AN EXAMINATION OF THE EFFECTS OF RECESS ON FIRST GRADERS

USE OF WRITTEN SYMBOL REPRESENTATIONS

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AN EXAMINATION OF THE EFFECTS OF RECESS ON FIRST GRADERS USE OF WRITTEN SYMBOL REPRESENTATIONS

Barbara Norvell Hall

A Dissertation

Submitted to

the Graduate Faculty of

Auburn University

in Partial Fulfillment of the

Requirements for the

Degree of

Doctor of Philosophy

Auburn, Alabama
December 15, 2006

AN EXAMINATION OF THE EFFECTS OF RECESS ON FIRST GRADERS

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Barbara Norvell Hall

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VITA

Barbara Anne Norvell Hall, daughter of Elmer A. and Barbara (Casey) Norvell, was born October 1, 1965, in Sasebo, Nagasaki, Japan. She graduated from Albany High School in Albany, Georgia in 1983. She attended Auburn University in Auburn, Alabama, and graduated with a Bachelor of Science degree in Early Childhood Education in August, 1989. She worked as a public school teacher in Henry County, Georgia for 13 years. She received her Master of Arts in Education from Piedmont College in Demorest, Georgia in August, 2000. She returned to Auburn University in June 2002 to work as a graduate teaching assistant in the Department of Curriculum and Teaching. At that time, she began to work on her Education Specialist Degree in Early Childhood Education, which she obtained in December, 2004, and started the program for the Doctor of Philosophy Degree in Early Childhood Education. She currently resides in Conway, South Carolina with her two daughters Kalee and Kaitlyn, and is an Assistant Professor of Early Childhood Education at Coastal Carolina University.

DISSERTATION ABSTRACT

AN EXAMINATION OF THE EFFECTS OF RECESS ON FIRST GRADERS USE OF WRITTEN SYMBOL REPRESENTATIONS

Barbara Norvell Hall

Doctor of Philosophy, December 15, 2006
(EDS, Auburn University, December 2004)
(M.A., Piedmont College, August, 2000)
(B.S., Auburn University, August, 1989)

131 Typed Pages

Directed by Edna G. Brabham

Recess is a construct that is slowly disappearing from curriculum in America's elementary schools. Instead of engaging in free play during recess, children are being expected to perform more structured tasks aimed at specific academic outcomes. This study was undertaken to examine the effects of recess on children's writing and written representations of thoughts and ideas.

The recess treatment was implemented with an entire first grade of a school in which recess was not allowed and had not been allowed for at least 8 years. During the 14 day treatment, children were read stories and asked to respond to a series of questions. Half of the children were granted a recess period before the literacy lessons and the other half were permitted the recess period after the literacy lessons were conducted.

Results indicated that the children who were permitted a recess break before participating in the literacy lessons made significant gains over peers who had the recess break after the literacy lessons. In addition, both groups showed improvements in writing productivity over the course of the treatment, suggesting that recess within the course of the school day contributed to academic progress.

ACKNOWLEDGEMENTS

The author would like to express her sincere gratitude to Edna Brabham for her friendship, guidance, support and most of all her unending encouragement in the undertaking of this degree and dissertation. Additionally, she would like to thank Dr. David Shannon, Dr. Janna Dresden, Dr. Maria Witte, Dr. Candra Thornton, Dr. Steven Silvern, Dr. Janet Taylor, Dr. Lance Bedwell and Ms. Kristy Kirkland for the, assistance, critiques, and knowledge they shared as the author designed conducted this dissertation research. Their support and encouragement have been invaluable resources and the author is eternally grateful.

The author would like to express her most sincere appreciation to her two daughters, Kalee and Kaitlyn Hall, who sacrificed gymnastics and ballet lessons, endured two moves to different states, and suffering through unending hours of playing independently so mom could work. This dissertation could not have been done without their sacrifices.

Finally, the author would like to thank her family: her mother, Barbara Norvell Johns, and step father, James Johns, who provided emotional, physical, and financial assistance during four long years; her brother, Elmer A. Norvell, Jr. and his wife Jeanell Norvell for additional support and assistance; and her dear friend Carla L. Palmer and her husband, Curtis V. Palmer, for encouragement, support, and occasional trips to the beach to escape the pressures of a doctoral program.

Without each and every one of these individuals, this degree would never have been obtained. It is the sincere wish of the author that these mentors, family members and friends are recognized for their contribution to her success.

This dissertation was typed in APA format, 5th edition and was typed completely using Microsoft Office, 2003.

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PLEASE LET ME PLAY

Sometimes I think Grown-Ups have forgotten me,

I am there, but hard to see,

It is study and go to school,

Do not forget to follow the rules,

Master subjects, then take a test,

Busy schedules, then very little rest!

But look around and you can see,

I am climbing on your knee,

Have you forgotten me?

I go to school and work and say,

Are there enough hours in my day?

“I am a child! Please let me Play!”

by

Dr. Rose James

CHAPTER I

INTRODUCTION

"The child's right to engage in play, recreation and leisure activities, which are age appropriate must be vigilantly protected for the sake of the individual child as well as for society as a whole. The wisdom of pursuing highly structured, academically focused and competitive activities at the expense of children's free play must be questioned and checked in light of research that reinforces the importance of play as a part of the child's normal development" (Shackle, 2005, p. 14).

