

LITERACY BEHAVIORS OF PRESCHOOL CHILDREN

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Master of Science

in

The School of Human Ecology

by  
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B.S., Florida A&M University, 2003  
August 2006

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## ABSTRACT

Research on emergent literacy states that young children learn about reading and writing through experiences with oral and written language. The purpose of this study was to examine the frequency that individual preschool children voluntarily engaged in literacy behaviors during free choice in the classroom. The sample consisted of nine preschool children from low-income families enrolled in three classrooms in an urban preschool program. The classroom environment was assessed using the Early Language and Literacy Classroom Observation (ELLCO - Smith & Dickinson, 2002), which provides information on how well the classroom environment supports early literacy development. Literacy behaviors were measured during center time, a period when children are allowed to choose their activities. Intervention consisted of (1) adding literacy props to centers based on the needs identified by the ELLCO and (2) a teacher mediation intervention. Results were consistent with previous studies in that the addition of literacy props paired with teacher mediation led to an increase in literacy behaviors among preschool children.

## CHAPTER 1. INTRODUCTION

### **Statement of Problem**

Research has found that many children from low-income families have fewer experiences with reading and writing at home than children from middle-class families (Dickinson & Snow, 1987; Washington, 2001; Whitehurst et al., 1994). Therefore, they enter school with limited knowledge in emergent literacy skills which can lead to future problems with conventional reading and writing (Justice, Chow, Capellini, Flanigan, & Colton, 2003; Whitehurst et al., 1994). High quality preschool programs can assist *at-risk* children by providing them with meaningful literacy experiences within a print-rich environment.

One way to provide at-risk children with meaningful literacy experiences is through play. Research has found that adding literacy props to children's play environments can significantly increase literacy behaviors during play (Morrow & Rand, 1991; Neuman & Roskos, 1994). Although many studies have documented the effects of literacy props on play behaviors, few researchers have studied the specific literacy behaviors of individual children. In addition, little is know about how play-based emergent literacy interventions affect the behaviors of individual preschool children.

### **Justification**

On January 8, 2002 President George W. Bush signed the No Child Left Behind (NCLB) Act. A major goal of this act is to decrease the achievement gaps between different groups of children (Blaustein, 2005). One component of NCLB is the development of the Early Reading First Program. Through this program, the federal government provides funding for preschools and early childhood programs serving children ages three through five from low-income families to support the development of pre-reading skills. The support of these early childhood programs

is intended to help attain the goal set forth in NCLB that every child learns to read on grade level by third grade (Kauerz, 2002).

One concern expressed by early childhood educators regarding NCLB is that with increasingly higher expectations in reading skills for children in kindergarten, teachers in preschool programs will revert to using developmentally inappropriate practices in order to push children to learn how to read (Blaustein, 2005). According to the joint position statement by the International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC) (1998), preschool classrooms should be print-rich environments that “provide opportunities for children to see and use written language for a variety of purposes, with teachers drawing children’s attention to specific letters and words” (p. 3). Although they suggest some teacher-guided activities that promote phonemic awareness, the authors state that children should be given opportunities to explore literacy in meaningful contexts such as play.

Because of the emphasis by parents, educators, and politicians for children to become successful readers, beginning reading skills are gaining more recognition. Many now acknowledge that reading and writing skills develop before children enter school and in order to decrease reading difficulties with school-age children, interventions should begin early (Blaustein, 2005; Watkins & Bunce, 1996; Whitehurst et al., 1994). Supporting the development of emergent literacy skills in preschool children is expected to lead to more successful future readers and writers (Early Literacy Panel, 2005; IRA & NAEYC, 1998).

One evidence-based approach to supporting emergent literacy skills is literacy-related play. Research has indicated that manipulating classroom environments can encourage literacy-related play, which results in an increase in children’s emergent literacy knowledge (Justice & Pullen, 2003). Literacy-related play is a practical and meaningful way for teachers to support literacy development in preschool children.

## **Conceptual Framework**

The guiding framework for this study is based upon the Constructivist view. Unlike the maturationist and behaviorist views, this view holds that children take an active role in shaping their own development (Hall, 1987). Constructivists believe that children construct knowledge through interactions with the environment (Brewer, 2001). They would argue that free-choice center time in early childhood classrooms provides opportunities for children to explore their environment and construct new knowledge. Two well-known constructivist scholars were Jean Piaget and Lev Vygotsky. Jean Piaget was a Swiss biologist and epistemologist who studied cognitive development of young children. He believed that children construct knowledge through interactions with the environment (Mooney, 2000). According to Piaget, cognitive development is a continuum that passes through four stages: sensorimotor, preoperational, concrete operational, and formal operational. He believed that children enter these stages at different times, and as development progresses they rely on more complex thinking patterns (Brewer, 2001). Like Piaget's stages of cognitive development, emergent literacy is believed to be a process in which increasingly more complex literacy knowledge and skills are developed over time.

Piaget also described the process by which he believed children construct knowledge. He developed three concepts to describe the learning process: accommodation, assimilation, and equilibrium. Accommodation is the process of creating a new category, or schemata, for inputting information. Assimilation is the process of organizing new information into a pre-existing schemata. Equilibrium results when information is organized either by accommodation or assimilation (Brewer, 2001). Information gained through children's experiences is believed to be organized through these processes. According to this theory, as children learn new concepts

about print, either accommodation or assimilation will occur as they arrange new information into new or existing schematas.

Lev Vygotsky studied Piaget's work. Like Piaget, he also believed that children construct knowledge through their experiences. However, Vygotsky emphasized that knowledge is constructed within a social context. The social context includes the values and beliefs of the family and people in a child's life (Mooney, 2000). Vygotsky believed that these values and beliefs influence how children think and learn (Mooney, 2000). His belief that learning occurs within a social context is evident in the emergent literacy perspective, for it is believed that the home environment greatly affects children's literacy knowledge.

An important concept in Vygotsky's theory is the zone of proximal development. The zone of proximal development is the range between what a child can do independently and what a child can successfully do with some support (Brewer, 2001). Vygotsky believed that parents, teachers, and peers should support children within their zone of proximal development by providing guidance during meaningful activities. He referred to this guidance as scaffolding. The act of scaffolding has become an important component in the process of literacy development. Although the emergent literacy perspective states that children learn about reading and writing naturally through experiences, it is also acknowledged that children need adult support, or scaffolding, to learn some reading and writing concepts (Gunn, Simmons, & Kameenui, 1995).

Both Piaget and Vygotsky considered play an important context for children to construct knowledge and internalize concepts (Mooney, 2000). Piaget believed play enabled children to learn about the world around them. He also believed that adults should nurture and support children's inquiries and provide children with meaningful, hand-on activities. While Vygotsky stressed the role of adults in supporting play, he also emphasized that play should include

conversations and interactions with others (Mooney, 2000). Both Piaget and Vygotsky viewed play as an important activity that supports children's development. The emergent literacy perspective also acknowledges the importance of play, for it is believed that experiences with reading and writing during play support children's literacy development (IRA & NAEYC, 1998).

Both Piaget's and Vygotsky's ideas are woven within the emergent literacy perspective. The emergent literacy perspective holds that young children learn about reading and writing naturally through experiences with oral and written language (Gunn, et al, 1995). This view is consistent with the constructivist view that children construct knowledge through interactions with the environment. Both the constructivist view and the emergent literacy perspective acknowledge meaningful experiences, the social context, adult support, and play as important influences on a child's cognitive development.

### **Purpose**

The purpose of this study was to determine if the addition of literacy props to the play environment, paired with teacher mediation, would have an effect on individual children's literacy behaviors.

### **Limitations**

1. The present study examined the frequency of literacy-related behaviors of children, but not the quality of the behaviors.
2. The common practice in the preschool is to rotate themes or topics of study periodically.

The novelty/change of materials could have impacted where children spend their time.

### **Assumptions**

The following assumptions guided the study:

1. Repeated observations of children's literacy behaviors were representative of each child's average literacy behaviors.

2. Literacy-based play increases knowledge about reading and writing.

**Definition of Terms**

1. Literacy Behaviors - Actions that are related to reading and writing.
2. Free-Choice Centers – The period of time during the school day in which children are allowed to choose the interest areas in which they would like to play.
3. Literacy Props – Materials that encourage reading or writing behaviors, as defined by the ELLCO.
4. Teacher Mediation - The guidance, modeling, and support given to assist children in performing a particular skill and/or behavior.

