direction was not initially planned for, it provides the students a group platform to practice several comprehension strategies at once and learn how to independently apply these strategies to text. Students also benefit from the group's collective knowledge, experiences and perspectives. Over time, this process becomes self-regulated and the student employs the strategies and weighs options independently (Pressley et al., 1992). Because the ultimate goal of TSI is meaning based, the teacher is not preoccupied with teaching the "correct" answer to questioning. If misunderstanding
occurs, however, there are opportunities to stop and justify new information with previously held predictions. Not only does this allow for better understanding, it is non-threatening and maintains high student motivation (C. Morrow, personal communication, October 27, 2012; Pressley et al., 1992). This environment is particularly auspicious for lower level children who require remedial reading instruction. Research supports TSI with lower level students because these students benefit from the modeling of strategic reading and interactions with more advanced peers (Mason et al., 1996; Pressley et al., 1992).

“Comprehension competence develops in part via internalization of social interactions” (Pressley et al., 1992, p. 516,). Conversation is a social activity that is modeled to young children as they grow. Similarly, the internal conversation that occurs during individual reading must also be explicitly modeled to students (Ketch, 2005). In TSI, teachers often use think-alouds during reading, where the teacher pauses during the story to model proper use of comprehension strategies by talking through the process (C. Morrow, personal communication, October 27, 2012; Pressley et al., 1992). Encouraging students to think aloud encourages sharing of ideas and therefore promotes comprehension in the group (Ketch, 2005). It is from these group think-alouds that external interactions become the internalization of comprehension strategies and students transition towards becoming reflective, critical thinkers (Ketch, 2005; Pressley et al., 1992).

The hallmark aspect TSI that differentiates it from conventional comprehension lessons is how teacher and student behaviors influence each other (Pressley et al., 1992). Therefore, the impact of teacher behaviors must be imperially addressed. A study by Knight (1992) demonstrated that teacher behaviors influenced the determination of what strategy a student will use. Interpretations of these results suggest that teachers indirectly influence students’ academic achievement because teachers act as a catalyst for student behaviors. It is these student behaviors that directly influence achievement on standardized testing.

The meaning centered approach to comprehension that TSI demonstrates is associated with better understanding of comprehension strategies and higher achievement on standardized test scores (Aarnoutse et al., 1998; Azan, 2010; Bell, 2010; Cantrell, 1998). However, more data on TSI's effectiveness is needed. The research on comprehension strategies of the 70s, 80s and early 90s set a precedence for investigations that may not be compatible with how TSI functions in the classroom. Prior to the early 90s, the goal of research was to measure how much information the
student extracted from the text. These experiments used measures based on the idea that there are objective ideas from the text that can be measured as either being in the students' retelling or not. These were memory tests and not necessarily test of comprehension. Furthermore, these studies did not look at interpretive strategies other than low-level inferences and basic abstraction of main ideas, where students only received correct marks if their interpretation was consistent with the test author. These types of measures are auspicious for data collection but do not always reflect the transaction of strategies used by the student. Contemporary reader response theorists, however, support equal weight for reader-based interpretations even if it is not exactly consistent with test author interpretations. They maintain that meaning is derived from the transaction of background knowledge, strategies and expectations and, therefore, varies from student to student. These interpretive reactions are a part of the meaning of the text to the reader (Pressley et al., 1992). “A great difference between traditional strategy instruction and transactional strategy instruction is that strategy induced interpretations are encouraged and embraced during transactional instruction. In contrast, they are often ignored (or worse yet considered errors) when strategy instruction is intended only to promote the “obvious” meaning of text and literal memory of it.” (Pressley et al., 1992, p. 526). Therefore, Pressley et al. (1992) asserts that the nature of research of TSI will differ from previous research in comprehension. Longitudinal studies that take into consideration multiple variables simultaneously, including reader interpretation, is necessitated.

FAIR and DRA

The Florida Assessment for Interventions in Reading (FAIR) and the Developmental Reading Assessment (DRA) are two assessment measures used with Kindergarten students in Florida. The assessments used in this study were modeled after FAIR and DRA to increase the validity of practical application of the results.

In 2009, the Florida Center for Reading Research (FCRR) provided its teachers with FAIR free of charge in collaboration with Just Read, Florida!. FAIR is used with grades K-2, where Kindergarteners are tested on listening comprehension because they are too young to process tasks in reading comprehension (C. Morrow, personal communication, October 27, 2012; Feitelson et.al., 1993). FAIR is a collection of assessments used to evaluate the child’s collective progress towards benchmarks in reading, to identify any learning needs the child may have in reading and monitor their progress across the academic year. It is administered in three
assessment periods (AP) each year: AP1, AP2 and AP3. AP1 is administered in September, AP2 in January and AP3 in April.

The four types of measures used in FAIR include 1) The Broad Screen/Progress Monitoring Tool (BS), 2) The Broad Diagnostic Inventory (BDI), 3) the Targeted Diagnostic Inventory (TDI) and 4) the Ongoing Progress Monitoring (OPM). The BDI includes a Listening Comprehension task. The Listening Comprehension task is administered to all students twice a year and a third time to students with a Probability of Reading Success (PRS) of 84% or lower. The Listening Comprehension questions include three explicit and two implicit questions. To be considered on-level, the child must correctly answer 4 of the 5 questions accurately, regardless of the combination of implicit and explicits questions answered correctly. Children with a PRS of 85% and above are administered a Comprehension Placement Word List and a reading passage correlated to the number of words read correctly. The stories used in the Listening Comprehension section of the FAIR are standardized and do not change year to year.

For the reading comprehension component of FAIR used for grades 1 and 2, each story was screened using a representative sample of Floridian students for developmentally accurate story-grammar, story content and vocabulary such that 90% of the words used can be read accurately and comprehended. The Administrative Manual for FAIR does not specify how the stories for Listening Comprehension in Kindergarten were selected. When administering the test, the teacher must adhere to the following scripted text: “Listen while I read ___________. When I’m finished, I will ask you a few questions. Ready? Listen carefully!” and “Now I’m going to ask you some questions about the story.” The Administration Manual does not specifically address if the teacher can repeat questions to the student. Morrow (C. Morrow, personal communication, October 27, 2012) suggests that, if needed, the teacher can repeat the question exactly as written, however, the teacher should not provide clarification to the question in order to preserve test validity. If the student’s answers do not match the provided acceptable answer exactly, the teacher must use his/her best judgment. Correct answers must be text based and not based on the students’ prior knowledge. Morrow (C. Morrow, personal communication, October 27, 2012) feels that the positive aspects of this test include the developmentally appropriate nature of the stories. However, Morrow (C. Morrow, personal communication, October 27, 2012) maintains that because the story topics are easily relatable, children often use their own background knowledge to answer the questions instead of using information from the story.
Because FAIR is scripted, the teacher is unable to change the wording of the question to elicit a text-based response. Morrow (C. Morrow, personal communication, October 27, 2012) has observed in other reading activities, the student can be successfully redirected towards a text-based response with only one verbal prompt, such as “In the story...?” or “What does the author...?” (C. Morrow, personal communication, October 27, 2012).

The Developmental Reading Assessment (DRA) is a tool used by teachers to assess the retelling strategy for comprehension. When administering the test, the teacher marks in the story elements retold by the child. Records of prompts used by the teachers and the associated answers by the child are also kept. Unlike the present study, the child’s answers are not recorded such that transcripts can be made (C. Morrow, personal communication, October 27, 2012).

**Multimodal Stimulation in Education**

In order to facilitate the transition from external recognition to internal understanding of comprehension, teachers must provide ample learning opportunities for students using several modalities (Azan, 2010; Bell, 2010; Kashani et al., 2010; Kranowitz, 2005; Miller, 2002; Miller, 2006; Register, 2001; Scott, 2004). "Children retain 24 percent of what they hear, 40 percent of what they see, and 70 percent of what they learn through multi-sensory experiences. An increasing number of educators are therefore integrating the aural, visual, tactile, and kinesthetic modalities into their teaching. Such an approach is effective for all students, and is particularly successful for at-risk students" (Miller, 2002, p. 4). Using multiple modalities leads to increased engagement, more widespread initial learning, long term retention and transfer of knowledge (Miller, 2002). Research indicates each student has a primary learning modality and effective teaching utilizes all modalities in order to reach children through their preferred method (Gault, 2005; Kashani et al., 2010; Miller, 2002; Stewart, 1992).