Play is a given right of childhood according to Shackle (2005) and many other theorists, researchers, and educators (Clemments and Fiorentino, 2004; Dockett, 1998; Pelligrini and Bjorklund, 2000; Piaget, 1962; Sutton-Smith, 1997). However, the current push to bring achievement on standardized tests to the forefront of America's educational system is consequently forcing play into the background. Moreover, many legislators and school administrators often view play as something frivolous and even expendable. The social and physical benefits of free play time, or recess, are taking a backseat to the belief that learning only occurs within a constrained environment consisting of regimented schedules and teacher-directed lessons. This culture of academic extremism may be creating a society of children who are physically, socially, and cognitively deficient.

The research efforts reported here were undertaken for two purposes. First was to explore published research findings describing the relationship between free

play and cognitive, social, and physical performance because they may have global implications for school-based decisions. However, the primary purpose for this study was to investigate the effects of free play on first grade children's writing performance, an important academic outcome for the early years of schooling.

Statement of the Problem

Since the mid-1700s, before the time of the Revolutionary War, children's right to play superceded even an adult's right to bear arms. When training soldiers interfered with games of school children in Boston, children protested to the Governor of Massachusetts, who then ordered soldiers to move away and give children the time and space to play (Mulrine, 2000). For two and a half centuries, recess breaks commonly occurred three times per school day (Alexander, 1999). In the last 50 years, however, the right to play during recess has been re-evaluated and, to a large degree, revoked.

Education reform that diminished the role of play during the school day went even further in 1957, when the former Soviet Union changed history by launching the first artificial satellite, Sputnik, into space. Although the first Sputnik weighed less than 183 pounds and measured close to the size of a basketball (MSN Encarta, 2005), it transformed the United States' view of both education and technology. Additionally, this small chunk of metal orbiting the Earth ignited the space race between the United States and the Soviet Union. The United States government began allocating federal resources for math and science programs. For the next decade, the intense push to beat the Soviets into space with manned aircraft prompted legislative officials to demand increased amounts of time spent on academics in American classrooms. When the United States put the first man on the moon in 1969, the emphasis on academics during each school day did

not end. Child-centered classrooms with three recesses per day had become the exception rather than the norm in America's schools.

Nearly 50 years after the launch of Sputnik, continuing devaluation of recess has resulted in the elimination of recess from the school day in some 16,000 school districts nationwide, even prompting some districts to build elementary schools without playgrounds (Sindelar, 2002). Many schools that still allow recess are replacing traditional free-play opportunities with socialized and structured recess. In these schools, teachers may give their children opportunities to play, but they must conduct an organized game or have a physical goal in mind when doing so (Mulrine, 2000).

Educational organizations such as the National Association of Early Childhood Specialists [NAECS] (2001), the National Association for the Education of Young Children [NAEYC], the National Association for Sport and Physical Education [NASPE] (2001), the Association for Childhood Education International [ACEI] (2002), and the International Playground Association [IPA] have composed position statements citing research to support the inclusion of recess as a necessary part of the school day (NASPE, 2001) . Yet despite the pro-recess positions taken by these national and international educational organizations, more and more school districts have elected to eliminate recess (Sindelar, 2002). School playground officials have cited playground safety, student aggression, and wasted instructional time as factors influencing decisions to revoke recess privileges (Villaire, 2001).

Demands from administrators and legislators have added fuel to the no-recess trend because they require schools to increase student achievement and to raise standardized test scores. Sindelar (2002) has pointed out that schools are pressured to

implement no-recess policies as a result of demands from politicians and administrators who believe that recess consumes time that would be better spent on academics. This desire for children to make academic progress as a preparation for taking their place in the work force has led to goal oriented perspectives on play in which educational conservatives view play as a waste of time, whereas educational progressives view play as a form of children's work. In 1997, Sutton-Smith explained that the conservative view insists that play is not usefully adaptive; the progressive view, on the other hand, sees play as preparation for workplace activities. These perspectives show that play is no longer valued for the sake of play itself and, without a specific purpose or goal in mind, play is thought to serve no beneficial purpose at all (Sutton-Smith, 1997).

Supporting the progressive view of play, Jarrett (2002) presented cognitive neuroscience research showing that recess and other play experiences provide the brain opportunities to recycle chemicals crucial for the formation of long-term memory. And, without these opportunities to recycle chemicals that form long-term memory, lifelong learning is less likely to take place. Pellegrini and Bohn (2005) build on Jarrett's argument by connecting it to Piagetian theory which suggests that disequilibration through peer interaction facilitates development, whereas unilateral interactions between adults and children are less facilitative of lifelong learning. Disequilibration is likely to occur when children are allowed opportunities to exchange points of view with each other in natural contexts, as they do in play environments.

From the time an individual is born, effort is made to communicate with others. Infants use eye movements, facial expressions, and grasping gestures to let others know what they desire, find uncomfortable, or enjoy. As children grow, language patterns begin

to develop, and they move from using simple one-and-two word utterances to expressing thoughts in syntactically complex sentences. When children engage in play rituals, these then become the catalyst through which they move beyond those disconnected words of one-and two-word phrases to express themselves in a more complex and syntactically accepted fashion (Hyson, 2004).

Children in preschool and kindergarten classrooms practice language and literacy skills as they play (Christie, Enz, & Vukelich, 2003; Owocki, 1999; Roskos & Christie, 2001). Preschool and kindergarten classrooms have traditionally been designed for children to participate in environments with cooperative centers that encourage language use through social interaction, symbolic play, and creative experiences. Children are encouraged to exchange understandings and conceptions of the world as they participate in these center activities. By exchanging ideas while interacting with their peers during play, misconceptions or misunderstandings are equilibrated into schemata that can be used to build more complex thought processes (Piaget, 1962). However, the current trend toward more teacher-directed lessons even in some kindergarten and pre-school programs do not allow children to create the type of meaningful understandings they might construct when engaging in play (Gallagher, 1997).