## CHAPTER 2. REVIEW OF LITERATURE

A review of literature was conducted to provide a framework for the present study. The review of literature consists of an overview of the historical perspective of literacy, a summary of current views of emergent literacy, a review of emergent literacy interventions, and more specifically, a review on literacy-related play interventions. The historical perspective of literacy provides information on the development of the emergent literacy perspective. The summary of current views of emergent literacy defines emergent literacy and identifies specific components of the perspective. The review of emergent literacy interventions provides information on popular trends and methods in studies relating to emergent literacy. A review of literacy-related play interventions provides information about the design, methods, and findings of past studies that significantly relate to the present study.

### **Historical Perspective of Literacy**

Over the past thirty years, views of early literacy have changed dramatically (Brewer, 2001). Once guided by the maturationist perspective, current views of early literacy are based upon the constructivist perspective. Over time, the various perspectives on how children learn to read and write have guided educational programs and governmental policies (Brewer, 2001).

The concept of “reading readiness” was the basis of traditional reading instruction practices (Hall, 1987). Based upon the maturationist perspective, the ability to read was believed to develop through direct, explicit instruction on decoding skills when children were physically and mentally “ready”. Early views of readiness neglected to recognize the skills and learning that preceded conventional reading. It also neglected to recognize reading and writing as a related process (Hall, 2003).

It was not until the late 1960’s and early 1970’s that interest began to shift to studying reading development prior to formal schooling. Researchers like Marie Clay, Frank Smith, and

Kenneth Goodman began to examine young children's behaviors while engaging in literacy activities (Hall, 1987; Hall, Larson, & Marsh, 2003). They found that even before children reached the period of "readiness" they possessed some knowledge about reading and writing.

During the 1970's and early 1980's there was an increase in studies that examined literacy before formal schooling (Hall, 2003). The results of these studies led to the assumption that reading and writing develop along a continuum that begins in early childhood and that young children play a significant role in developing literacy knowledge. The term "emergent" was used to refer to the process of literacy development and the various forms of literacy behaviors that develop in young children before they begin formal schooling. (Gunn et al., 1995).

The belief that children play an active role in developing literacy knowledge was based upon the Constructivist theory (Hall, 1987). Constructivists believe that children construct knowledge through experiences with the environment, and that cognitive development occurs within a social context. Reading programs that are guided by constructivism provide children with meaningful opportunities to construct literacy knowledge and provide adult mediation to help children develop more specific skills (Brewer, 2001). As the emergent literacy perspective gained prominence, research in this new area of literacy continued to develop.

### **Emergent Literacy**

The emergent literacy perspective states that young children learn about reading and writing naturally through experiences with oral and written language. Even before children formally enter school they learn basic concepts about reading, writing, and print (Sulzby & Teale, 1991). Exposure to oral and written literacy experiences help children develop concepts that are fundamental to future reading success.

The term “emergent literacy” often refers to the skills, knowledge, and attitudes that precede conventional forms of reading and writing (Whitehurst & Lonigan, 1998). The specific skills and areas of knowledge that compose emergent literacy vary according to the authors. For example, one article identifies oral language as an area of knowledge (Smith, Sangeorge, & Anastasopoulos, 2002), while another identifies the relationship between speech and print as an area of knowledge (Gunn, Simmons, & Kameenui, 1995). Although there are similarities between some terms, they often do not measure the same skill. The use of different terminology and constructs of emergent literacy have led to difficulties in comparing the results of various studies (National Early Literacy Panel, 2005).

In a synthesis of emergent literacy research, Gunn et al. (1995) divided literacy knowledge into 5 areas: awareness of print, knowledge of relationship between speech and print, text structure, phonological awareness, and letter naming and writing. Awareness of print includes understanding the conventions, purpose, and function of print. Knowledge of the relationship between speech and print includes an understanding that people read print (as opposed to pictures) and that oral language can be represented through print. Knowledge of text structures includes the understanding that reading sounds different for different types of text (e.g., non-informational text and fairy tales). It also includes the ability to discern different elements of a story (e.g., the beginning and the end). Phonological awareness is the ability to distinguish individual sounds in spoken words. Letter naming is closely related to phonological awareness because it helps children connect sounds to letters and prepares children for writing.

Emergent literacy skills are believed to develop from birth to approximately six years of age (Justice et al., 2003). The preschool years have been identified as an important period of emergent literacy growth because it is the time when children develop fundamental literacy knowledge and skills (Watkins & Bunce, 1996). Justice and Pullen (2003) identified the

preschool years as critical to the development of emergent literacy skills. Based on this assumption, it is reasonable to target the preschool years for emergent literacy interventions.

### **Emergent Literacy Interventions**

Emergent literacy skills develop within a child's social and cultural contexts (Hall, 2003). Ideally, the environment and the people within the child's environment foster and promote literacy development. However, some children enter school with limited literacy experiences that put them at risk for developing later difficulties with literacy (Copeland & Edwards, 1990; Mason & Allen, 1986). Oral language impairments, developmental delays, and low socio-economic status have been associated with emergent literacy difficulties (Justice et al., 2003). Snow, Burns, and Griffin (1998) suggest implementing preventive intervention for children at risk for developing reading difficulties.

Many intervention studies were designed to determine the relationship between specific literacy skills or experiences and future reading achievement. One of the most researched emergent literacy skills is phonological awareness (Gunn et al., 1995). Several studies have shown a relationship between phonological awareness skills and future success in conventional reading and writing (Byrne & Fielding-Barnsley, 1991; Justice et al, 2003; Whitehurst, et al., 1994). Byrne and Fielding-Barnsley (1991) conducted one of the most comprehensive studies on the correlation between phonological awareness and future reading achievement. Six years following intervention, preschool children that received small-group phonological awareness instruction continued to show higher reading achievement than preschool children who received small-group vocabulary instruction. Few longitudinal studies have measured the relationship between emergent literacy skills and future reading achievement. Early experiences with books (Scarborough, Dobrich, & Hager, 1991; Sénéchal & LeFevre, 2002) and early phonological

skills (Passenger, Stuart, & Terrell, 2000) are two emergent literacy skills that have been associated with future reading achievement.

Another intervention approach has focused on identifying adult-child interactions that foster literacy development. This includes parent-child interactions as well as teacher-child interactions. One of the most researched areas within this construct is story book reading. Reading aloud to children has been identified as a key component to the development of emergent literacy skills. In a study of typically developing preschoolers, print referencing by parents during story book reading was associated with higher performances on word awareness, segmentation, and print concept tasks (Justice & Ezell, 2000).

Other intervention studies have examined the physical environment and its influence on literacy learning (Morrow & Rand, 1991). The International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC) recommend that children from birth through preschool are exposed to print-rich environments that enhance their concepts about print (IRA & NAEYC, 1998). Interventions that target environmental influences often examine specific artifacts and components within the home or school environment that support literacy development. One area of research within this construct is environmental modification interventions that support literacy.

### **Environment Modification and Teacher Mediation Interventions**

The classroom environment can contribute to the development of literacy concepts in young children (IRA & NAEYC, 1998). Research has indicated that manipulating classroom environments can encourage literacy-related play, which results in an increase in children's emergent literacy knowledge (Justice & Pullen, 2003). According to Developmentally Appropriate Practices developed by the IRA & the NAEYC (1998), the classroom environment should support literacy-related play because it gives children an opportunity to practice and

extend emergent literacy skills. Including literacy props in centers provides children with natural, meaningful opportunities to learn about literacy.

Play-based emergent literacy interventions have focused on three areas: physical arrangement of objects in the environment (Morrow & Rand, 1991), literacy props (Neuman & Roskos, 1990), and adult mediation (Justice & Ezell, 2000). In some studies, two or three of the areas are combined into a single intervention. For example, one study examined the effects of changing the physical arrangement of two preschool classrooms and adding literacy props (Neuman & Roskos, 1990). The researchers found that after the intervention, children's literacy play became more purposeful, more situated, more connected, more interactive, and more role-defined.