A multi-modal approach to learning is highly interactive for students and provides opportunities for discussion, questioning and exploration (Miller, 2002). Play-like activities combine multiple sensory experiences in a developmentally appropriate platform (Kranowitz, 2005; Register, 2001). "Physically manipulating objects assists children in focusing their attention, memorizing information, and developing the capacity for abstract thought" (Miller, 2002, p. 7). Many educators use a play-based approach to teach literacy (Azan, 2010; Register, 2001). Elliott and Olliff (2008) effectively used an adapted pre-literacy curriculum for pre-primary and primary grades. When students engaged in gross motor activities and used
manipulatives, their pre-literacy skills increased. The multi-sensory play based technique authenticated the pre-literacy skills in concrete terms the students could understand (Bell, 2010).

The visual modality is also predominant in young children (Miller, 2002) and current research has turned towards effective ways to integrate multimedia into listening comprehension lessons (Kashani et. al., 2010). Mayer, a leading researcher in the effects of multimedia in instruction, says that for some students, information presented aurally is not comprehended as well as information presented in a multimedia format (Kashani et al., 2010). Teacher guided interaction with multimedia is effective because it follows the TSI philosophy while presenting several modalities simultaneously and in an engaging format. Unfortunately, the use of multimedia is often used inappropriately, where students watch videos independently. This level of visual stimulation without the educational context provided by teachers can overwhelm children and cause retention of information to lesson (Miller, 2002).

Increased motivation is an additional benefit of a multi-modal approach. Anmarkrud and Braten (2009) demonstrated that providing students with interesting, hands-on activities yielded deeper understanding of read material and higher levels of motivation. Music is one such motivational tool that is highly interactive and combines aural, tactile, kinesthetic, visual and oral learning modalities (Gault, 2005; Miller, 2002; Register, 2004).

**Music Applications in Education**

The benefits of music instruction and clinical interventions provide positive outcomes transferrable to the school setting. This cost effective, multimodal approach has been used to elicit positive effects on students' attention and contingent behaviors in the classroom (Azan, 2010; Darrow, 2008; Kassner, 2002; Madsen & Madsen, 1983; Miller, 2002; Register, 2001; Scott, 2004; (Adamek, M. et al., 2000). Specifically, music interventions have produced significant gains in emergent reading skills and improvements in comprehension across several grade levels (Azan, 2010; D'Agrosa, 2008; Darrow, 2008; Mizener, 2008; Register, 2004; Register et al., 2007; Scott, 2004).

**Music as a multimodal intervention.** The challenge of transitioning students from external recognition to internal understanding of academic concepts creates a need for inclusive, multimodal approaches to learning (Gault, 2005; Miller, 2002; Miller, 2006; Kranowitz, 2005). Music interventions support the multimodal philosophy utilized in the schools. Music is inherently multimodal and play based, which allows for inclusion of students with wide range of
abilities and academic achievement. Music therapists are therefore able to teach non-music material in a unique way that capitalizes on several modes of learning (Azan, 2010; Darrow, 2008; Miller, 2002; Sussman, 2009).

Azan (2010) and Miller (2002) assert that the multiple learning modalities used in music lead to increased engagement by students, facilitation of widespread initial learning, improved divergent thinking and problem solving, long term retention of material and increased knowledge. Music interventions include but are not limited to the use of tapping charts, clapping, marching and full body movements paired with auditory and visual material. This coupling of stimuli promotes focus of attention and transfer of information. Intentional practice of transfer between modalities establishes a foundation for transfer between academic subject areas. Transfer of material between academic subjects is supported in the National Standards of Music Education (“National Standards for Music Education”) and pre-requisites for listening/reading comprehension. Communication can be developed through multimodal aspects of music (Azan, 2010). Music listening, for example, involves "receiving and transmitting information aurally and receiving and transmitting information visually" (Mizener, 2008, p. 12). Results from Cutietta's 1995 and 1996 review of doctoral dissertations support the music/language connection. Participants in music conditions demonstrated better scores for discrimination of perceived language and made positive transfers between music skills and language/reading skills (Azan, 2010).

**Music and attentiveness.** A prerequisite for learning, both in one-on-one and group settings, is the ability to attend to the task for an extended period of time (Robb, 2003). The focus resulting from self regulated arousal and attentive behavior is therefore central to a student's success in assessments of comprehension. Music interventions have been found to effectively regulate arousal, increase on-task behavior and improve attention/focus in the presence of distractors across populations (Azan, 2010; Noguchi & Wolfe, 2009; Robb, 2003; Sussman, 2009).

Attention is "a cognitive process that relates to the immediate, in the moment, experience of an individual;... an act of directing the mind to objects or events that necessitate careful observing or listening” (Noguchi & Wolfe, 2009, p. 70). Attentive behavior also includes exercising impulse control and respecting personal space. According to an arousal-mood hypothesis, music affects an individual's level of arousal, which establishes a platform for
increased attentive behavior (Robb, 2003). Robb (2003) found that performance on a spatial task was enhanced when the listeners were in a pleasant mood state and were moderately aroused. By comparing attentive behavior during music and play-based instruction of preschoolers with visual impairments, Robb (2003) determined that attention significantly increased in the music condition. Participants in the music condition had more instances of facing the speaker, following one-step directions, remaining seated and respecting the personal space of others. Results of this study are important because children with visual impairments often express deficits in these areas due to decreased levels of arousal.

Music therapists and general education teachers have observed increased engagement and attentive behaviors from children in response to material learned in song form rather than in spoken form (Noguchi & Wolfe, 2009). Standley and Hughes (1996) quantified these observations, revealing that children could sustain on task behavior for 97% of the time during music sessions (Robb, 2003). Music therapists often employ singing and instrument play to achieve such results (Azan, 2010; Flohr, 2006; Noguchi & Wolfe, 2009). Register (2004) determined live music groups that incorporated instrument play and singing increased on task behavior per teacher observation more so than did an educational children's television program. Students in the music condition were also better able to manage their own behavior. The teachers noted that the multimodal experience of combining music with reading helped students’ progress academically when they had not previously made progress in the typical classroom.

Opportunities for distraction in a typical classroom abound and a student's ability to focus in the presence of distractions is a pre-requisite for learning. Considering the testing environments for FAIR and DRA cannot always be controlled, a student's ability to focus exclusively on the task at hand is paramount (C. Morrow, personal communication, October 27, 2012). Music therapy interventions function effectively to redirect attention away from another stimulus. In an educational setting, this approach can mask distracting noises such that focus remains on the lesson and/or occupies the students' attention with a more rewarding stimulus. Music's ability to attract and sustain attention in the presence of distractors is so powerful, it is commonly used in medical settings to redirects patients' attention away from pain (Adamek, M. et al., 2000; Noguchi & Wolf, 2009; Robb, 2003).

Noguchi and Wolf (2009) conducted a study to test Kindergartner's sustained attention in the presence of auditory distraction. The four groups included a spoken story without distraction,
a spoken story with distractions, a musical story without distractions and a musical story with
distractions. Results indicate a significant difference between the musical story with distraction
and the spoken story with distractions. The music conditions, regardless of distraction, reported
more focus and attentive behavior than did the spoken story conditions. Results strongly indicate
that music can be used to increase attentiveness in the presence of auditory distraction; however,
limitations of this study necessitate future research to corroborate the results. The importance of
this study not only lies in the transfer to busy classroom settings, but in the effective
development of listening skills as a pre-requisite for comprehension (D’Agrosa, 2008; Noguchi
& Wolf, 2009). Noguchi and Wolf (2009) hypothesized that because of the random noises that
naturally occur in a classroom, undirected music listening for attentiveness may not be as
beneficial.

Several studies support the positive effects of music on increasing attention and focus
when children are instructed on what specific elements in the music they are to attend. Though
adults and children exhibit the same amount of focus when asked to attend to a music listening
task, children must be guided through music listening with clear, concise directions. Because of
the positive effects of music on attention with and without the presence of distractions and the
influence of active music listening on focus, it is hypothesized that active music listening applied
to FAIR and DRA will improve comprehension scores in Kindergarten students.

**Contingent music.** Contingent music has been shown to be an effective reinforcer in social
and academic domains. When used as reinforcement, music listening proved more reinforcing
than candy for behaviors that influence academic performance such as on task behavior,
attentiveness, self esteem, attitude and verbalizations (Madsen, Dorow, Moore, Womble, 1976).
These benefits have been demonstrated in the subject areas of math and reading (Azan, 2010;
Gordon, 1979; Register, 2004; Register et al., 2007).