Young children convey what they understand about the world around them through a system of symbolic representations called the symbolic function (Piaget & Inhelder, 1969). Representation, in its broadest sense, is identical with thought (Pulaski, 1971). Representation can be observed during events in which children engage in imitating others writing, drawing, speaking, and playing. Symbolic representation involves the use of symbols, such as written letters, drawn figures, objects, or toys, to

convey thinking. To understand what children are thinking or what they know, individuals must observe and interact with them in ways that facilitate these representations. Such interactions do not indicate a replica of the reality; they do, however, provide observers with an idea of the ways children understand that reality (Pulaski, 1971).

It is important to understand aspects of the symbolic function include language in all forms (oral, written, and standardized conventions of print), pretend play, mental imagery, and drawing (Gallagher, 1997). Therefore, separating and teaching reading and writing as isolated skills may be counter productive. Representations through print only take on meaning if they are constructed through all aspects of the symbolic function. Too often teachers present lessons in directed, arbitrary formats that separate reading, writing, and other content areas into isolated skills (Gallagher, 1997) and that do not, or only minimally, connect to children's prior knowledge (Owocki, 1999). Instead, teachers must give children opportunities to conceptualize verbal and mental images through speaking, drawing, writing, and interacting with objects and other individuals in order to represent their knowledge. The process of play provides children with opportunities to construct their understanding of the world around them and recreate them in individual contexts.

In spite of the research and theoretical support as a valuable if not necessary component of learning, the conservative view of play is becoming the reality. Schools are eliminating free play and recess and, therefore, may be putting children at risk by stunting neurocognitive, physical, social, and cognitive development that is the foundation of language and literacy. The conservative approach to play may set children up for academic failure (Sutton-Smith, 1997).

Purpose and Significance of the Research Report

The purpose of this study was to examine the relationship between play and academic performance for first grade students in one of the three elementary schools in a southeastern part of the United States that had eliminated recess. Observations and assessments of one academic skill, writing, provided measures of academic performance. This quasi-experimental study was designed to focus on empirical findings and more clearly identify and describe the relationship between play during recess and academic performance as measured by each student's written products. Research studies examining the effects of free play during recess on cognitive, social, and physical development are not extensive, and studies of the effects of play and/or recess on academic performance are much less extensive. Even fewer studies incorporate a comprehensive review of the research literature on specific skills such as writing and recess to the degree of specificity as conducted in this study.

Statement of the Research Questions

This study was designed to examine the effect of recess on children's use of symbols to represent thought as they began to develop literacy skills. Additionally, the study was designed to examine the effects of recess on children's drawings and printed letters and words in classroom writing tasks. The following questions guided the study:

1. To what extent do students who get a recess break before versus after literacy lessons write retellings of a story in a complete, clear, and organized fashion as determined by scores on a story retelling rubric?

2. How does recess before as compared to after literacy lessons affect children's abilities to demonstrate story comprehension in drawings that convey story content and written work that provides evidence of the use of comprehension processes such as drawing conclusions, recalling details, inference and sequencing events?
3. How does a recess break before literacy lessons compare to a recess break after literacy lessons on total word count, conventional spelling count and total sentence count in writing samples?

Definition of Terms

Many of the terms used in this investigation may seem ambiguous and thus need to be defined in ways that specify how they were used in this study. For clarification purposes, the following terms are defined by the author and in some instances, by other researchers. In some instances, for purposes of clarification, words that relate to each other conceptually are grouped together rather than alphabetically and are listed as follows:

Clarity: Bratcher (2000) defines clarity as writing which is understandable and informative to outside readers. The writings must contain adequate information to inform readers in ways that achieve clarity.

Content: Bratcher (2000) uses the term content to articulate ideas a writer uses to express main ideas, details, and completeness of communication about ideas or events being discussed in the writing.

Comprehension processes: Within this report, there were four distinct processes examined in an effort to determine overall comprehension among participants. These are grouped together for clarification:

Drawing Conclusions: When participants use the details from the story to conclude what was about to happen in the future or state what they understood based upon events of the story, they are demonstrating the ability to draw conclusions.

Inference: When participants state details in the retelling that were not specifically stated in the story but were implied and thus inferred.

Sequencing: Sequencing is defined as evidence in writing samples indicating that the participants put events or attempted to put events from the story in order to retell the story.

Specific Detail: Specific details is defined as the use of details that were specifically stated in the story.

Conventional Spelling: Conventional spelling is a term used to describe any spelling of a word that fits a widely accepted pattern of the letters in the word to make that word hold the same meaning by anyone with knowledge of that language system. For matters of this report, English is the language in which conventional spellings are judged.

Literacy Development: Language is a complex system of communication that develops and is continually refined throughout an individual's life (Owens, 1988). When language is put in a communicative context through reading and writing, the acquisition of the skills used to communicate ideas and thoughts through those contexts indicate literacy development.

Main Ideas: Bratcher (2000) dichotomizes main ideas from details by classifying main ideas as a synthesis of all relevant details. Details may be relevant or irrelevant to the message conveyed. They merely add to the content but may not be clear within the structure of the writing. For the purpose of analysis in this investigation, the use of specific details that are not synthesized but are directly stated, indicate factual comprehension. Therefore, when reporting the results in Chapter 4, the use of specific details is separated as an element indicating comprehension and clarity. The terms clarity, content, and structure all work together to build consistency in writing. It is through these terms that the writing analyses were conducted in this report.