Many studies have examined the relationship between literacy props and adult mediation (Christie & Enz, 1992; Morrow & Rand, 1991; Neuman & Roskos, 1993). The interventions in these studies mainly target literacy behaviors in the dramatic play center in preschool classrooms. The effect of environmental changes and teacher behaviors on voluntary literacy behaviors was measured in a study of preschool and kindergarten classes (Morrow & Rand, 1991). Literacy behaviors were divided into three categories: reading, writing, and paper handling. Thirteen classrooms were assigned to one of four groups: new paper, pencils, and books with teacher guidance; new veterinarian dramatic play center with teacher guidance; new veterinarian dramatic play center without teacher guidance; and a control group. The two groups that received teacher guidance along with the new materials showed significantly higher numbers of literacy behaviors than the other two groups. This led the researchers to the conclusion that the teacher plays an important role in supporting literacy activities.

A similar study was conducted to examine the effect of literacy play interventions on children's social-cognitive interactions and literacy play during free-choice centers (Christie &

Enz, 1992). The sample consisted of 32 children from a half-day preschool program (17 from the morning class and 15 from the afternoon class). Play behaviors were observed for 4 weeks prior to the addition of literacy materials to the dramatic play center. In the morning class, teachers and research assistants used suggestions and modeling to support children's use of literacy materials in the dramatic play center. In the afternoon class, literacy materials were also added but teachers and research assistants did not offer direct support with materials. Following the 20-week intervention, play behaviors were observed again for 4 weeks. In the Materials Only Group, functional play (repetitive motor activity with or without objects) increased and dramatic play (role-playing) increased. No significant changes were observed in the type of play among children in the Materials Plus Adult Involvement group. Literacy-related play increased in both groups, with the most dramatic gains displayed by the Materials Plus Adult Involvement Group. Children in the morning class continued to engage in literacy-related play even when adult support was removed. However, researchers noted that not all children showed increases in the frequency of literacy play. This was attributed to the limited time these children spent in the dramatic play center.

Few studies have examined the relationship between literacy-related play and the development of specific literacy skills. One study that has examined this relationship was conducted by Neuman and Roskos (1993). The study examined the effects of environmental modification and adult mediation on preschool literacy behaviors and their ability to read functional print. Three cohorts were used; classrooms in Cohort 1 received an office center and adult mediation; classrooms in Cohort 2 received an office center; and classrooms in Cohort 3 served as the control group. The sample consisted of 138 preschoolers from low-income homes. Children were selected from eight Head Start classes. Parents were selected to serve as mediators during play. They were told to support children's literacy behaviors during play.

They were not given specific instructions about how to support literacy during play. However, after the study was completed, the parent-teacher behaviors were categorized as either demonstrating, labeling (e.g. reading words), extending, or providing feed-back. Children in classes that received new literacy materials with adult mediation engaged in more literacy play than the children in classes that received new materials without adult mediation and the control group. The literacy-enriched play intervention lasted for 5 months. The children in the classes that received new literacy props with teacher mediation performed better than the two other groups on functional print tasks (reading environmental print).

Based on the above-mentioned research, the school environment should be print-rich with materials that support children's literacy development. Literacy activities can be incorporated into various centers in preschool classrooms by adding literacy props. Some examples include adding pencils and notepads to the dramatic play center to make shopping lists, adding various types of writing tools in the writing center, and adding books to the science center. In addition to having a print-rich environment, teachers should facilitate the use of literacy props through modeling, role-playing, and conversations (Justice et al, 2003). With teacher support, children are more likely to use and explore literacy-related materials.

## **Summary**

Emergent literacy is the foundation for future conventional reading and writing. The view of children as passive learners, who only learn through direct instruction, has gradually lost prominence as many now view children as active constructors of knowledge (Hall, Larson, & Marsh, 2003). Studies examining the relationship between specific literacy experiences and future reading success have provided empirical evidence that early literacy experiences can prepare children for conventional forms of reading and writing. Research tells us that literacy based play is one type of literacy experience that can provide preschool children with meaningful

experiences with reading and writing. Research on literacy-based play suggests that as children engage in various literacy experiences, new literacy knowledge will continue to emerge.

## CHAPTER 3. METHOD

### **Setting**

The study took place in a preschool program in an urban public school system in the South that served three-to-five year olds. Data was collected during the second half of the school year. Most children came from low-income families and paid no tuition, while other families paid tuition based on income and family size. The program was based on developmentally appropriate practices and funded by the Federal Temporary Assistance to Needy Families Act (TANF), state revenue, and tuition. The preschool operated during normal school hours. Three classrooms were used for this study, each containing twenty children, a teacher, and a teacher assistant. Teachers used a state-mandated curriculum that included standards for preschool-aged children.

Classrooms varied by the type of interest centers and materials. Each classroom contained the following learning centers: housekeeping, reading, science, math/puzzles, computer, writing, and blocks. In addition to the previous centers, Classroom One also had an art center, sand table, and a quiet area; Classroom Two had a listening center; and Classroom Three had a sand table, puppet center, and a listening center. Center time is a child-initiated period in which children are able to freely choose the area they would like to play in and the length of time they stay in an area. Each teacher's classroom schedule included at least one sixty-minute block of time for children to play in centers. During center time, one teacher usually did either a small-group activity or an individual assessment, while the teacher assistant monitored centers and interacted with the children. At other times during center time, teachers would work on classroom tasks or paperwork while the teacher assistants monitored children.

## **Participants**

The participants in this study were nine African-American preschool children from low-income families. They were between the ages of four years, seven months and five years, five months at the beginning of the study. The criterion for selecting participants was children who had good attendance and were typically developing based on scores from the Ages and Stages Questionnaire: A Parent-Completed, Child-Monitoring System (Bricker, 1995). Three children who met the criterion were randomly selected from each of the three classes. Participants in Classroom One were Hesiki (male; 4 years, 11 months), Zoe (female; 4 years, 10 months), and Kellis (female; 4 years, 8 months). Participants in Classroom Two were Steven (male; 5 years, 3 months), Jaylon (male; 4 years, 6 months), and Michelle (female; 4 years, 9 months). Participants in Classroom Three were Alton (male; 4 years, 9 months), James (male; 5 years, 4 months), and Joy (female; 5 years, 2 months). The mean age of participants was 4 years and 11 months.

## **Environmental Assessment**

The Early Language and Literacy Classroom Observation (ELLCO; Smith & Dickinson, 2002) was used in this study to assess the literacy environment of each classroom. The ELLCO is an instrument designed to assess literacy practices within the classroom environment of preschool through third grade classrooms. According to the authors, it is designed for use by teachers and administrators to examine ways to improve literacy programs. This assessment information was used to evaluate each classroom and to determine which literacy-related materials should be added.

The ELLCO consists of 3 parts: the Literacy Environment Checklist, the Classroom Observation and Teacher Interview, and the Literacy Activities Rating Scale. The Literacy Environment Checklist examines how the classroom environment is designed to support

reading and writing. It contains yes or no questions about the environment and questions about the quantity of materials. Answers recorded as yes are given a score of 1 and no is given a score of 0. For questions examining quantity the scores range from 0 to 3. For example, for the question regarding the quantity of non-fiction books in the classroom, if a classroom has zero non-fiction books it would be scored as 0, between one and two non-fiction books would be scored as 1, three to five non-fiction books would be scored as 2, and more than six nonfiction books would be scored as 3. The Literacy Environment Checklist was the main part of the ELLCO used to guide how the classroom environments were modified. The total possible score is a 41.

The Classroom Observation focuses on literacy instruction. The rating scale contains 14 items that are divided into two categories: General Classroom Environment (items 1-7) and Language, Literacy, and Curriculum (items 8 – 14). The rating scale consists of a Likert-type scale (1-5) with 5 representing exemplary/strong evidence, 3 representing basic/some evidence, and 1 representing deficient/minimal evidence. The teacher interview is conducted after the classroom observation to clarify necessary items on the observation rating scale. The total possible score is 60.

The last component of the ELLCO is the Literacy Activities Rating Scale. This scale is used to assess the frequency and length of nine literacy behaviors. The behaviors are divided into 2 categories, Book Reading and Writing. Items are scored as yes (1) or no (0). Additional items related to duration and frequency are scored with a scale ranging from 0 to 2, with 2 representing the highest frequency or duration. Some of the literacy behaviors are actions taken by the teacher and some are actions taken by the students. The total possible score for the Literacy Activities Rating Scale is 13.