Madsen et.al. (1976) used music lessons presented via television as positive reinforcement
for correct mathematics in first grade students. The increase in correct mathematics was coupled
with a significant gain in music subject matter. This study substantiated the importance of music
as a reinforcer as well as the effectiveness of using one subject to elicit gains in another subject
area (Azan, 2010; Madsen et. al., 1979; Madsen, 1981). Music listening and performance
activities have also been used in the same capacity to effect change in another subject area
(Azan, 2010; Madsen, 1981)
Contingent music has contributed to increased reading achievement (Azan, 2010). Gordon (1979) conducted a study to effect change in reading behaviors of 4th grade students with and without a one year reading delay. The intervention alternated between music performance as a reward for reading behaviors and a non-music condition. The control group received non-contingent music instruction. Results indicated that contingent music increased reading behaviors and contingent music instruction did not negatively effect music performance. The control group did not show any change in reading behaviors. The researchers postulate that the non-significant increase in reading behaviors was due to the limited time of interventions. The significance of this study to music therapists and music educators is that contingent music used to increase performance in another subject area does not negatively affect music performance. This study also speaks to the motivational aspect of music because reading behaviors increased during music reinforcement and decreased when the music was withdrawn (Gordon, 1979). Success in reading and listening comprehension is partially predicated on increased motivation (Anmarkrud & Braten, 2009), making contingent music an auspicious intervention.

**Music and emergent literacy.** Emergent literacy establishes the foundation for reading and listening comprehension (Bell, 2010; C. Morrow, personal communication, October 27, 2012). While some researchers restrict literacy to the ability to read, write and understand print concepts, others "suggest that literacy involves experiences with a variety of semiotic or communicative systems; in particular, language, drama, music and the visual arts." (Azan, 2011, p.13). Music can, therefore, reinforce aspects of literacy (Mizener, 2008). Music therapists have a unique opportunity to creatively use music to teach emergent literacy skills within the established phonics and whole language approach (Darrow, 2008; D’Agrosa, 2008; Flohr, 2006; Register et al., 2007). Parallel skills include but are not limited to pitch discrimination, symbol recognition, phonological awareness, phonemic awareness, sight identification, cueing systems, sequencing, oral communication, fluency (Azan, 2011; Darrow, 2008; Mizener, 2008; Register, 2004; Register et al., 2007).

Studies show children’s ability to read correlates with their ability to discriminate pitches (Azan, 2010). Researchers theorize that exposure to music develops pitch discrimination which in turn contributes to auditory discrimination necessary for phonemic awareness and language fluency (Darrow, 2008; Gromko, 2005; Mizener, 2008). Lamb and Gregory (1993) found that children’s scores on tests of auditory discrimination positively correlated to tests of phonemic
awareness (Gromko, 2005). Gromko (2004) found that high achievement in music reading in high school could be predicted in part by auditory discrimination of rhythmic patterns and spatial orientation (Gromko, 2005). Decoding is related to auditory discrimination in sound structure of words. If children practice auditory discrimination to rhythm and pitches and associate these concepts with written symbols, pre-reading skills will simultaneously be exercised (Miller, 2002).

The National Council of Teachers of English supports the transfer of skills between symbol recognition of notated music and written language (D’Agrosa, 2008). Bialystok, Friesen and Moreno (2011), conducted a study to compare music and visual art interventions on phonological awareness and visual-auditory learning, i.e. mapping visual symbols into words. Both groups improved equally in phonological awareness, however, the music group showed significant improvement in visual-auditory learning. A proposed explanation for the results is the music group received training on note to sound mapping and so had experience with symbolic representations of sounds. It is also possible that music training helps with all learning of mapping symbols to concepts (Bialystok et al., 2011). Use of music as a multimodal method of practicing auditory discrimination and symbol systems is especially important considering many reading problems are related to deficits in auditory discrimination and visual recognition (Azan, 2010; Gromko, 2005; Register et al., 2007).

"Research has shown that the development of phonemic awareness could be enhanced by fluency across symbol systems...” (Gromko, 2005, p. 201), making music a logical choice to establish a foundation for phonemic/phonological awareness through symbol systems. Gromko (2005) conducted a study using Kindergarten participants to test phoneme-segmentation fluency using music and non-music interventions. Students who participated in the four months of music instruction showed significant gains in phoneme-segmentation fluency, unlike the non-music control group. Results support the transfer of skills between subjects (Gromko, 2005). Register (2004) compared effects of a Kindergarten music curriculum with an educational children’s tv show addressing specific literacy learning components, i.e. phonemic awareness, letter naming and book concepts. Results indicate that the music group demonstrated greater gains in reading test scores (Azan, 2010). Anvari, Trainor, Woodside and Levy (2002) found significant correlations between music skills, phonological awareness and reading development in 4-5 year olds (Register et al., 2007). Other emergent literacy skills positively impacted by music
interventions include vocabulary, prewriting skills, print concepts, word recognition and transfer of words. Secondary benefits to improvements in these skills include increased participation, increased on-task behavior, preference for the music activities and non-significant gains in reading comprehension. Several studies corroborate that music interventions must specifically target academic goals to be most effective (Azan, 2010; Darrow, 2008; Gromko, 2005; Register, 2001).

Practical application of music to reinforce emergent literacy skills makes available a variety of transferable activities. Speaking cadences and syllabication, for example, can be reinforced by rhythmic chanting or speaking (Flohr, 2006; Kenny, 2008; Mizener, 2008). Fluency of reading and inflection can be supported by cadence phrasing in musical question-and-answer games. Investigation of instruments can serve as advance organizers to a lesson. Song lyrics can reinforce sight vocabulary, sequencing, alliteration, assonance, consonance, critical thinking and navigation of print (Azan, 2010; D’Agrosa, 2008; Flohr, 2006; Kassner, 2002; Kenny, 2008; Kolb, 1996; Miller, 2002; Scott, 2004).

Oral communication is a prerequisite for comprehension and can also be facilitated in a music setting. This is especially important considering the emphasis placed on discussion in the Transactional Strategies Approach to teaching comprehension (Azan, 2010; Bell, 2010; C. Morrow, personal communication, October 27, 2012; Ketch, 2005; Pressley et al., 1992). Not only does music catalyze appropriate communication and increase spontaneous speech production, it provides a least restrictive environment for students, including students with developmental delays (Braithwaite & Sigafoos, 1998; D’Agrosa, 2008; Register et al., 2007). Braithwaite and Sigafoos (1998) studied the use of embedded musical antecedents to facilitate oral communication in students with developmental delays. In this study, music antecedents were embedded in the songs, where the child’s response provided the aural conclusion of the musical phrase. Results indicate that the musical condition had a higher percentage of appropriate communication responses. Furthermore, the researchers observed that the children were passive in their regular classrooms but more active, enthusiastic participants in the music conditions. Results of this study support a review of literature that music increases participation, positively affect motivation, and increase the frequency of appropriate oral communication (Braithwaite & Sigafoos, 1998).
**Music and comprehension.** Music interventions support the emergent literacy skills necessary for successful comprehension. Music therapists and music educators can reinforce comprehension strategies through a variety of music activities. Questioning, summarizing, visualizing, inferring, predicting and clarifying can be applied to song lyrics, exploration of a new instrument or discussion of a performance (Azan, 2010; D’Agrosa, 2008; Kassner, 2002; Kolb, 1996). Interestingly, music interventions to directly address comprehension continue to render statistically insignificant improvements.

Clouser (2001) conducted a study on 50 preschool children to compare effects of a book set to music with a traditional reading of the book. Results indicated that attitude significantly improved while vocabulary and comprehension produced statistically insignificant improvements (Azan, 2010). Azan (2010) compared choral refrain responses and instrumental responses during reading to affect comprehension in second grade students. The choral refrain condition yielded the highest comprehension scores, while the non-music control had the lowest scores. Though improvements in comprehension were not significant, the instrumental conditions produced the highest on-task behavior and the choral refrain condition was the most preferred activity. Azan (2010) observed that students found explicit questions to be very easy. On the implicit questions, students utilized re-reading as a comprehension strategy. A comparison of implicit and explicit questions was not made in this study.

Register et al. (2007) conducted a study to determine the effectiveness of music if used as a remedial strategy to improve reading skills for second grade students and students with a SLD in reading. Results indicated that only students with a SLD in the music condition improved significantly in reading comprehension. Regular education students in the music condition had better comprehension scores than the non-music condition, but the improvement was not significant. The results are interesting because comprehension is historically resistant to interventions. The researchers suggest that the significance may be due to students with a SLD in reading having more opportunity for improvement because of their original deficits. Therefore, music interventions for comprehension may be more effective with special populations. The researchers note that any improvement in comprehension holds functional significance because of the global impact of comprehension on all learning.
Rationale and Statement of Purpose

A review of literature supports the effectiveness of a multidimensional approach to educating young children. Music is one such medium that has demonstrated positive gains in phonemic/phonological awareness, oral communication, attentive behavior and in reinforcing reading behaviors. However, music’s effectiveness on comprehension continues to be elusive. The purpose of this study is to determine if music when used to encourage active listening affects Kindergarten age students’ listening comprehension as measured by an approximation of comprehension tests currently used in the state of Florida. Additionally, this study will examine effects on implicit and explicit comprehension questioning in an effort to discern the mechanisms by which music can affect comprehension. Preference for activities will also be measured.