Play: The term play is perhaps the most ambiguous term used in this investigation in that it encompasses many rhetorical theories and ideas (see Sutton-Smith's, 1997, *Ambiguity of Play,* for further examination of the rhetoric of play*)*. For the purpose of this study, the term play is defined according to the definition given in Article 31 of the United Nations Convention on the Rights of the Child: [Play consists of] "activities which are not controlled by adults and which do not necessarily conform to any rules" (Shackle, 2005, p.417). This is not to say that any activity in which children engage while not under adult supervision constitutes play. It does however, mean that play consists of activities which do not conform to adult-designed or imposed rules meant to organize and control the play experience.

Recess: The term recess springs from the definition of play by putting the construct into context. Recess allows students to participate in activities of their choosing. Any unstructured activities including exercise or rest, that are met for children to socialize, and use their imaginations constitute recess (Villaire, 2001). In its most basic

sense, recess is a break from instructional time. It is a time when children can exercise, socialize, and imagine in the classroom. Specifically, recess is about choice of activity and interaction.

Symbolic Representation: This term describes the process of using symbols such as letters, numerals, and images to represent ideas or understandings. As children develop communication skills, they use symbols to convey what they know to others.

Structure: This refers to the organization of a piece of writing (Bratcher, 2000). Structure takes clarity a bit further by indicating that structure builds upon order and coherence showing a well-developed sequence of ideas. Additionally, structure refers to the organization of a piece of writing.

Word: The term word as a linguistic unit is defined very differently among teacher researchers and psycholinguists. What seems to satisfy both groups is the understanding that a word is any unit of language that is made up of graphemes (symbols) and phonemes (sounds) which carry meaning and can thus be used to form phrases and sentences (Papandropoulou & Sinclair, 1974).

Writing Sample: These are the individual written works of the participants for analysis in this investigation. Each writing sample was analyzed for content, structure, and clarity.

Written Symbol: Written symbols are drawings, letters, and numerals within the writing sample that can be clearly interpreted by any reader. Written symbols include letters combined to form words which are the basis of sentences. These sentences in turn represent the thoughts and ideas of the writer. In addition, written symbols also referred to pictures drawn by the participants to convey their understandings.

Assumptions and Limitations

The assumptions and limitations inherent in this research project must be addressed to assist interpretation of the results. Those assumptions and limitations are listed in the section that follows:

1. The participants were unfamiliar with recess as a component of the school day. These students attended a school that followed a very structured, regimented schedule that offered little opportunity for social interaction. Because recess was a concept with which the children in this study were unfamiliar, the effects from this change of routine may be considered a novelty reaction.

2. The county in which the study was conducted is a high-stakes-testing environment, in which the emphasis in the curriculum is placed on test scores and academic progress more than developmentally appropriate practices. Special permission had to be granted from both the principal and the county curriculum coordinator for play to be introduced into the school day.

3. The sample size was relatively small due to only one elementary school being authorized as a research site which limits generalizability.

4. Recess intervention was only able to occur for three weeks, or 15 school days. As stated above, special permission had to be obtained by administrators to conduct the study, and the limited time was a stipulation for permission. One observation session day was cancelled due to inclement weather; therefore intervention occurred a total of only 14 days, which is a very short duration for testing the effectiveness of free play during recess as a factor affecting cognition and writing.

5. The classroom teachers at the research site daily instructed the student participants to write responses to a given prompt as a routine part of instruction. The intervention, however, offered the students freedom to write or draw whatever they chose so the children often looked to their classroom teacher for guidance on how and what to write. Specific instructions were given to the participants to ask questions only of the researcher, and the classroom teachers were encouraged to refrain from giving directions.

Organization of this Study

Chapter I presents this preceding overview of the study entitled *An Examination of the Cognitive Effects of Recess on First Graders Use of Written Symbol Representations.* The chapter identifies the historical background regarding the elimination of recess from elementary schools within the United States as well as the play-literacy relationship. In addition, key terminology and the study's limitations are discussed.

Chapter II follows with an examination of the literature currently available concerning recess and the effects of recess on physical, social, and cognitive outcomes for young children. In addition, information is provided on how the symbolic function develops and the role that development plays on children's ability to represent their ideas and understandings through writing and drawing. Finally, the connections between play and cognitive development are reviewed.

Chapter III outlines the methodology used in this study. Explanations of experimental measures and data collection methods are detailed. Chapter 3 also provides the list of folktales read and the lesson plans used to conduct read-aloud and writing lessons implemented for the 14-day treatment period.

Chapter IV includes a synthesis of results. Quantitative and descriptive measures and their analyses are presented. Specific discussion concerning measures of clarity and structure in writing are addressed and charts and tables are included to represent the findings.

Lastly, Chapter V includes a discussion of the findings as they relate to the literature discussed in Chapter II. Implications for the role of recess in elementary schools and suggestions for policy changes are explained. The purpose of chapter 5 is to identify the implications that result from this study *An Examination of the Cognitive Effects of Recess on Children's Use of Written Symbol Representations* may have for the field of early childhood education and to suggest ways that practices such as recess and free play may be implemented in schools to foster the development of young children.

CHAPTER II

REVIEW OF THE LITERATURE

"As a rule, we do not respect children. We try to force them to follow us without regard to their special needs. We are overbearing with them, and above all, rude and then we expect them to be submissive and well-behaved, knowing all the time how strong is their instinct of imitation and how touching their faith in admiration of us. They will imitate us in any case. Let us treat them, therefore, with all the kindness which we would wish to help to develop in them" (Montessori, 1965, p.133).