**Interobserver Agreement.** Interobserver agreement was calculated for 100% of the *ELLCO* assessments. Environmental raters included an undergraduate student and two graduate students who were knowledgeable in early childhood practices and familiar with the *ELLCO*. Agreement was calculated item-by-item by dividing the smaller score by the larger score, averaging items, and multiplying by 100%. Inter-observer agreement was calculated using scores from all parts of the *ELLCO*. Inter-observer agreement was 94% (range, 88%-100%) for Classroom One, 96% (range, 93% - 100%) for Classroom Two, and 96% (range, 88%-100%) for Classroom Three.

### **Behavior Definitions**

Observable emergent literacy behaviors were taken from the *ELLCO* Literacy Activities Rating Scale. Literacy activities on the *ELLCO* are divided into two areas: book reading and writing. Literacy behaviors are defined as actions related to reading, writing, and letter concepts. Behavior definitions for literacy behaviors are as follows. (a) Looking at a book is when a child's eyes are focused on some aspect of the book. The book does not have to be opened. (b) Listening to a book is when a child is listening to a book being read by an adult, on a computer, or on a tape recorder. The child must look at the book at some point during the reading to be considered as listening to the book. (c) Looking at letters or words in the environment includes a child looking at displays, signs, other children's writing, or an adult's writing. (d) Writing with or without a template includes the child writing independently, tracing letters, using stencils, and copying letters or words. Children's writing must resemble letter like forms. (e) Manipulating a puzzle or game that includes words or letters is when the child is touching and looking at the pieces of the puzzle or game. The child is attempting to complete a task. Some activities include magnet letters, letter stamps, sponge letters, and blocks with letters. (f) Looking at another person writing is when a child's eyes are looking in the direction of the paper or material on

which the person is writing. The person may be a child or adult. Looking only at the person's face while they are writing would not apply. A child was recorded as not engaged when he or she was not demonstrating any of the above categories of literacy behaviors.

### **Experimental Design**

A single-subject research design was used to collect data using a momentary time sampling format (see Appendix B). Single-subject designs are most useful in designs measuring a specific behavior of an individual. The goal of single-subject designs is often to enhance the functioning of the individual by targeting a specific area (Alberto & Troutman, 2006). Single-subject designs require the measurement of behaviors during a baseline condition and again when an intervention is applied. When intervention results in enhanced functioning, an observable and measurable improvement in functioning, it is considered to have clinical significance (Alberto & Trouman, 2006).

Multiple-baseline designs measure the impact of intervention using cohorts. In this study, each classroom represents a separate cohort. One benefit of using a multiple baseline design is that withdrawal of treatment is not necessary in order to demonstrate experimental control. Experimental control is demonstrated by implementing the intervention across settings at different periods in time and receiving the same outcome. (Cooper & Heward, 1987))

In this study, a momentary time sample was used to provide an approximation of the frequency that each child engaged in a literacy behavior during baseline and intervention. The limitation of using a momentary time sample is that observers do not record each occurrence of the targeted behavior; they only record the behavior observed at the end of a fixed interval (Kazdin, 1982).

## **Observation System**

Observers were graduate students who were familiar with momentary time sampling. Observers were trained using written instructions, practice sessions, and feedback. The observers recorded literacy behaviors at five minute intervals during a thirty-minute period during free-choice center time. Observers sat or stood in low-intrusive areas of the classroom while they collected data although it was sometimes necessary for them to walk to various areas of the classroom to accurately record the target literacy behaviors. Observers' interaction with children in the class was minimal. When recording writing behaviors of a child, observers sometimes asked him or her what they were doing before recording a score in order to distinguish between writing and drawing; most of the time there was a clear distinction between writing and drawing.

Observers waited five seconds before recording a behavior. If the observed child was engaged in literacy behaviors at the beginning of the observation but stopped engaging in literacy behaviors during the five seconds, it was recorded as not engaged. If the observed child began engaging in a literacy behavior during the initial five seconds and continued the behavior for five seconds, then the literacy behavior was recorded. All literacy behaviors had to be observed for at least five seconds before they were recorded.

## **Interobserver Agreement**

Interobserver agreement was assessed for 23% of the observation sessions. Agreements occurred when two observers recorded the same literacy behavior of a child for a specific interval. Disagreements occurred when two observers did not record the same literacy behavior of a child for a specific interval. The formula  $(\text{agreements}/[\text{agreements} + \text{disagreements}] \times 100)$  was used to calculate interobserver agreement (Alberto & Troutman, 2006). The overall interobserver reliability was 94% (range, 83% - 100%). It is recommended that interobserver

agreement be at least 80% in order for the method of data collection to be considered reliable (Kazdin, 1982).

**Experimental Conditions**

**Baseline.** During baseline, teachers were instructed to maintain the current physical arrangement of the classroom. Each classroom was assessed using the ELLCO during baseline (see Table 1). Teachers were given no instructions about their teaching behaviors, and they followed the normal classroom routine. During center time, observers recorded the literacy behaviors of each child using a momentary time sample until a stable pattern of behavior was observed (Kazdin, 1982). Baseline data was used to identify the specific literacy behaviors to target during intervention. During baseline conditions, no children in Classroom One were recorded as looking at a book, listening to a book, or looking at a person writing; no children in Classroom Two were recorded as looking at a book or listening to a book; and no children in Classroom Three were recorded as looking at a book, listening to a book, writing, or looking at a person writing.

Table 1  
ELLCO Scores

Classroom	General Classroom		
	Literacy Environment (41 points)	Observation (60 points)	Literacy Activities Scale (13 points)
1	37	24	5
2	21	18	3
3	26	23	5

**Environmental Modification and Teacher Mediation Intervention.** Results from the ELLCO Literacy Environment Check and children’s baseline literacy behaviors were used to determine environmental modifications that would support literacy. Literacy props were added to various centers in each classroom. Teachers introduced and modeled the use of literacy props during whole group time on the day that they were added to centers. During environmental modification, no furniture was moved; classrooms maintained the same floor arrangements.

In Classroom One literacy props were added to the math/puzzle center, the writing center, and the housekeeping center (see Table 2). A listening center was added to the classroom by dividing the table used for the science center into two parts in order to accommodate a listening center. As evident by the ELLCO Literacy Environment Check, Classroom One already had books in the block and housekeeping centers.

In Classroom Two, literacy props were added to the math/puzzle center, the writing center, and the housekeeping center (see Table 2). Books were added to the block and the housekeeping centers as recommended by the ELLCO. Puzzles were moved from the writing center to the math center.

In Classroom Three, literacy props were added to the math/puzzle center, the writing center, and the housekeeping center (see Table 2). Books were added to the block, science, and housekeeping centers. During baseline, only one pillow was located in the reading center. Another pillow was added to reading center as recommended by the Literacy Environment Check.

During baseline, no subjects were recorded as looking at a book. Based upon this finding, “reading glasses” were added to the reading center in each classroom to encourage children to “read” books in the reading center. Materials in the writing center and housekeeping center were kept in containers on a shelf or table in the designated center. The classroom teachers introduced

new literacy props and made children aware of other environment modifications before center time on the first day of intervention.

Table 2  
Environmental Modification

Literacy Props	Developmental Center	Classroom(s) where literacy props were added
Floor Alphabet puzzle	Math/Puzzles	1 & 2
3 puzzles with words	Math/Puzzles	1, 2, & 3
Lined Paper	Writing Center	1, 2, & 3
Construction Paper	Writing Center	1, 2, & 3
Plain white paper	Writing Center	1, 2, & 3
Alphabet Stickers	Writing Center	1, 2, & 3
Alphabet Stamps	Writing Center	1, 2, & 3
Word Cards	Writing Center	2 & 3
Colored Pencils	Writing Center	1, 2, & 3
Dry Erase Markers	Writing Center	1, 2, & 3
Pencils	Dramatic Play Center	1, 2, & 3
Notepads	Dramatic Play Area	1, 2, & 3
Grocery Newspaper Advertisement	Dramatic Play Area	1, 2, & 3
Book on tape	Listening Center	1, 2, & 3
Tape player	Listening Center	1
Theme-related Books	Reading Center	1
“Reading” glasses	Reading Center	1, 2, & 3

In addition to environmental modifications, teachers were instructed to continue to provide guidance and support to children during centers. However, teacher behaviors were slightly modified by identifying the frequency that teachers supported literacy behaviors during centers and the method teachers used while supporting children's use of literacy during play. Four target centers were selected for each classroom. Three target centers were selected by choosing the centers that had the highest number of new literacy props; these centers were the writing center, housekeeping center, and the puzzle center. The reading center was also selected as a target center in each class based upon baseline data in which no participant was recorded as looking at a book. A schedule was designed for each classroom teacher to identify which two out of the four centers that she was to target each day (see Appendix D). Teachers were encouraged to follow the schedule and implement intervention daily, regardless of the presence of researchers.