Research Questions

1. Which of the three conditions (RO = Reading Only; IR = Instrumental Response, and CR = Choral Response) is most effective in enhancing Kindergarten age students’ overall FAIR scores?

2. Which of the three conditions (RO = Reading Only; IR = Instrumental Response, and CR = Choral Response) is most effective in enhancing Kindergarten age students’ on-level scores in FAIR?

3. Which of the three conditions (RO = Reading Only; IR = Instrumental Response, and CR = Choral Response) is most effective in enhancing Kindergarten age students’ implicit and explicit scores in FAIR?

4. Which of the three conditions (RO = Reading Only; IR = Instrumental Response, and CR = Choral Response) is most effective in enhancing Kindergarten age students’ DRA scores?

5. Which of the three conditions (RO = Reading Only, IR = Instrumental Response, and CR = Choral Response) is most preferred by Kindergarten age students?
CHAPTER THREE
METHODS

Participants

Participants in this study were children \(N=40; \ n=10; \ n=10; \ n=10; \ n=10\) ages 4-6 years, including 23 females and 17 males. Participants were recruited from the Tallahassee Homeschool Association. Each participant was randomly assigned to one of the four groups. Each participant engaged in two trials (the control condition and a music condition) and the trials were scheduled at a time and location designated by the parents. Participants served as their own control.

Description of Conditions

Read only condition. The story was read aloud to the child and did not incorporate a music activity.

Instrumental response condition. The story was read aloud to the child and included instrumental responses during the reading. Prior to the story, the researcher taught the child how to use the instruments and when to play. The researcher and child practiced the response together and the researcher used facial affect and gestures to assist the child as needed during the story. The purpose of this condition was to increase attention to the story by providing the child with opportunities for active listening and a kinesthetic response. See Appendix E.

Choral response condition. The story was read aloud to the child and included choral responses during the reading. The researcher taught the child the choral response prior to the story. The researcher and child practiced the response together and the researcher used facial affect and hand cues to assist the child as needed during the story. The purpose of this condition was to increase attention to the story by providing the child with opportunities for active listening and a vocal response. See Appendix D and J.

Description of Measurements

Three assessments were used in this study: 1) the comprehension portion of the FAIR, 2) the retell portion of the DRA, and 3) a pictorial Likert scale to assess preference for the activities.

The stories and the five comprehension questions were modeled after the FAIR. The FAIR is a standard assessment used in the state of Florida and the same stories are used each year. In public school, the FAIR is administered without the use of a practice test to orient the child to
the style of testing. Due to the restricted nature of the FAIR, substitute stories and comprehension questions were created by a former Kindergarten teacher/current Reading Coach and reviewed by other veteran Kindergarten teachers. The stories used in this study were considered to be comparable to the actual assessment in length, content and difficulty. The stories and the FAIR used in this study appear in Appendix F and G. The five questions used in the FAIR include three explicit questions from the text and two implicit questions from the text. According to the FAIR, the child must answer four of the five questions correctly to be considered on-level, regardless of the combination of explicit and implicit questions answered correctly. Answers are either considered completely right or completely wrong and the proctor is not allowed to prompt the child or ask the child to clarify the answer given.

The DRA is an assessment of recall and was administered immediately following the FAIR. The DRA is a standard assessment used in the state of Florida. In the DRA, the child retells the story from beginning to end and is assessed on sequencing events, using text based vocabulary, recalling characters and details, and the number of times the child was prompted by the researcher, if at all. The researcher was limited to using the five approved prompts: "Tell me more.", "What happened at the beginning?", "What happened before/after __________________________ (an event mentioned by the student)?", "Who else was in the story?" and "How did the story end?". Based on the results of the assessment, the child is categorized as having Emerging, Developing, Independent or Advanced retelling abilities. The DRA appears in Appendix H.

A pictorial Likert scale, as indicated in Appendix I, was used in order to be developmentally appropriate. Three faces and a corresponding sentence represented how the child felt about the activity: a) a “Happy Face” = I liked the activity today, b) a “Neutral Face” = The activity today was O.K., and c) a “Sad Face” = I did not like the activity today. For analysis, the facial preferences were converted into numerical ratings: “Happy Face” = 3 points, “Neutral Face” = 2 points and “Sad Face” = 1 point. The preference assessment was administered immediately after the DRA and the child was asked to circle the face that showed how he/she felt about the activity that day.

**Procedures**

Each child was received at a location designated by the parents. Parental consent was gained before the researcher began the first trial. The researcher asked the child where he/she
would like to do the activity, i.e. sitting at the table, sitting on the floor, etc. The researcher explained to the child that the researcher would read a story to the child that day. The researcher then proceeded with the script, read the story and administered the FAIR, the DRA and the preference assessment respectively. Recordings of the child’s responses began after the story was completed and ended immediately after the DRA was complete. The preference assessment was then administered.

**Treatment Order for Each Group**

Each music condition was counterbalanced with a read only condition to control for order. Each participant received either an instrumental response/reading only pairing of interventions or a choral response/reading only pairing. Participants served as their own control.

Table 1

*Treatment Order*

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Instrumental Response (IR)</td>
<td>Reading Only (RO)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading Only (RO)</td>
<td>Instrumental Response (IR)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 3</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Choral Response (CR)</td>
<td>Reading Only (RO)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 4</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading Only (RO)</td>
<td>Choral Response (CR)</td>
</tr>
</tbody>
</table>

**Setting and Schedule of Sessions**

Parental consent was gained before the first trial began. Each session was conducted at a location designated by the parents. Locations included the child’s home, park or library. Trials were scheduled at the convenience of the parents. Therefore, some trials were scheduled over one week while others were scheduled over several weeks.

**Materials and Equipment**

One small wave drum and one thunder tube was used during the Instrumental Response condition. Prior to the story, the researcher modeled to the child how to play the instruments. The researcher provided a writing utensil to the participant such that the preference assessment could be completed. The recording device was the researcher’s personal property and was used to
record the participants’ responses. The recording device was placed on a flat surface such that video recordings would not be made of the child. This was done to further ensure confidentiality and because non-verbal information is not included in either the FAIR or the DRA.
CHAPTER FOUR
RESULTS

Data Analysis of Research Question One

For the purpose of analysis, the IR interventions from Group One and Group Two were combined to create one IR group. The RO interventions from Group One and Group Two were treated identically. The CR interventions from Group Three and Group Four were combined to create one CR group. The RO interventions from Group Three and Group Four were treated identically. A $t$-Test for Dependent Samples was used to explore the relationship between the IR/RO and CR/RO interventions used in the FAIR. In the IR/RO and CR/RO comparisons, the same participant received the music intervention and the corresponding RO condition.

A significant difference was found in the IR/RO group, where the RO group had a higher mean of correct answers ($t(19)=-2.98, p<.05$). A significant difference was found in the CR/RO group ($t(19)=-2.11, p<.05$) where the RO intervention yielded a higher mean of correct answers. Results indicate that RO produces more correct answers on the FAIR than do the IR or CR interventions. Results are shown in Tables 2 and 3. Figure 1 shows a comparison of means.

Table 2: $t$-Test for Dependent Samples for FAIR Scores: IR/RO group

<table>
<thead>
<tr>
<th>Intervention</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>$t$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR</td>
<td>20</td>
<td>3.50</td>
<td>0.67</td>
<td>-2.98</td>
<td>19</td>
<td>&lt;.05*</td>
</tr>
<tr>
<td>RO</td>
<td>20</td>
<td>4.05</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Indicates significant difference, $p<0.05$.

Table 3: $t$-Test for Dependent Samples for FAIR Scores: CR/RO group

<table>
<thead>
<tr>
<th>Intervention</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>$t$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR</td>
<td>20</td>
<td>3.65</td>
<td>1.22</td>
<td>-2.11</td>
<td>19</td>
<td>&lt;.05*</td>
</tr>
<tr>
<td>RO</td>
<td>20</td>
<td>4.25</td>
<td>0.85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Indicates significant difference, $p<0.05$. 

37
Summary response to research question one. Results indicate a significant difference in FAIR scores for the IR/RO group and the CR/RO group, where the RO group yielded a higher mean of correct answers. Results indicate that RO better supports listening comprehension than does an IR intervention or a CR intervention. A comparison mean scores indicates that the RO intervention yielded the most correct scores, followed by the CR intervention and then the IR intervention.