The review of the research literature on recess that follows is divided into three sections in which the social, physical, and cognitive effects of recess are examined. Additionally, the cognitive effects section is followed by two sections which extend explorations of literature to additional connections between play during recess and cognition and to play as it relates more specifically to development of symbolic and written language. The sections are organized by significance to this particular study. This organization provides a framework for categorizing and presenting the major empirical findings related to recess. In addition to providing an overview of the theoretical and empirical underpinnings of recess and free play as a valuable part of the school experience, the literature review will also serve as a foundation for additional research that is needed to end debates about whether recess should be a part of the elementary school day.

Physical Effects of Recess

The disappearance of recess has resulted in decreased time for physical activity for elementary school students. Many studies that have been done on the physical effects of activity in children deal with the issue of childhood obesity. These studies have been aimed at promoting physical well being in children in an effort to carry the attributes over to adulthood as well as increasing the quality of life for children and adolescents. Other physical disorders, such as developmental coordination disorder, have become areas of interest in research on the effects of physical activity in young children.

Scruggs, Beveridge, and Watson (2003), for example, conducted a study to compare the physical activity levels of fifth-grade students by using heart rate telemetry and pedometry during structured physical fitness breaks and recess breaks in which students selected activities. The study attempted to measure energy expenditures of fifth-grade students in an effort to determine where the most physical activity took place. Structured physical breaks included interactive games such as kickball and basketball. Traditional recess gave students the choice to participate in the games and activities they desired. The results indicated that the students' physical activity was higher during the structured fitness breaks for both boys and girls.

Based on the findings, Scruggs, Beveridge, and Watson (2003) suggested that "manipulating the environment during recess and establishing a physical activity focus for break periods could encourage higher levels of physical activity" (p. 165). They also recognized that "recess breaks may have important developmental and educational implications such as providing breaks from cognitive tasks and providing opportunities for unstructured peer interactions" (p. 157). These researchers concluded that fitness

breaks show promise as a developmentally appropriate means whereby schools can play a significant role in having an impact on the physical activity levels for children during the school day.

Several studies have indicated that childhood obesity has reached epidemic proportions and identified the lack of physical activity as the underlying factor in this increase (Eliakim, et al., 2002; Reilly et al., 2004; Thorpe et al., 2004). Childhood obesity affects 20% to 27% of all children worldwide (Eliakim et al., 2004). In addition, childhood obesity has been linked to additional problems in the short term including adverse effects on growth, blood pressure, and respiratory conditions like asthma and obstructive sleep apnea. The long-term consequences of childhood obesity include hypertension, diabetes, cardiovascular disease, gall bladder disease, and osteoarthritis (Thorpe et al., 2004). Children who have a body mass index (BMI) 85% greater than other children their age are considered overweight, and children with a BMI 95% greater than other children their age are considered obese. Reilly et al. (2004) found that children with total energy expenditure time of less than 25 minutes per day in physical activities are at greater risk for developing childhood obesity. These researchers suggested that all children need to engage in moderate to vigorous physical activity for 60 minutes per day to combat this condition. On the same vein, Eliakim et al. (2004) noted that the prevalence of weight gain results from an imbalance between energy intake and energy expenditure, and these researchers concluded that overeating, increased caloric intake, increased inactivity, and a growing sedentary lifestyle all contribute to this growing health problem.

Obesity is not the only condition for which activity is encouraged or prescribed as a combatant. Developmental coordination disorder (DCD) is a condition that affects a child's abilities to participate in activities with other children due to poor motor and coordination skills. Watkinson (2001) and colleagues have determined that a child diagnosed as a DCD victim must show evidence of poor motor coordination and interference with activities of daily living that prevent engaging in culturally normal activities. These researchers suggested that the most common place and time to evaluate children for DCD is during their gross motor activity in school-based time on outdoor playgrounds during recess before and after school begins. They also conducted a study in which students were observed participating in play activities such as hanging upside down on monkey bars, swinging with a partner on a regular swing, playing tag, and playing on a tire on the playground. These observations were recorded and then used to construct items for questions used in interviews with children that to added self reports as data. Semi-structured interviews were conducted with children to determine their feelings toward their participation in their outdoor play. Watkinson et al. (2001) found that children with DCD were less likely to engage in gross motor activities on the playground. Suggestions were made to include children at risk for DCD in classroom activities that encouraged peer interactions on the playground thus providing more opportunities for their motor coordination to improve.

The outcome of all these studies has been a call for increased physical activity to combat the negative effects of too little physical activity on children's health. However, limited physical activities that may result from limited opportunities for play during recess are only a portion of the limitations on children's growth and development; there

are serious repercussions of limiting play and recess on social and cognitive development as well.

Social Effects of Recess

Investigating the social aspects of recess, Jambor (1995) argued that, “recess is one of the few places where today’s children can actively confront, interpret and learn from meaningful social experiences” (p. 2). He indicated that experiences during play become socially meaningful to the extent that they help children learn to cooperate. His arguments drew on the work of Piaget (1965) whose observations showed that children also learn to solve problems within their play. Playing games that involve reciprocating relationships, such as tag, become potential predictors of the ability to cooperate, and they enhance children’s ability to view events from different perspectives. Jambor (1995) also commented on the fact that there are diminishing opportunities for children to engage in social interactions during the school day, which limits the experiences that advance social development. Delving into brain anatomy and physiology, he further suggested that without significant opportunities to build synapses within these social contexts, children lose valuable cognitive opportunities to build synaptic connections.