While teachers were in a target center, they supported the use of literacy props during play. Each teacher was instructed to engage in the following behaviors while in a target center to support the use of literacy during play:

1. Invite children to center (e.g., "Would you like to do this puzzle with me?")
2. Model use of literacy prop
3. Encourage children to use prop (e.g., "Can you find some foods in the paper that we should add to our grocery list?")
4. Give praise for children within close proximity who engage in a literacy behavior (e.g., "I like how you wrote the word that goes with your picture.")

Teachers were trained by reviewing suggested prompts for each center. Teachers were to model the use of a literacy prop by showing children appropriate ways to use the props. For example, teachers were shown how word cards in the writing center could be used by children to

play a guessing game in addition to serving as a writing prompt. Note cards that included the four specific teacher behaviors and the weekly schedule for target centers were given to each teacher (see Appendix C). During intervention, it was sometimes necessary for researchers to coach a teacher by reminding her of a specific teacher behavior that she did not display.

Coaching occurred both during and after observations.

Using a checklist, the observer checked that teacher mediation was implemented as written. To ensure treatment integrity, fidelity checks were conducted during each observation using the checklist (Cooper, Heron, & Heward, 1987; see Appendix D). Treatment integrity refers to the consistent implementation of teacher mediation behaviors across teachers. Fidelity was measured by dividing the number of observed behaviors of the teacher by the total number of behaviors. The desired percentage of implementation was at least 80% for each teacher. Teacher One implemented the intervention with 95% accuracy, Teacher Two implemented intervention with 93% accuracy, and Teacher 3 implemented intervention with 90% accuracy.

## CHAPTER 4. RESULTS

Using the ELLCO and baseline data, literacy props were added to three preschool classrooms. Teachers were trained on how to support literacy-related play during centers. The results in this study were consistent with previous studies (Christie & Enz, 1992; Morrow & Rand, 1991; Neuman & Roskos, 1993); literacy props and teacher mediation led to an increase in literacy behaviors among children during play.

In Classroom One, the average percent of literacy behaviors among the three participants was 13% (range, 10% – 17%) during baseline. In Classroom Two, the average percent literacy behaviors among the three participants was 20% (range, 8% - 39%) during baseline. In Classroom Three, the average percent of literacy behaviors among the three participants was 7% (range, 0 – 13%) during baseline.

Following intervention, which consisted of environmental modification and teacher mediation, each classroom showed an increase in the average intervals of literacy behaviors (see Figure 1). In Classroom One, the average number of observed literacy behaviors across participants increased from 13% during baseline to 52% (range, 44% – 68%) during intervention. The fourth observation point in Classroom One during baseline was based on one child's average due to the absence of the other two participants. In Classroom Two, the average number of literacy behaviors across participants increased from 20% during baseline to 64% (range, 45% – 88%) during intervention (see discussion section for explanation of second observation point). In Classroom Three, the average number of observed literacy behaviors across participants increased from 7% during baseline to 58% (range, 39% – 76%) during intervention. All averages of observed literacy behaviors during intervention were higher than or equal to averages of observed literacy behaviors during baseline.

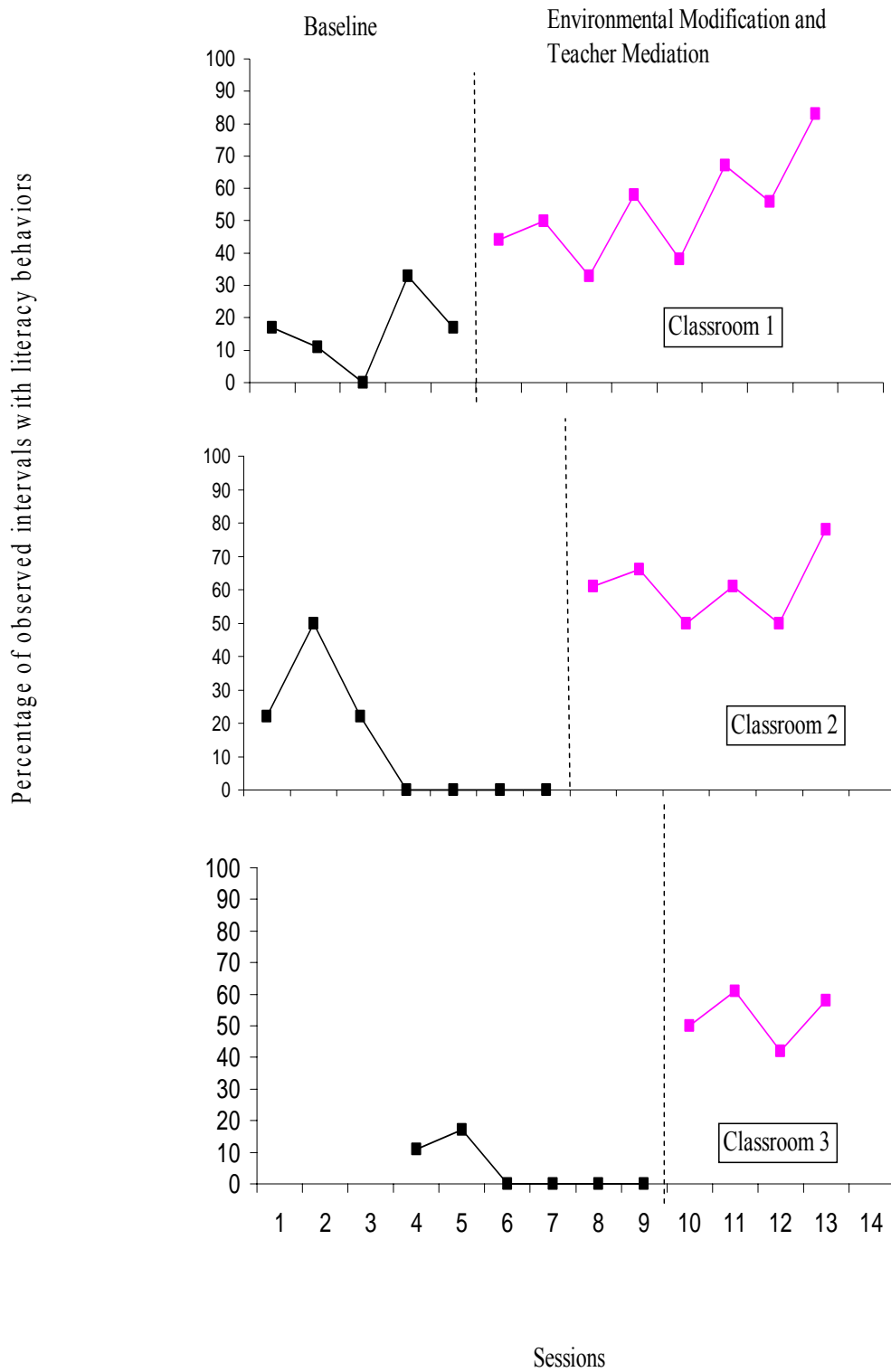


Figure 1. Mean frequency of observed literacy behaviors in each class during baseline and environmental modification.

In each classroom, all of the participating children showed an increase in literacy behaviors following intervention (see Table 3). In Classroom One, Hesiki’s engagement in literacy behaviors increased from 11% (range, 0 – 17%) during baseline to 42% (range, 0 – 67%) during intervention. He demonstrated an increase in engagement within all types of literacy behaviors. Zoe’s engagement in literacy behaviors increased from 17% (range, 0 – 33%) during baseline to 68% (range, 33% – 100%). She demonstrated an increase in engagement within four out of six types of literacy behaviors.