Data Analysis for Research Question Two

For the purpose of analysis, the IR interventions from Group One and Group Two were combined to create one IR group. The RO interventions from Group One and Group Two were treated identically. The CR interventions from Group Three and Group Four were combined to create one CR group. The RO interventions from Group Three and Group Four were treated identically. A McNemar’s test was used to test the difference between the on-level and below-level scores of the FAIR in the IR/RO and CR/RO groups. For analysis purposes, scores were coded as either being on-level (1) or below-level (0). Significance was not gained in either the
IR/RO group or the CR/RO group: IR/RO: $X^2(1, N=20)=0.17$, $p=0.68$; CR/RO: $X^2(1, N=20)=0.00$, $p=1.00$. Results for the tests are shown in Tables 6 and 7.

Table 4

**McNemar’s Test for On-Level and Below-Level scores in FAIR for IR/RO**

<table>
<thead>
<tr>
<th></th>
<th>RO</th>
<th>N</th>
<th>df</th>
<th>$X^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>on-level</td>
<td>9</td>
<td>3</td>
<td>20</td>
<td>0.17</td>
<td>0.68</td>
</tr>
<tr>
<td>below-level</td>
<td>3</td>
<td>3</td>
<td>20</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Note:** No indication of significant difference, $p>0.05$.

Table 5

**McNemar’s Test for On-Level and Below-Level scores in FAIR for CR/RO**

<table>
<thead>
<tr>
<th></th>
<th>RO</th>
<th>N</th>
<th>df</th>
<th>$X^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>on-level</td>
<td>11</td>
<td>3</td>
<td>20</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>below-level</td>
<td>2</td>
<td>2</td>
<td>20</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Note:** No indication of significant difference, $p>0.05$.

**Summary response to research question two.** Results indicate no significant difference between interventions when on-level vs. below-level scores in FAIR are compared. Examination of raw scores demonstrates that the most on-level scores were gained in the RO intervention, while the fewest on-level scores were gained in the IR intervention.

**Data Analysis for Research Question Three**

For the purpose of analysis, the IR interventions from Group One and Group Two were combined to create one IR group. The RO interventions from Group One and Group Two were treated identically. The CR interventions from Group Three and Group Four were combined to create one CR group. The RO interventions from Group Three and Group Four were treated identically. A One-Way ANOVA for Dependent Samples was used to compare explicit and implicit scores on the FAIR. The One-Way ANOVA for Dependent Samples was used once for the explicit combinations (IR$_{exp}$/ RO$_{exp}$ and CR$_{exp}$/RO$_{exp}$) and once for the implicit combinations (IR$_{imp}$/ RO$_{imp}$ and CR$_{imp}$/RO$_{imp}$).
Results of the One-Way ANOVA for Dependent Samples indicate a significant difference for the explicit combinations: IR\textsubscript{exp}/RO\textsubscript{exp} and CR\textsubscript{exp}/RO\textsubscript{exp}, [F(3,57)= 5.39, p<0.01]. Results for the test can be seen in Table 8. A Turkey HSD test was used as a follow up to identify the specific significant differences between the aforementioned combinations. Results indicate only the IR\textsubscript{exp}/RO\textsubscript{exp} group was significantly different (p<0.01). IR\textsubscript{exp} (M=2.5, SD=0.51) and RO\textsubscript{exp} (M=2.95, SD=0.22) indicates that participants receiving the RO\textsubscript{exp} intervention had more correct explicit answers than when receiving the IR\textsubscript{exp} condition. The means for the explicit combinations are shown in Figure 2.

Table 6

\begin{center}
\begin{tabular}{lcccc}
\textbf{One-Way ANOVA for Dependent Samples for Explicit Scores in FAIR} & & & & \\
\hline
 & SS & df & MS & \textit{F} & \textit{p} \\
Between Groups & 3.04 & 3 & 1.01 & 5.39 & 0.00* \\
Within Groups & 10.71 & 57 & 0.19 & & \\
Total & 16.49 & 79 & & & \\
\hline
\end{tabular}
\end{center}

*Indicates significant difference, p<0.05.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{Figure2.png}
\caption{Comparison of Means for Explicit Scores in FAIR (three points possible)}
\end{figure}
Results of the One-Way ANOVA for Dependent Samples indicate no significant differences for the implicit combinations: IR$_{imp}$/RO$_{imp}$ and CR$_{imp}$/RO$_{imp}$, \([F(3,57)=0.94, p=0.43]\). Table 9 illustrates the results for the One-Way ANOVA for Dependent Samples for the implicit scores. Though no significant difference was found, mean scores for the RO$_{imp}$ conditions were higher than the music conditions. The mean score for CR$_{imp}$ was slightly higher than the mean score for IR$_{imp}$. This indicates that RO$_{imp}$ yielded the most correct implicit answers, followed by CR$_{imp}$ and IR$_{imp}$, respectively. Figure 3 illustrates a comparison of means for the implicit combinations.

Table 7

<table>
<thead>
<tr>
<th>One-Way ANOVA for Dependent Samples for Implicit Scores in FAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
</tr>
<tr>
<td>--------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Note: No indication of significance, \(p>0.05\)

Figure 3: Comparisons of Means for Implicit Scores in FAIR (two points possible)
Summary response to research question three. Results indicate a significant difference in explicit scores for the IR/RO group, where the RO intervention yielded more correct answers. No significant difference existed in the CR/RO group for explicit questions. However, in the CR/RO group, the RO intervention yielded more correct answers. A comparison of means indicates that the RO intervention produced the most correct explicit scores while the IR intervention produced the fewest correct explicit scores.

Results indicate no significant difference in implicit scores between interventions. A comparison of means indicates that the RO intervention produced the most correct explicit scores while the IR intervention produced the fewest correct implicit scores.

Data Analysis for Research Question Four

For the purpose of analysis, the IR interventions from Group One and Group Two were combined to create one IR group. The RO interventions from Group One and Group Two were treated identically. The CR interventions from Group Three and Group Four were combined to create one CR group. The RO interventions from Group Three and Group Four were treated identically. A $t$-Test for Dependent Samples was used to analyze the data for the IR/RO and CR/RO groups. Results indicate no significant difference between DRA scores in the IR/CR group ($t(19)=0.5, p>.05$). Results indicate no significant difference between DRA scores in the CR/RO group ($t(19)=0.29, p>.05$). Tables 4 and 5 express the results.

Table 8: $t$-Test for Dependent Samples for DRA Scores: IR/RO group

<table>
<thead>
<tr>
<th>Intervention</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>$t$</th>
<th>df</th>
<th>$p$</th>
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</thead>
<tbody>
<tr>
<td>IR</td>
<td>20</td>
<td>10.60</td>
<td>3.87</td>
<td>0.5</td>
<td>19</td>
<td>0.34</td>
</tr>
<tr>
<td>RO</td>
<td>20</td>
<td>10.35</td>
<td>4.23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: No indication of significant difference, $p>0.05$. 
Table 9: $t$-Test for Dependent Samples for DRA Scores: CR/RO group

<table>
<thead>
<tr>
<th>Intervention</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>$t$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR</td>
<td>20</td>
<td>11.45</td>
<td>3.97</td>
<td>0.29</td>
<td>19</td>
<td>0.39</td>
</tr>
<tr>
<td>RO</td>
<td>20</td>
<td>11.15</td>
<td>4.17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: No indication of significant difference, $p>0.05$.

Summary response to research question four. Results indicate no significant difference between interventions when the DRA scores are compared. The mean scores for the interventions indicate that all interventions yield the same level of achievement in the DRA (scores between 9 and 12 are considered “Independent”). This suggests that all three conditions produce similar results in the DRA.

Data Analysis for Research Question Five

For the purpose of analysis, the IR interventions from Group One and Group Two were combined to create one IR group. The RO interventions from Group One and Group Two were treated identically. The CR interventions from Group Three and Group Four were combined to create one CR group. The RO interventions from Group Three and Group Four were treated identically. Raw scores indicated that most of the participants preferred all of the reading activities, and appeared to enjoy the stories when paired with or without music activities. Some participants selected a “Neutral Face” or “Sad Face”, however, the majority of participants selected a “Happy Face” as their preference rating for the conditions. Figure 4 illustrated the overall mean scores for preference rating by condition. It appears that the RO condition was slightly more preferred than the music conditions. The overall trend was that the RO condition was most preferred, followed by the CR condition and the IR condition respectfully.