Jambor (1995) stated that many teachers, administrators, and parents consider recess wasted time because they believe recess is peripheral to children’s learning experiences and that students learn best in school when they focus on basic skills and stay on task. This type of curriculum is weighted heavily towards cognitive development. However, it is important to remember that during the early years of a child’s life, social development is intertwined with cognitive and physical development. Practices such as

isolated seating, silent lunch, and quiet lines traveling to and from places within the school, leave little or no time for children to interact with each other; without the opportunity to exchange viewpoints, children remain in an egocentric state of being (Jambor, 2000). The developmental benefits that play situations provide, work to further neurological development in all areas (Frost, Brown, Sutterby, & Thornton, 2004).

However, there is nothing wrong with designing curriculum that promotes cognitive gain. As Pelligrini and Glickman (1989) pointed out, the curriculum must be re-evaluated when the emphasis on the cognitive domain becomes so overwhelming that children's other developmental domains, including social development become stifled.

In an effort to examine links from recess and social development to cognition, Pellegrini (1995) conducted a study in which kindergarteners were observed over the course of a year during their recess periods. From these observations, Pellegrini reported that children who took advantage of opportunities to initiate interactions with peers not only scored higher on standardized tests such as the Georgia Criterion Referenced Test (GCRT), but also had higher levels of social competence. On the other hand, those children who more often participated in adult initiated interactions not only scored lower on the achievement tests, but also seemed to lack the social skills to interact with their peers with the play arena. Pellegrini also found that object play was a significant predictor of performance on the math portion of the GRCT. He concluded that these findings were "consistent with Piagetian (1970) theory and the curricular work of Kamii and DeVries (1978)" (1995, p.93). These results implied that recess, or unstructured play, provide children with the opportunities to react in more socially competent ways with

adults and peers while building necessary connections to support learning of academic material.

Barbour (1996) conducted a study of children during recess to examine the relationship between social acceptance and physical competence; the latter was defined as the ability to succeed in meeting particular situational demands in the motor realm. Barbour (1996) examined peer relations among kindergarteners and second grade children with high or low motor skills as demonstrated by more or less coordination, strength, and physical maturity. In this study, the researcher used behavioral observations on the playground during recess because that was when children were able to engage in self-initiated, self- structured play free of adult intervention. Based on the actions observed during the study, semi-structured interviews were conducted with the participants to ascertain the attitudes and perspectives of these children during the recess periods.

The results of Barbour's (1996) study indicated that children, particularly boys, with higher physical competence were more socially accepted than their less physically competent counterparts. This was attributed to their ability to engage in more types of social play such as soccer and other ball games. Barbour also found that girls with higher physical competence were more socially accepted than their less physically competent counterparts. Girls tended to engage in pretend and dramatic play and used their more developed abilities to lead play activities. Barbour (1996) concluded "physical competence plays a part in children's standing in their play groups. This is [due to the fact] that physical competence provides one criterion on which social stature is based. "Because it is highly valued by peers, it is a means for social recognition" (p. 43). The

results of this study indicated that without the opportunities to interact with other children, social competence is less likely to be established.

Several researchers have examined the effects of intervention strategies on social relations during recess periods (Lewis, Colvin, & Sugai, 2000; Lewis, Powers, Kelk, & Newcomer, 2002; Nelson, & Smith, 1995). Among the strategies investigated were peer mediation, interactive supervision, and school wide behavior supports.

Nelson and Smith (1995) conducted a study of second grade boys in which peer mediation was used in conjunction with self-evaluation techniques. They posited that self-management procedures are well suited for children experiencing problems during recess because recess is a period of time that gives children a much needed break from their work and opportunities to engage in peer mediation and self management. In addition, Nelson and Smith stated that "the underlying premise of self-management procedures is congruent with cultural standards of individual self-control of behavior [as well as] limiting some of the potential problems associated with externally managed behavior modification programs" (1995, p. 2).

Based on these suppositions, Nelson and Smith (1995) matched students without behavior problems to students who were under behavior plans due to documented behavior problems. The researchers then taught students with behavior problems self-observation, self-recording, and self-evaluating procedures. The researchers then required students to make a judgment about their behavior relative to adult standards. Behaviors were then externally managed by the researchers and the peer mediators for both desirable behaviors and judgments about those behaviors. Finally, the procedures,

including the explicit contingencies, were gradually withdrawn when students were reliably controlling their own behavior.

Nelson and Smith (1995) found that clear changes in recess behavior occurred for each student who had been identified originally as a student with behavior problems when the self-evaluation procedure was introduced. The rates of negative recess behavior decreased as positive recess behavior increased following the implementation of the instructional intervention. These rates were maintained through the experimental conditions, and difference in the rates of positive and negative behaviors gradually faded yielding more positive behaviors. They also found that the introduction of the self-evaluation procedure reduced differences in the recess behavior of target students and peer partners. The findings suggested that teaching self-evaluation procedures improved social behavior of students with a history of behaviors in recess settings where these students have very limited access to adult supervision.

Lewis, Colvin and Sugai (2000) conducted a study to examine the effectiveness of implementing a pre-correction and active supervision strategy to determine the rate of reduction of problem behavior observed during recess on elementary school playgrounds. In this study active supervision was defined as "behaviors displayed by supervisors designed to encourage more appropriate student behavior and to discourage rule violations [supervision behaviors], such as moving around, scanning, interacting with the students, and reinforcing displays of targeted social skills" (Lewis et al., 2000, p. 110). The study was conducted at an elementary school that had an ongoing project aimed at improving student behavior. Classroom teachers were already teaching critical social skills using verbalizations such as respect others and using preferred names or no name

calling when the study began. The researchers implemented the study through three phases: First, the teachers reviewed the school rules and recorded social skills specific to the playground. Second, playground monitors reviewed school rules and supervision expectations. Finally, pre-correction and active supervision were introduced across three recess periods at one-week intervals.