Table 3  
Frequency of literacy behaviors

	Environmental		% of Change
	Baseline	Modification	
Classroom 1	m% (range)	m% (range)	
Hesiki	11 (0 – 17)	42 (0 -67)	31
Zoe	17 (0 – 33)	68 (33 - 100)	51
Kellis	10 (0 – 33)	44 (33 – 100)	34
Classroom 2			
Steven	14 (0 – 50)	45 (0 – 83)	31
Jaylon	38 (0 - 100)	88 (67 – 100)	50
Michelle	8 (0 – 33)	61 (33 – 100)	53
Classroom 3			
Alton	13 (0 – 33)	39 (33 - 50)	26
James	8 (0 – 25)	58 (50 – 67)	50
Joy	0 (0 – 0)	76 (60 – 100)	76

Kellis' engagement in literacy behaviors increased from 10% (range, 0% – 33%) during baseline to 44% (range, 33% – 100%) during intervention. She demonstrated an increase in engagement within four out of six types of literacy behaviors. The average percent of increase for Classroom One was 39% (range, 31% – 51%).

In Classroom Two, Steven's engagement in literacy behaviors increased from 14% (range, 0% – 50%) during baseline to 45% (range, 0% – 83%) during intervention. He demonstrated an increase in engagement within five out of six types of literacy behaviors. Jaylon's engagement in literacy behaviors increased from 38% (range, 0% – 100%) during baseline to 88% (range, 67% – 100%) during intervention. He demonstrated an increase in engagement within three out of six types of literacy behaviors. Michelle's engagement in literacy behaviors increased from 8% (range 0% – 33%) during baseline to 61% (range, 33% – 100%) during intervention. She demonstrated an increase in engagement within all types of literacy behaviors. The average percent of increase for Classroom Two was 45% (range, 31% – 53%).

In Classroom Three, Alton's engagement in literacy behaviors increased from 13% (range, 0% – 33%) during baseline, to 39% (range, 33% – 50%) during intervention. He demonstrated an increase in engagement within three out of six types of literacy behaviors. James' engagement in literacy behaviors increased from 8% (range, 0% – 25%) during baseline, to 58% (range, 50% – 67%) during intervention. He demonstrated an increase in engagement within two out of six types of literacy behaviors. Joy's engagement in literacy behaviors increased from 0% during baseline to 76% (range, 60% – 100%) during intervention. She demonstrated an increase in engagement within all six types of literacy behaviors. Joy demonstrated the greatest change in behavior among all participants. The average percent of increase for Classroom Three was 51% (range, 26% – 76%).

Table 4  
Average Percent of Observed Literacy Behaviors Across Individuals

	Baseline	Intervention	Change
Classroom 1			
Hesiki			
Looking at book	0%	13%	13%
Listening to book	0%	4%	4%
Looking at words/letters	0%	4%	4%
Writing	6%	7%	1%
Manipulating puzzle/game	6%	13%	7%
Looking at a person write	0%	2%	2%
Zoe			
Looking at book	0%	8%	8%
Listening to book	0%	0%	0%
Looking at words/letters	0%	17%	17%
Writing	8%	13%	5%
Manipulating puzzle/game	8%	29%	21%
Looking at a person write	0%	0%	0%
Kellis			
Looking at book	0%	3%	3%
Listening to book	0%	0%	0%
Looking at words/letters	0%	31%	31%
Writing	3%	3%	0%
Manipulating puzzle/game	7%	14%	7%
Looking at a person write	0%	0%	0%

(table cont.)

	Baseline	Intervention	Change
Classroom 2			
Steven			
Looking at book	0%	11%	11%
Listening to book	0%	6%	6%
Looking at words/letters	9%	11%	2%
Writing	6%	11%	5%
Manipulating puzzle/game	0%	6%	6%
Looking at a person write	0%	0%	0%
Jaylon			
Looking at book	0%	0%	0%
Listening to book	0%	13%	13%
Looking at words/letters	17%	17%	0%
Writing	0%	4%	4%
Manipulating puzzle/game	17%	50%	33%
Looking at a person write	4%	4%	0%
Michelle			
Looking at book	0%	3%	3%
Listening to book	0%	20%	20%
Looking at words/letters	6%	6%	0%
Writing	3%	3%	0%
Manipulating puzzle/game	0%	26%	26%
Looking at a person write	0%	3%	3%

(table cont.)

	Baseline	Intervention	Change
Classroom 3			
Alton			
Looking at book	0%	9%	9%
Listening to book	0%	9%	9%
Looking at words/letters	7%	17%	10%
Writing	0%	0%	0%
Manipulating puzzle/game	7%	4%	-3%
Looking at a person write	0%	0%	0%
James			
Looking at book	0%	0%	0%
Listening to book	0%	0%	0%
Looking at words/letters	0%	33%	33%
Writing	0%	0%	0%
Manipulating puzzle/game	7%	25%	18%
Looking at a person write	0%	0%	0%
Joy			
Looking at book	0%	13%	13%
Listening to book	0%	13%	13%
Looking at words/letters	0%	27%	27%
Writing	0%	20%	20%
Manipulating puzzle/game	0%	13%	13%
Looking at a person write	0%	0%	0%

The frequency of specific types of literacy behaviors varied across classrooms and participants. In Classroom One, the most observed literacy behavior during baseline conditions and intervention was manipulating a puzzle/game with words or letters (7% and 19% respectively). In Classroom Two, the most frequently observed literacy behavior among participants during baseline was looking at words or letters in the environment (11%). During intervention, the most frequently observed literacy behavior among participants in Classroom Two was manipulating a puzzle/game with words or letters (27%). In Classroom Three, the most frequently observed literacy behavior among participants during baseline was manipulating a puzzle/game with words or letters (5%). During intervention, the most frequently observed literacy behavior among participants in Classroom Three was looking at words/letters in the environment (26%).

Averages in the frequency of specific types of literacy behaviors increased during intervention across classrooms (see Table 5). During baseline no children were observed looking at a book, listening to a book, or looking at a person writing. The most observed literacy behavior during intervention was manipulating a puzzle or game that includes letters of words. The least observed behavior during intervention was looking at a person writing. The frequency that participants were not engaged in literacy behaviors decreased by 46% during intervention. As noted previously, although each participant increased their overall frequency of literacy behaviors, all individual participants did not increase the frequency of engagement in each type of literacy behaviors.

Table 5  
Overall Frequency of Specific Literacy Behaviors

	Baseline	Intervention	% of Change
Looking at a book	0%	7%	7%
Listening to a book	0%	7%	7%
Looking at words or letters in the environment	4%	18%	14%
Writing	3%	7%	4%
Manipulating a puzzle/game with letters or words	6%	20%	14%
Looking at a person writing	0%	1%	1%
Not engaged in a literacy behavior	87%	41%	-46%

## CHAPTER 5. DISCUSSION

In this study, literacy props along with teacher mediation led to an increase in literacy behaviors in preschool children. The ELLCO scores showed that during baseline each of the three participating classrooms were lacking some recommended literacy materials. When the recommended materials were added and teachers became more supportive of literacy play, children's literacy behaviors increased.

Scores on the ELLCO showed that each classroom had an adequate book area and selection of books. Each classroom contained more than twenty-six books that varied in length, subject, structure, and cultural representation. However, children in each classroom were not using the reading center. During baseline, no participants were observed looking at a book. This suggests that preschool children may need additional materials and support, like teacher mediation and props (e.g. play reading glasses), to increase their engagement with books. It also supports the practice of including books in various areas of the classroom other than the reading center. Although books were added to centers that were recommended by the ELLCO (science, block, and dramatic play centers), the books were taken from the existing class library. Therefore, books in these centers were not novel and could have influenced children's behaviors. Two participants were never recorded as looking at a book during the study, and three participants were never recorded as listening to a book. This is of particular concern since studies have documented the importance of story book reading in supporting emergent literacy (Scarborough, Dobrich, & Hager, 1991; Sénéchal & LeFevre, 2002).