Summary response to research question five. Overall, the majority of students in the present study preferred all three music/reading activities. However, a comparison of mean preference scores indicated that the RO condition was most preferred, followed by the CR and IR condition respectfully.
Figure 4: Comparison of Means for Preferences for Activities
CHAPTER FIVE
DISCUSSION

The purpose of this study was to compare the three selected music/reading activities on Kindergarten students’ implicit and explicit story comprehension scores, on-level and below-level story comprehension scores, retell abilities, and preferences for the three selected activities. Only three statistically significant differences were discovered: 1) a significant difference in overall FAIR scores between the RO and IR conditions, with the RO group producing higher scores, 2) a significant difference in overall FAIR scores between the RO and CR conditions, with the RO group producing higher scores, and 3) a significant difference in explicit FAIR scores between the RO and IR conditions, with the read only group producing higher scores. All other research questions did not produce statistically significant results. However, an overall trend emerged when comparing the mean scores of the three interventions: the RO intervention tended to yield the most correct answers across assessments, the most on-level answers and was rated as most preferred compared to the CR and IR interventions. The IR intervention tended to yield the fewest correct answers across assessments, the fewest on-level answers and was rated as least preferred compared to the CR and RO interventions.

Results in the present study may be due to a distraction caused by a novelty item (i.e. the instruments) and the variability of meaningful music exposure among Kindergarten-age children. Kindergarten children who are home-schooled are restricted to the music education and music resources of the teaching parent. Non-musician, teaching parents may be more likely to read or sing to the students than to seek out instruments to supplement academic material. Without a rapport with instruments, instruments might be overwhelming to a child in an assessment setting. The present study contradicts Azan’s (2012) finding that the IR condition was the most preferred condition. Additionally, that the IR intervention tended to be least preferred did not appear consistent with the interaction with the child. Children in the IR intervention smiled, laughed and occasionally used the instruments during their retell in the DRA. However, the preference assessment was administered after both the FAIR and the DRA were administered. It is possible that the child knew he/she was not answering the questions correctly, which lowered their overall preference of the activity. It is also possible that the child did not fully understand the preference question.
Relationship to Extant Literature

In the DRA, a lack of significant difference in comprehension scores across interventions is consistent with the findings of Azan (2012) and Clouser (2001). Clouser (2001) compared preschoolers’ comprehension when receiving a book set to music and a traditional reading of the book. Azan (2012) compared 2nd grade students’ comprehension when engaging in a story with a choral response, an instrumental response and a story with no music. Similar to the present study, Azan (2012) found the choral response condition yielded higher comprehension scores than the instrumental condition.

Music interventions have been found to successfully increase attention in the presence of distraction (Noguchi & Wolfe, 2009; Robb, 2003; Sussman, 2009), and the present study supports observations of engagement during the music interventions. Though on-task behavior was not specifically measured in the present study, on-task/engaged behavior was observed in the Kindergarten participants receiving the IR intervention. This corroboration suggests that an instrumental intervention is more closely related to attentive behaviors while a choral intervention is more closely related to improved comprehension. However, the lesser comprehension scores in the IR intervention appears to indicate that the child may have been attending to the opportunity to play the instrument to the exclusion of the story’s content. It may be that young children with immature impulse control are not developmentally prepared to interact with instruments during assessments of comprehension. Instrumental interventions to improve comprehension scores may be more appropriate for older students.

Teichert (1996), Ur (1984) and Bransford (1979) all support the use of pre-listening activities to enhance comprehension. Kashani et.al., (2010) suggest that any pre-listening activity, visual or otherwise, could have positive affects on comprehension. Anderson and Biddle (1975), however, assert that the success of pre-listening activities is dependent on the story and the abilities of the student. In their study, comprehension as a whole suffered due to the distractions caused by pre-reading questions. In the present study, the researcher did not spend time developing the music response as an advanced organizer; however, the music did introduce the idea of a storm (wind and/or thunder) before the story began. This could have functioned as an advanced organizer though it was not specifically presented as one. The present study contradicts Kashani et.al.’s, (2010) assertion that any pre-listening activity could have positive affects on comprehension. It is possible that the music acted as a distracter, considering the
music conditions tended to yield lower scores than the RO condition. This possibility is consistent with Anderson and Biddle (1975) who asserted that advanced organizers could act as distractions if not properly developed.

Gauleney (1995) found that children as young as Kindergarten and 1st grade have demonstrated better monitoring for understanding due to transfer of previous knowledge to text. In the present study, several children referred to the dog in Dan’s New Pet by the gender of their own dog or included in the retell activities they do with their dog that was not explicitly stated in the story. Though this investigation did not measure applications of background knowledge, it supports the above findings that Kindergarten students are capable of this comprehension strategy and can use it independently.

Similar to Azan’s study (2012), no significant difference in preference for the interventions (story with choral response, story with instrumental response and a no music control) was found. These findings may be due to the participants’ excitement about engaging in a different activity, meeting a new person, or simply doing anything that diverted from their typical schedule. In the present study, however, there may have been misunderstanding about the question. Despite repeated instruction, some participants circled the face they found most aesthetically pleasing or how they felt that day rather than how they liked the activity.

Limitations of the Present Study

Several factors may have influenced the results of this study. Prior music experience/knowledge was not investigated. In an effort to represent a Kindergarten classroom, this information was not gathered because it is not readily available to Kindergarten teachers. However, prior experience with instruments may have influenced the comprehension outcomes for participants in the IR intervention. On/Off-Task behavior was also not recorded in this study because attentiveness is not measured in the FAIR or the DRA. However, data describing this element could have provided a more complete picture of the effects of the interventions. An effort to limit distractions when administering the FAIR and the DRA in this study was made, however, it could not be guaranteed. Distractions during the assessment may have influenced the results. However, when the assessments are administered in the schools and a distraction negatively affects the child’s performance, no compensation is made for the student. The schedule of sessions may have also affects results. The sessions were scheduled at the convenience of the parents and most were completed with 1-2 days between sessions. However,
several participants received sessions that spread over two weeks. This inconsistency between participants may have influenced the data.

**Suggestions for Future Research**

A change to a complete counter-balanced design may also be advantageous. A suggested design is illustrated in Table 10.

<table>
<thead>
<tr>
<th></th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Trial 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>RO</td>
<td>IR</td>
<td>CR</td>
</tr>
<tr>
<td>Group 2</td>
<td>CR</td>
<td>RO</td>
<td>IR</td>
</tr>
<tr>
<td>Group 3</td>
<td>IR</td>
<td>CR</td>
<td>RO</td>
</tr>
</tbody>
</table>

This study supports the assertion that choral interventions are associated with higher comprehension scores while instrumental interventions are associated with improved attentive behaviors. The lesser comprehension scores with the IR intervention appear to indicate that the child was attending to the opportunity to play the instrument to the exclusion of the story’s content. Continued investigation is needed to determine if this trend is a function of age or inherent to the intervention.

The introduction of instruments in an assessment may have contributed to lower comprehension scores. However, it is unclear if the instruments were distracting because they were a novelty item or if the inclusion of instruments in an assessment at all is less than auspicious. Further investigation is needed to determine when to introduce instruments as a tool to increase comprehension to students who may not have prior experience with instruments. This information is important to music therapists who enter a classroom with varied musical abilities/exposure and to classroom teachers who want to incorporate music into their lessons.

The researcher believes that the most important suggestion for future research is the distinction between implicit and explicit comprehension questions as a function of age and musical ability. A meta-analysis is needed to examine what types of comprehension questions music therapists have been asking to what grade levels using different interventions. Significant
differences in comprehension have historically been difficult for music therapists to obtain. This may be because the wrong questions have been asked to certain grade levels. For instance, Kindergarten students may not be able to consistently answer implicit questions until the second half of the school year, choral interventions may be more affective for students with limited musical/instrumental exposure, or instrumental interventions may be more affective to encourage participation rather than improved comprehension scores. Considering Register et al. (2007) found a significant difference between music interventions and comprehension scores with students with a reading disability, these aforementioned questions should also be applied to the special ed. population.

Conclusions

Achievement in comprehension is a skill that transcends all activities of living. It is therefore necessary to find economical methods of improving comprehension abilities in school-age children. Previous studies support improved comprehension with music interventions, though significant improvements have only been found with students with a SLD in reading. This study supports the use of choral interventions to positively affect comprehension while instrumental interventions can positively affect attentive behaviors. Further investigation is necessary to explore the use of instrumental interventions to improve comprehension as a function of age/maturity. Currently, Common Core has replaced the FAIR in public schools. Music therapists must examine comprehension assessments used in Common Core in an effort to remain relevant to the classroom. Though the FAIR has become outdated since this study was conducted, the FAIR highlighted the need to specifically examine implicit and explicit comprehension questioning in future music therapy studies.
APPENDIX A

APPROVAL FORM

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742

APPROVAL MEMORANDUM

Date: 1/31/2013

To: Lauren Morrow

Address: 2353 Mission Rd. Apt C-4 Tallahassee, FL 32304
Dept.: MUSIC SCHOOL

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
A Comparison of Three Selected Music/Reading Activities on Kindergarten Students’
Listening Comprehension, Story Recall and Preference For the Three Selected Activities

The application that you submitted to this office in regard to the use of human subjects in
the research proposal referenced above has been reviewed by the Human Subjects
Committee at its meeting on 12/12/2012. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except
to weigh the risk to the human participants and the aspects of the proposal related to
potential risk and benefit. This approval does not replace any departmental or other
approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped
consent form is attached to this approval notice. Only the stamped version of the consent
form may be used in recruiting research subjects.