The data collected by Lewis et al. (2000) indicated that the intervention reduced the overall rate of observed problem behavior in unstructured activities during recess. The data were encouraging to these researchers because a relatively simple intervention was effective in promoting generalized social responding beyond the training setting i.e., the classroom, to a more unstructured recess setting that is typically replete with challenging behaviors.

Building on the theme of prevention and early intervention to reduce behaviors and social problems, Lewis et al. (2002) conducted an additional study to evaluate the effectiveness of an applied universal positive behavior support [PBS] as an intervention. PBS consisted of social skill instruction and group contingencies on the frequency of problem behavior displayed by elementary students on the playground. To conduct this study, researchers observed students from kindergarten through sixth grade on a playground with a blacktop area for games such as basketball and tetherball and an activity area with slides and swings. Student groups on the playground during the same recess periods were comprised of second and fourth graders, first and third graders, and fifth and sixth graders. Kindergarten classes overlapped all of the recess periods observed.

The interventions implemented by Lewis et al. (2002) consisted of two components: (1) teaching rules, routines and desired behavior, and (2)group contingencies. Lessons were designed to define rules, provide examples of the rule, model expected behavior, have students practice expected behavior, and review the rules. Nine lessons in all were taught; six addressed rules and routines for specific games, and three taught desired social skills. Group contingencies consisted of earning elastic loops that were carried by playground monitors and given to students when they were observed exhibiting appropriate behaviors. The loops were then used by the students to earn extra recess, to make things such as jewelry, and to receive candy and other rewards.

The overall results in this study by Lewis et al. (2002) suggested that the intervention did have an impact on the frequency of problem behavior on the playground, especially during the recess periods with combinations of first through fourth graders on the playground at the same time. Through a non-intrusive, instruction-based intervention, instructors were able to reduce problem behaviors on the playground. “By creating contexts in which problem behavior is reduced through positive strategies as opposed to punishment, corollary outcomes such as improvements in school climate, teacher confidence to address problem behaviors, and a reallocation of resources were observed” (Lewis et al., 2002, p. 189).

In an effort to establish correlations between the games children play during recess and social competence, Pellegrini, Kato, Blatchford and Baines (2002) examined the playground games played by kindergarteners across their first year of full day school and the implications for social competence of these same children in first grade. Based on earlier findings by Blatchford in 1989, Pellegrini et al. (2002) suggested that children

who are more facile at games are the leaders who initiate, maintain, and terminate games. By affiliating with these game leaders, children may learn valuable social skills and form alliances. The researchers proposed that games support interactions between children at recess. Even the most rudimentary games can be used as a basis for initial interaction between relatively unfamiliar and relatively immature children. After repeated interactions in such games, children become more familiar with each other and then can interact in other more complex ways.

Pellegrini et al. (2002) also hypothesized that games on the school playground at recess should predict adjustment in the very earliest school years because game facility is an indicator of children's engagement in one important dimension of the school day. Games that are developed by children who make up their own rules at recess represent a transition point from the relatively unstructured and peer-oriented regimen of most preschools and very early grades in primary schools to the adult structured environment in most elementary school classrooms. This reasoning is consistent with the ethological models of domain-specific cognition described by Bjorklund and Pellegrini (2000), "the playground and first grade classes are relatively similar niches with similar demand characteristics; thus competence in one area (the playground) should relate to the competence in the other (school, more generally)" (p. 996).

Collecting data to investigate their hypothesis, Pellegrini et al. (2002) found that boys engaged in significantly more chase games and ball games than girls. However, girls exhibited significantly more verbal games and dramatic play games than boys. The researchers also found that boys exhibited a more varied repertoire of games than girls. With respect to social competence, the researchers found that game leadership did not

predict girls' social competence, but it did predict boys' social competence. In addition, game leadership did not predict girls' adjustment to first grade, but it did predict boys' adjustment to first grade. The adjustment could be due to girls being less concerned with games than boys because games are competitive and the competitive nature of games is more in keeping with the hierarchic competitive nature of male peer groups. The results confirmed the researchers supposition that the playground is a venue which affords males opportunities to engage in locomotor and competitive activities.

The results from this study by Pelligrini et al. (2002) indicated that child-governed games played freely at recess are implicated in male children's social competence and adjustment to first grade. Although this study did not examine the correlations between kindergarten girls engagement in verbal games and dramatic play during recess and their social competence and adjustment in first grade, the results indicated that girls still benefit from the social interaction and dramatic play opportunities during recess; however, with girls, this study found no direct link to these play opportunities and social competence in first grade. The finding that children's social competence develops in the context of interacting with their peers is especially important as all children, both boys and girls, are rapidly losing opportunities to interact with peers during recess due to policies and school facilities that allow no time or space for recess during the school day.

As the research has shown, social competence, peer mediation, opportunities to participate in games with rules, building relationships with peers, and learning basic rules of getting along with others are only some of the benefits that recess provides to all children. In addition, trends such as isolated seating, silent lunches, structured play

through games or centers without benefit of choice may be contributing to a generation of children who are lacking in basic social competence and interaction skills (Jambor, 2000).