The most frequently observed literacy behavior among participants was manipulating a game or puzzle with letters or words. This could be due to the high interest of preschoolers in more active activities like floor puzzles and dramatic play (as opposed to book reading and writing). The least observed literacy behavior was looking at a person write. Even though

teachers modeled writing as a part of the intervention strategies, it did not usually involve large groups of children. In the participating classrooms, teachers usually modeled writing during whole group activities and during center time with a small group of children. These observations and classroom practices suggest that looking at a person writing may be a literacy behavior that is more appropriate for preschoolers during teacher-directed activities as opposed to child-initiated play.

Novelty of new materials may have influenced literacy behaviors in other areas. During baseline conditions, a new literacy computer program was introduced in Classroom 2 between the first and second observation. This led to a high average of observed literacy behaviors for the second observation (see Figure 1). However, the average observed literacy behaviors in Classroom 2 declined a few days after the new computer program was introduced. During intervention, a downward slope would have also been expected if novelty of materials were influencing literacy behaviors. A downward trend was not evident in any of the classrooms.

Although fidelity checks were implemented to control for variability among the implementation of teacher mediation strategies, certain teacher qualities were not controlled for during the study and could have influenced results. For example, variables like tone of voice, enthusiasm, and the authenticity of praise were not controlled for across teachers. These individual differences between teachers could have influenced the quality of interactions between the teacher and children in the classroom.

Consistent with previous studies (Christie & Enz, 1992; Morrow & Rand, 1991; Neuman & Roskos, 1993), the classroom environment and teacher behaviors play a critical role in the frequency that children engage in literacy behaviors during free-choice center time. These studies mainly examined literacy materials and behaviors of children within the dramatic play center. It is important that meaningful, literacy experiences are not limited to one center because

some children may not frequently choose to play in that center. This study shows that literacy materials can be incorporated into various classroom centers in order to increase opportunities for children to engage in literacy behaviors. It also gives specific materials and strategies that teachers can use when supporting literacy behaviors of preschool children during play.

However, due to the small sample size, the results of this study should not be generalized to larger populations.

### **Implications for Practice**

Previous research suggests and the findings from this study support that preschool classrooms can foster emergent literacy through the use of print-rich classrooms that contain appropriate literacy props that encourage literacy behaviors. Teachers can use developmentally appropriate practices to implement the goals of the No Child Left Behind Act and equip preschool children with important emergent literacy skills. Free-choice center time provides teachers with an opportunity to support children's literacy development by scaffolding literacy behaviors at a level that is appropriate for each individual child. Through the use of literacy environmental rating scales such as the ELLCO, teachers can find out how to make their classroom more supportive of literacy. Teachers may also examine the behaviors of the children in their class to decide what literacy behaviors to target and what type of literacy props and guidance are needed to increase that behavior. By providing appropriate literacy props and teacher mediation, teachers can increase literacy-related play behavior among children, which can lead to future reading success.

### **Implications for Future Practice**

Although research has documented the influence of literacy materials with teacher support, more research is needed on the specific components of teacher mediation that best support literacy behaviors. For example, how frequently should teacher mediation occur and

how invasive should it be (should teachers only extend children's literacy behaviors when they occur or cause them to occur through modeling or suggestions)? Future research should also examine the long-term benefits of literacy behaviors during play. More specifically, what knowledge and skills are gained through literacy-related play and how do they relate to future reading success?

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

Study exempted by  
Louisiana State University  
Institutional Review Board  
203 B-1 David Boyd Hall  
225-578-8692

LSU INSTITUTIONAL REVIEW BOARD (IRB)

IRB APPLICATION: APPROVAL OF PROJECTS WHICH USE HUMAN SUBJECTS C. Mathews, Chair

The IRB uses this form to obtain succinct answers to questions it must consider. If incomplete, your application will be returned! You can download this form and all other IRB documents from [http://appl022.lsu.edu/osp/osp.nsf/\\$Content/LSU%20IRB%20Documents](http://appl022.lsu.edu/osp/osp.nsf/$Content/LSU%20IRB%20Documents)) & complete it with your word processor. Call Robert Mathews for assistance, 225-578-8692, or e-mail him at: [irb@lsu.edu](mailto:irb@lsu.edu).

When this application is submitted to the IRB please include:

- Two copies of this completed form.
- A brief project description (adequate to evaluate risks to subjects)
- Copies of all instruments to be used. If this proposal is a part of a grant application include a copy of the grant proposal, the investigative brochure (if one exists) and any recruitment materials including advertisements intended to be seen or heard by potential subjects.
- The consent form that you will be using. A copy of the Waiver of Written Informed Consent is attached and must be completed only if you do not intend to use a signed consent form.
- Copies of your IRB stamped consent form must be used in obtaining consent.

=====  
(IRB Use: IRB# 2577 Review Type: Expedited  Full   
=====

Part 1: General Information

1. Principal Investigator: Dr. Cindy DiCarlo Rank: Assistant Professor  
(PI Must be an LSU Faculty member)

Dept.: Human Ecology Ph: (225) 578-7005

E-mail: cdicar2@lsu.edu

Co-investigators\*: Angela Wayne

\*Student? Y/N Thesis/dissertation/class project? Y/N

Dept.: Human Ecology -FCCS Ph: (225) 928-1838

E-mail: awayne1@lsu.edu

2. Project Title: Literacy Behaviors of Preschool Students

3. Proposed duration (months): 4 months Start date: Nov. 1st

4. Funding sought from: N/A

5. LSU Proposal #: N/A 6. Number of subjects requested: 23

6. Are you obtaining any health information from a health care provider that contains any of the identifiers listed below? NO

A. Names

B. Address: street address, city, county, precinct, ZIP code, and their equivalent

*Exempted Mathews Robert Mathews 10/23/05*

geocodes. Exception for ZIP codes: The initial three digits of the ZIP Code may be used, if according to current publicly available data from the Bureau of the Census: (1) The geographic unit formed by combining all ZIP codes with the same three initial digits contains more than 20,000 people; and (2) the initial three digits of a ZIP code for all such geographic units containing 20,000 or fewer people is changed to '000'. (Note: The 17 currently restricted 3-digit ZIP codes to be replaced with '000' include: 036, 059, 063, 102, 203, 556, 692, 790, 821, 823, 830, 831, 878, 879, 884, 890, and 893.)

C. Dates related to individuals

- i. Birth date
- ii. Admission date
- iii. Discharge date
- iv. Date of death
- v. And all ages over 89 and all elements of dates (including year) indicative of such age. Such ages and elements may be aggregated into a single category of age 90 or older.

D. Telephone numbers;

E. Fax numbers;

F. Electronic mail addresses;

G. Social security numbers;

H. Medical record numbers; (including prescription numbers and clinical trial numbers)

I. Health plan beneficiary numbers;

J. Account numbers;

K. Certificate/license numbers;

L. Vehicle identifiers and serial numbers including license plate numbers;

M. Device identifiers and serial numbers;

N. Web Universal Resource Locators (URLs);

O. Internet Protocol (IP) address numbers;

P. Biometric identifiers, including finger and voice prints;

Q. Full face photographic images and any comparable images; and

R. Any other unique identifying number, characteristic, or code; except a code used for re-identification purposes; and

S. The facility does not have actual knowledge that the information could be used alone or in combination with other information to identify an individual who is the subject of the information.

**YES** Your study falls under the HIPAA (Health Information Privacy and Accountability Act) and you must obtain either a limited data set use agreement or a HIPAA authorization agreement from the health care provider. This agreement must be submitted with your IRB protocol.

**NO** You do not need a HIPAA agreement.

**A. ASSURANCE: PRINCIPAL INVESTIGATOR (named above)**

I accept personal responsibility for the conduct of this study (including ensuring compliance of co-investigators/co-workers in accordance with the documents submitted herewith and the following guidelines for human subject protection: The Belmont Report, LSU's Assurance with OPRR, and 45 CFR 46 (Available from OSP or at [http://appl022.lsu.edu/osp/osp.nsf/\\$Content/LSU%20IRB%20Documents](http://appl022.lsu.edu/osp/osp.nsf/$Content/LSU%20IRB%20Documents))

Signature of PI C. DiCaro Date 10-31-05

**B. ASSURANCE OF STUDENT/PROJECT COORDINATOR named above**

I agree to adhere to the terms of this document and am familiar with the documents referenced above

Signature Angela M. Weage Date 10/31/05

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**Part 2: Project Abstract** - provide a brief abstract of the project.  
Research on emergent literacy states that young children learn about reading and writing through experiences with oral and written language. The purpose of this study is to examine the frequency that preschool children engage in literacy behaviors in a classroom environment. Literacy behaviors will be defined as actions related to reading, writing, and letter concepts. Literacy behaviors will initially be measured for each child enrolled in the preschool to provide baseline data and select specific subsets of behavior that will receive intervention. Researchers will suggest specific intervention strategies to be implemented and measure their effectiveness.