If the project has not been completed by 12/11/2013 you must request a renewal of
approval for continuation of the project. As a courtesy, a renewal notice will be sent to you
prior to your expiration date; however, it is your responsibility as the Principal Investigator
to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and
approved by the Committee prior to implementation of the proposed change in the
protocol. A protocol change/amendment form is required to be submitted for approval by
the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Alice-Ann Darrow, Advisor
HSC No. 2012.9480
The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
FAX

APPROVAL MEMORANDUM (for change in research protocol)

Date: 10/28/2013

To: Lauren Morrow [laurenmorrow@me.com]
Address: 2353 Mission Rd. Apt C-4 Tallahassee, FL 32304
Dept.: MUSIC SCHOOL

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research (Approval for Change in Protocol)
Project entitled: A Comparison of Three Selected Music/Reading Activities on Kindergarten Students’ Listening Comprehension, Story Recall and Preference For the Three Selected Activities

The form that you submitted to this office in regard to the requested change/amendment to your research protocol for the above-referenced project has been reviewed and approved.

Please be reminded that if the project has not been completed by 12/11/2013, you must request renewed approval for continuation of the project.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Alice-Ann Darrow, Advisor [aadarrow@fsu.edu]
HSC No. 2013.11047
APPENDIX B
PARENTAL CONSENT FORMS

Florida State University
College of Music
Music Therapy Department

Researcher: Lauren Morrow
Tallahassee, FL, 32304. Tel: Email:
Office of Research: Florida State University Tel:
Thesis Director: Dr. Alice-Ann Darrow
Tel: Email:
College of Music Tel: Email:

My name is Lauren Morrow and I am a graduate student in the Music Therapy Department at Florida State University. Your child is invited to participate in a research study involving music/reading activities designed for listening comprehension, story recall and preference for the activities. Please read this form and ask any questions you may have before agreeing to allow your child to participate in this study. Your child may withdraw from the study at any time without penalty or prejudice.

The purpose of this study is to determine if music/reading activities are helpful with Kindergarten students' listening comprehension skills, story recall skills and if they enjoy music when paired with reading. In addition to the music/reading activity, there will be three individual assessments: 1) your child will answer five questions for listening comprehension, 2) retell the story in his/her own words and 3) complete a preference assessment for the activity. All individual assessments will be coded to preserve your child's confidentiality in this study. Transcripts of the activities will also be coded and stored on the researcher's personal, password protected computer.

If you agree to allow your child to participate, your child will participate in three individual music/reading activities for about 20 minutes each time. The study will take place in the home at a time most convenient for you. The researcher will coordinate with you a schedule for the activities. The entire study will take 3-4 weeks to complete, however, once your child has completed the three activities during that time frame, he/she will no longer be needed for the study.

All activities will be conducted at a time and in an area designated by you. All activities will be audio/ video recorded for data collection purposes only. Please read the following page about recordings. Should you have any questions, please contact the researcher via the contact information provided above.

FSU Human Subjects Committee approved on 9/06/2013. Void after 12/11/2013. HSC # 2013.11047
Confidentiality Protection Protocol

Please read the following for recordings in this study:

Audio/video recording will take place during this study for individual analysis and reporting purposes. The researcher will record all activities. Activities will include a music/reading activity, a listening comprehension assessment, a recall assessment, and a preference assessment. Using the recordings of individual activities, the researcher will write a transcript of your child’s responses for analysis. Data will be reported in the research report and your child’s name will be coded to maintain confidentiality.

The recording device used for recording of activities during this study is the researcher’s personal property. Also, the recordings of the activities will be the property of FSU Music Therapy Department and will be stored in a locked cabinet by the researcher. Recordings from this study will be used for individual data collection only. Lauren Morrow (researcher) and Dr. Alice-Ann Darrow (Thesis Director) will have access to the recordings. All recordings will be destroyed by June 1, 2014.

Contact information is necessary to schedule the music/reading activities. This information will be used by the researcher and will be stored in a locked cabinet. Contact information will be destroyed after the three music/reading activities are completed.

Participation in this study is voluntary and there is no penalty for non participation. Children whose parents do not give permission for their child to participate and be recorded will not be included in the recordings or the study.

I understand that my child will be recorded by the researcher. These recordings will be kept by the researcher in a locked filing cabinet and used for data collection for this study only. I understand that only the researcher and Department Head will have access to these recordings, which will be destroyed by JUNE 1, 2014.

I hereby consent for my child, ____________________________, to participate in this study. I may be contacted at: (cell) ____________________________
(email) ____________________________

I would like to know the results of the study upon completion. The results can be emailed to me at the address provided above.
I would not like to know the results of the study upon completion.

Name of Parent/Guardian (print): ____________________________
Signature of Parent/Guardian: ____________________________ Date: __________

If you have any questions about your child’s rights as a subject/participant in this research, or if you feel you or your child have been placed at risk, you may contact the Chair of the Human Subjects Committee through the Vice President for the Office of Research at __________

FSU Human Subjects Committee approved on 9/06/2013. Void after 12/11/2013. HSC # 2013.11047
APPENDIX C

TASK ANALYSIS FOR STORY #1 RO INTERVENTION

1. The researcher will greet the student and explain that this story will be read to the student. The student is asked to remain seated during this story.

2. Script: “Listen while I read 'Dan’s New Pet'. When I’m finished, I will ask you a few questions. Ready? Listen carefully!”

3. The researcher will read the story.

4. After the story has been read, the researcher will continue with the script: “Now I’m going to ask you some questions about the story.” The researcher will continue with the five comprehension questions as scripted for the story.

5. The student will orally answer the five questions about the story. The researcher will not prompt the student. The student’s answers will be recorded via an audio/video recording device.

6. The researcher will continue with the script: “Start at the beginning, and tell me what happened in the story.”

7. The student’s oral account will be recorded via an audio/video recording device. The approved prompts will be used as necessary.

8. Once the student has finished retelling the story, the researcher will show the student the preference assessment. The researcher will explain to the student what the faces on the preference assessment mean and ask the student to point to the face that shows how well the student enjoyed the music/reading activity.

9. After the preference assessment has been completed, the researcher will accompany the student back to his/her parent(s).
APPENDIX D

TASK ANALYSIS FOR STORY #2 CR INTERVENTION

1. The researcher will greet the student and explain that the student will sing during special parts of the story.
2. The researcher will model the choral response for and practice with the student.
3. The researcher will ask if the student has any questions before beginning the music/reading activity. Once all clarification is made, the researcher will begin the music/reading activity.
4. Script: “Listen while I read 'A Stormy Day'. When I’m finished, I will ask you a few questions. Ready? Listen carefully!”
5. After the story has been read, the researcher will continue with the script: “Now I’m going to ask you some questions about the story.” The researcher will continue with the five comprehension questions as scripted for the story.
6. The student will orally answer the five questions about the story. The researcher will not prompt the student. The student’s answers will be recorded via an audio/video recording device.
7. After the student has finished retelling the story, the researcher will continue with the script: “Start at the beginning, and tell me what happened in this story.”
8. The student’s oral account will be recorded via an audio/video recording device. The approved prompts will be used as necessary.
9. Once the student has finished answering the questions, the researcher will show the student the preference assessment. The researcher will explain to the student what the faces on the preference mean and ask the student to point to the face that shows how well the student enjoyed the music/reading activity.
10. After the preference assessment has been completed, the researcher will accompany the student back to his/her parent(s).
APPENDIX E

TASK ANALYSIS FOR STORY #2 IR INTERVENTION

1. The researcher will greet the student and explain that the student will play the instruments during special parts of the story.
2. The researcher will pass out the instruments and ask the student to follow directions by leaving the instruments on the floor until further instructions.
3. Once all the instruments have been passed out, the researcher will model how to properly play the instruments.
4. The researcher will ask the student to play each instrument and make any necessary adjustments. The researcher will allow the student to explore playing the instruments.
5. When the student is comfortable playing the instruments, the researcher will ask the student to place the instruments on the floor.
6. The researcher will then explain to the student that each instrument represents a specific sound in the story (the thunder-tube represents sound of thunder; the ocean drum represents the sound of wind).
7. The researcher will explain that there is a special signal for the student so the student knows to stop playing the instrument and return it to the floor.
8. The researcher will explain that the student will start playing the instrument when he/she hears the special word in the story and stop playing when he/she sees the special signal to stop playing.
9. The researcher and student will practice the aforementioned task. The researcher will ask if the student has any questions before beginning the music/reading activity. Once all clarification is made, the researcher will begin the music/reading activity.
10. Script: “Listen while I read ‘A Stormy Day’. When I’m finished, I will ask you a few questions. Ready? Listen carefully!”
11. After the story has been read, the researcher will continue with the script: “Now I’m going to ask you some questions about the story.” The researcher will continue with the five comprehension questions as scripted for the story.
12. The student will orally answer the five questions about the story. The researcher will not prompt the student. The student’s answers will be recorded via an audio/video recording device.
13. The researcher will continue with the script: “Start at the beginning, and tell me what happened in this story.” The student’s oral account will be recorded via an audio/video recording device. The approved prompts will be used as necessary.