**Part 3: Research Protocol**

**A: Describe study procedures**

This study will measure the literacy behaviors of 3, 4, and 5 year olds in the preschool classroom. The researcher will observe children using a momentary time sample to record the frequency that each child engages in a literacy behavior during a 30 minute period. Data will be collected until a stable pattern in children's literacy behavior is evident. Based on the data, children that show low engagement in literacy behaviors will receive intervention. Intervention will consist of changes to materials in the learning environment and/or the use of directive guidance strategies by their regular classroom teachers. Intervention will continue until a stable pattern of behavior is detected. The data will be shared with the child, the child's parents, teachers, and school director/administrator.

**B: Answer each of the following questions.**

1. Why is the use of human subjects necessary? (v.s. animals/in vitro)  
This study is to increase literacy behaviors in preschool children.
2. Specify sites of data collection.  
Louisiana State University Human Ecology Laboratory Preschool
3. If surgical or invasive procedures are used, give name, address, and telephone number of supervising physician and the qualifications of the person(s) performing the procedures. Comparable information when qualified participation or supervision is required or appropriate.

No surgical or invasive procedures will be used.

4. Provide the names, dosage, and actions of any drugs or other materials administered to the subjects and the qualifications of the person(s) administering the drugs.

No drugs or other materials will be administered to the subjects.

5. Detail all the physical, psychological, and social risks to which the subjects may be exposed.

There are no physical, psychological, or social risks involved with participation in this study.

6. What steps will be taken to minimize risks to subjects?

There are no physical, psychological, or social risks involved with participation in this study.

7. Describe the recruitment pool (community, institution, group) and the criteria used to select and exclude subjects.

All students enrolled in the preschool will be invited to participate in the study.

8. List any vulnerable population whose members are included in this project (e.g., children under the age of 18; mentally impaired persons; pregnant women; prisoners; the aged.)

Children under the age of 18

9. Describe the process through which informed consent will be obtained. (Informed consent usually requires an oral explanation, discussion, and opportunity for questions before seeking consent form signature.)

Parents of children attending the preschool will be given a written informed consent form. Students will be given a simple oral explanation of the study by one of the researchers.

10. (A) Is this study anonymous or confidential? (Anonymous means that the identity of the subjects is never linked to the data, directly, or indirectly through a code system.)  
(B) If a confidential study, detail how will the privacy of the subjects and security of their data will be protected.

This study is confidential. Only students' first names will be used on data sheets. Information will only be shared with a child's parent(s), the child's teacher(s), and the director of the preschool. Specific information concerning a child other than their own, will not be shared with parents.

**Consent Form**

1. **Study Title:**  
Literacy Behaviors of Preschool Children
2. **Performance Sites:**  
~~\_\_\_\_\_~~
3. **Contacts:**  
Angela Wayne, Graduate Student  
(225)928-1838 Wed - Fri, 3:00 p.m. - 6:00 p.m.  
Dr. Cynthia DiCarlo, Assistant Professor  
(225)578-7005 M-F, 8:30 a.m.- 3:00 p.m.
4. **Purpose of the Study:**  
This study will measure literacy behavior of preschool children in order to provide intervention to increase their literacy behaviors.
5. **Subjects:**
  - A. **Inclusion Criteria**  
Preschool students ages 3 to 5 who are enrolled at the Human Ecology Laboratory Preschool.
  - B. **Exclusion Criteria**  
Students with identified disabilities will not be included when establishing baseline data.
  - C. **Maximum number of subjects: 23**
6. **Study Procedures:**  
The researcher will observe students during center time and record the number of times each child is engaged in a literacy behavior. Based on the collected data, certain students will be selected to receive intervention. Intervention will consist of changing materials in the classroom and/or providing directive teacher guidance. Data will then be collected to determine the effects of the intervention.
7. **Benefits:**  
After intervention, students may show an increase in their engagement in literacy related activities during center time.
8. **Risks/Discomforts:**  
There are no known risks for participation in this study.
10. **Right to Refuse:**  
Participation in the study is voluntary and that subjects may change their mind and withdraw from the study at any time without penalty or loss of any benefit to which they may otherwise be entitled.
11. **Privacy:**  
This study is confidential. Results of the study may be publicly presented for educational purposes and no identifying information will be included in the presentation. Information will only be shared with a child's parent(s), the child's teacher(s), and the director of the preschool. Specific information concerning a child other than their own, will not be shared with parents.

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12. Parent(s) Signature:

'The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225)578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me.'

My Child, \_\_\_\_\_, has permission to participate in the "Literacy Behaviors of Preschool Children" study.

Parent Signature \_\_\_\_\_

Date \_\_\_\_\_

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13. Child Assent

A researcher will read the following statement:

"Someone will watch you during centers to see what activities you do. A teacher may help you look at books and write things. Is it okay if we see what type of things you do during centers?"

Subject Signature \_\_\_\_\_

Date \_\_\_\_\_

Students may write name, mark an X, or give verbal assent.

Student gives verbal assent \_\_\_\_\_

Student does not give verbal assent \_\_\_\_\_

Approved by  
Louisiana State University  
Institutional Review Board  
203 B-1 David Boyd Hall  
225-578-8692  
Robert C. Mathews, Chair

APPENDIX B

MOMENTARY TIME SAMPLE

Observable Literacy Behaviors

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Teacher: \_\_\_\_\_

Observation Time: 30 minutes

Intervals: 5 minutes

Notations:

Numbers 1 – 6 for each corresponding 5 minute interval

Name	Looking at a book	Listening to a book	Looking at words in the environment	Writing with or without a template	Manipulating a puzzle or game that includes words or letters	Looking at a person writing	Not engaged in a literacy behavior

APPENDIX C  
SAMPLE SCHEDULE

Week 1

Monday – Housekeeping & Reading

Tuesday – Reading & Puzzles

Wednesday – Puzzles & Writing

Thursday – Writing & Housekeeping

Friday – Housekeeping & Reading

Week 2

Monday – Reading & Puzzles

Tuesday – Puzzles & Writing

Wednesday – Writing & Housekeeping

Thursday – Housekeeping & Reading

Friday – Reading & Puzzles

Week 3

Monday – Puzzles & Writing

Tuesday – Writing & Housekeeping

Wednesday – Housekeeping & Reading

Thursday – Reading & Puzzles

Friday – Puzzles & Writing

APPENDIX D

FIDELITY OF IMPLEMENTATION

Date \_\_\_\_\_

Class \_\_\_\_\_

Area 1: \_\_\_\_\_

Teacher Behavior	√ if behavior observed
Invite children to center	
Model use of literacy prop	
Encourage child to use literacy prop	
Praise for literacy behavior	

Area 2: \_\_\_\_\_

Teacher Behavior	√ if behavior observed
Invite children to center	
Model use of literacy prop	
Encourage child to use literacy prop	
Praise for literacy behavior	

## VITA

Angela Wayne is a native of Baton Rouge, Louisiana. She graduated with honors from Baton Rouge High School in 1999. She attended Florida A & M University where she received her Bachelor of Science in early childhood education in 2003. She received her Master of Science in human ecology with a concentration in family, child, and consumer sciences from Louisiana State University in 2006.

Angela's work experiences include teaching kindergarten for two years in East Baton Rouge Parish School System. As a graduate student, she worked in the Louisiana State University Child Development Laboratory Preschool where she taught three and four year old children. She has also worked for Early Head Start as the Education Content Area Specialist.

Her career goals include conducting trainings for child care providers and owning a high-quality child care facility. She has a sincere love for children and families which is demonstrated through her personal and professional experiences.