14. Once the student has finished retelling the story, the researcher will show the student the preference assessment. The researcher will explain to the student what the faces on the preference mean and ask the student to point to the face that shows how well the student enjoyed the music/reading activity.

15. After the preference assessment has been completed, the researcher will accompany the student back to his/her parent(s).
APPENDIX F
STORY 1 AND FAIR

Group #: _____; Participant #: _____; Story #: 1; Date: _____

Script: “Listen while I read ‘Dan’s New Pet’. When I’m finished, I will ask you a few questions. Ready? Listen carefully!”

Dan’s New Pet

Dan had always wanted a pet of his own, but his parents said having a pet is a big responsibility. Dan read books to learn how to take care of a pet. He learned about feeding, and bathing and exercising a pet. One day, Dan’s parents came home with a little puppy for Dan. He couldn’t believe it! Dan loved his new puppy and named her Fluffy. Dan took very good care of Fluffy. He walked her every day and made sure she had food and fresh water. They were best pals!

One morning, Dan couldn’t find Fluffy. “Where could she be?” thought Dan. He looked in the kitchen and he looked in the backyard. Then Dan saw the garage door was open. “Oh no!” cried Dan, “Where’s Fluffy?” Dan ran to his parents and they all began to search for the puppy. Together they could not find her. Dan came inside. He made a lost pet poster with a picture of Fluffy. As he stepped out the front door to hang the poster, he saw his puppy asleep on the welcome mat. “There you are!” said Dan as he hugged her. Fluffy jumped up and licked Dan’s face. “You must be happy to see me too. I’m so glad you’re home” said Dan.

Script: ”Now I’m going to ask you some questions about the story.”
Assessment Modeled After FAIR:

Script: NO PROMPTING

<table>
<thead>
<tr>
<th>E/I</th>
<th>Question</th>
<th>Acceptable Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>What kind of animal does Dan get for a pet?</td>
<td>a puppy; a dog</td>
</tr>
<tr>
<td>E</td>
<td>Who gave Dan his new pet?</td>
<td>mom and dad; his parents</td>
</tr>
<tr>
<td>E</td>
<td>What does Dan do to take care of Fluffy?</td>
<td>walks her, feeds her, gives her water</td>
</tr>
<tr>
<td>I</td>
<td>How did Dan know Fluffy was missing?</td>
<td>he couldn’t find her; the garage was open</td>
</tr>
<tr>
<td></td>
<td>How did Dan know Fluffy was happy to see him?</td>
<td>she jumped and licked him</td>
</tr>
</tbody>
</table>

Check for correct answers:

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____
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APPENDIX G

STORY 2 AND FAIR

Group #: ____; Participant #: ____; Story #2; Date: ____

*Instrumental Response: represented in bold
**Choral Response: represented in bold and underlined

Script: “Listen while I read 'A Stormy Day'. When I’m finished, I will ask you a few questions. Ready? Listen carefully!”

A Stormy Day

Joe’s parents told him a storm was coming. Joe knew there would be a lot of thunder, a lot of rain and a lot of wind. But right now it was bright and sunny and Joe wanted to play outside.

There was a little bit of wind outside, perfect for flying a kite. Before Joe went outside, his Mom told him to watch the sky for dark clouds and to listen for thunder. “I’ll be careful” said Joe as he grabbed his favorite kite and ran to the front yard. Joe was having a fun time flying his kite in the gentle wind. But soon, the wind got stronger and the kite was hard to control. “The storm must be near” thought Joe, “I better go inside”. He began to pull his kite in as a dark cloud covered the sun. In the distance, Joe heard thunder. Just as he stepped inside his house, the rain began to fall. Joe frowned. He was disappointed that he couldn’t play outside anymore. “Lets play a game”, said Joe’s dad “What should we play?”. Joe smiled and said “How about a card game!” Joe and Dad played the game all afternoon. Later, Dad said “The thunder stopped, the rain stopped and the wind stopped. Do you want to go back outside, Joe?” “No, I want to play cards” said Joe.

Script: "Now I’m going to ask you some questions about the story."
Assessment Modeled After FAIR:

Script: NO PROMPTING

<table>
<thead>
<tr>
<th>E/I</th>
<th>Question</th>
<th>Acceptable Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>What did Joe’s parents tell him was coming?</td>
<td>a storm - storm/wind/thunder not acceptable</td>
</tr>
<tr>
<td>E</td>
<td>What did Joe do outside before the storm?</td>
<td>flew a kite</td>
</tr>
<tr>
<td>E</td>
<td>Who played a game with Joe?</td>
<td>his dad</td>
</tr>
<tr>
<td>I</td>
<td>How did Joe know the storm was near and he needed to go inside?</td>
<td>strong wind; thunder; dark clouds; getting darker outside; the kite was hard to control</td>
</tr>
<tr>
<td></td>
<td>How do you know Joe liked playing the game with his dad?</td>
<td>he smiled; he kept playing after the storm stopped.</td>
</tr>
</tbody>
</table>

Check for correct answers:

____
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____
APPENDIX H
DRA

Script: "Start at the beginning, and tell me what happened in the story."

Approved Prompts:
"Tell me more."
"What happened at the beginning?"
"What happened before/after _____________ (an event mentioned by the student)?"
"Who else was in the story?"
"How did the story end?"

<table>
<thead>
<tr>
<th>Retelling: Sequence of Events</th>
<th>Emerging</th>
<th>Developing</th>
<th>Independent</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Includes only 1 or 2 events or details (limited retelling)</td>
<td>2. Includes at least 3 events, generally in random order (partial retelling)</td>
<td>3. Includes most of the important events from the beginning, middle and end, generally in sequence</td>
<td>4. Includes all important events from the beginning, middle and end in sequence</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retelling: Character and Details</th>
<th>Emerging</th>
<th>Developing</th>
<th>Independent</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Refers to characters using general pronouns; may include incorrect information</td>
<td>2. Refers to characters using appropriate pronouns; includes at least one detail; may include misinterpretation</td>
<td>3. Refers to most characters by name and includes some important details</td>
<td>4. Refers to all characters by name and includes most of the important details</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retelling: Vocab.</th>
<th>Emerging</th>
<th>Developing</th>
<th>Independent</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Uses general terms or labels; limited understanding of key words/concepts</td>
<td>2. Uses some language/vocabulary from the text; some understanding of key words/concepts</td>
<td>3. Uses language/vocabulary from the text; basic understanding of most key words/concepts</td>
<td>4. Uses important language/vocabulary from the text; good understanding of key words/concepts</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retelling: Teacher Support</th>
<th>Emerging</th>
<th>Developing</th>
<th>Independent</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Retells with 5 or more questions or prompts</td>
<td>2. Retells with 3 or 4 questions or prompts</td>
<td>3. Retells with 1 or 2 questions or prompts</td>
<td>4. Retells with no questions or prompts</td>
<td></td>
</tr>
</tbody>
</table>

Total points: ______ out of 16 possible points
APPENDIX I

PREFERENCE ASSESSMENT
Story 2 - Choral Response Condition

Lauren Martin

Wind blows all around.
REFERENCES


BIOGRAPHICAL SKETCH

Education
Bachelor’s of Music in Music Therapy, cum laude with honors     2011
Successfully Defended Honor’s Thesis     2010

Professional Experience
Music Therapist, Rhythms for Living     2014
Child Care Provider     2014
Councilor, Camp Adventure     2013
TA for Psychology of Music, Beginning Guitar and Intermediate Guitar     2012-2013
Guitar Teacher, FSU Band Camps, Middle School and High School     2012
Music Therapy Intern, Big Bend Hospice     2010-2011
Music Consultant, Cimino Elementary     2010

Certifications
First Aid/ CPR/ Lifeguard/ Mandatory Reporter of Child Abuse Certifications     2013
Orff-Schulwerk Level I     2012
Board Certification in Music Therapy (Certification Number: *10070)     2011
Neonatal Music Intensive Care Unit Music Therapy Certifications     2011