Cognitive Effects of Recess

There have been numerous studies examining the effects of symbolic as well as active or physical play on cognitive development in young children (Blakeslee, 1997; Gardener, 1993; Roskos & Christie, 2001; Sylwester, 1995). However, there are few studies that directly identify recess as a factor affecting cognitive development. Developmental theorists such as Piaget (1962) and Vygotsky (1966), however, spent considerable time observing children and drawing theoretical hypotheses about the link between play and cognitive development.

Piaget (1962) described play as a process of assimilating and accomodating new knowledge into an existing knowledge base. Specifically, he discussed the role of *phenomenism,* representations imbued with causal properties, and *egocentrism,* the inability to see the perspectives of others, in this assimilation process. He pointed out that these two attributes are "undissociated aspects of elementary consciousness and distinct of experimental objectivity and rational deduction" (p. 162), meaning that children see the world as they choose to see it; not necessarily the way others see it. This being so, children's play is the primary process through which the phases of this progressive differentiation occurs. When assimilation and accommodation are dissociated and not yet reintegrated into a more permanent equilibrium, the levels of operational and rational thought are not yet complementary. Play contributes to the integration of the

understandings that can be assimilated and provides for the misunderstandings that must be accommodated in order to advance knowledge in a way the child can understand. Vygotsky (1966) considered the impact of social interactions on a child's play and development and saw the two as inseparable. He described play as the leading facilitator of development in young children and the means by which children learn to think abstractly and impose arbitrary meaning on objects and actions.

In most cases, recess, if it exists, provides the only time in the school day during which students can engage in play, as it is defined by Piaget (1962) and Vygotsky (1966), and benefit from effects that play has on cognitive and social development. Many current research studies and recommended practices in the field of early childhood and elementary education that relate to play and support recess have been based on these theoretical foundations (Frost, Wortham and Reifel, 2004; Jambor, 2002; Jarrett, Maxwell, Dickerson, Hoge, Davies, and Yetley, 2001; Pellegrini and Bjorklund, 1997; Pellegrini and Smith, 1993).

The studies that have been conducted to examine the effects of recess on children's cognitive performance include one undertaken by Pellegrini and Bjorklund (1997). In explaining the rationale for this study, the authors claimed that young children do not process information as effectively as older children due to the immaturity of their nervous systems and their lack of experiences. They stated that these factors render children unable to perform higher level cognitive tasks with the same efficiency as older children and adults. They go on to suggest that policy makers should consider the developmental level of the child when evaluating the rigor of the curriculum. Educators can do little to hasten the maturation of attention skills, but they can do much to foster

maximum attention from children through developmentally appropriate curriculum design, classroom structure, and organization of school schedules.

Pellegrini and Bjorklund (1997) insisted that recess should not be viewed simply as an opportunity for recreation, having little to do with academic attainment. Rather, they posited that recess plays a critical role in fostering attention skills in children. They argued that young children, in particular, need recess due to their limited information-processing skills and the greater cognitive effort they must apply to their studies. These researchers suggested that due to the cognitive immaturity of young children, the unstructured nature of recess may minimize cognitive interference, or the inability to understand multiple sources of information at one time.

Pellegrini and Bjorklund (1997) have published results of numerous research studies they have conducted as support for their position that recess provides needed play and breaks during cognitively demanding tasks, thus facilitating children's attention to subsequent classroom tasks. They found that children's social interaction and physical activity at recess were positively and significantly correlated to their attention to task after recess. Pellegrini and Bjorklund (1997) used the distributed practice hypothesis to explain their results. They claimed that distributed practice of cognitively oriented tasks over time, rather than massed practice with long stints of skill and drill at one time, affords children the opportunities they need to attend to cognitively oriented tasks and process information in more developmentally appropriate ways.

In another article, Pellegrini and Smith (1993) discussed implications of research on play for education and child development. They pointed out that many school systems and even states have made changes in policy and eliminated recess because of the debate

over the role of recess in the curriculum. Pellegrini and Smith (1993) cited arguments by education policy makers claiming that recess detracts from instructional time in an already crowded school day. These authors described arguments offered by policy makers interested in increasing academic performance, especially as indicated by standardized tests scores, that call for the elimination of recess. Proponents of no-recess policies pointed out that recess, often arbitrarily placed in the school schedule, disrupts children's sustained work patterns and encourages children's aggression and antisocial behavior on the playground.

Pellegrini and Smith (1993) disputed this claim by stating "that children are more active in spacious, compared with restricted, environments" (p. 54), and increased activity does not necessarily lead to increased aggression. However, they found that correlations between social interaction and cognitive performance tends to indicate that social activities during play have important cognitive implications. The fact that children's play is not only imitative but also creative suggests that play and its absence may have profound effects on children's development of cognitive and academic knowledge and skills (Pellegrini & Smith, 1993).

Jarrett, Maxwell, Dickerson, Hoge, Davies, and Yetley (2001) conducted a study to determine the effects of recess on classroom behaviors, specifically the ones they classified as working, fidgeting, and listlessness. In this study, the authors measured children's attention to task activities such as seatwork and direct instruction activities during periods of group work in the classroom. Two groups were used for the study. One group was given a 20-minute recess period, and the other group was denied recess. In the group without recess, students were on task 85% of the time and fidgety 16% of the time.

Conversely, the group with recess was on task 90% of the time and fidgety only 7% of the time. There was no difference in listless behaviors between the two groups.

In this study, Jarrett, et al. (2001) suggested that recess affected children's attention to task behavior and had what the authors termed a renewing effect. This renewal allowed the children to pay closer attention to teaching-learning tasks after being allowed the opportunity to have a break. In addition, the authors concluded that children in both classes were less on task and more fidgety when denied the recess break and suggested that children think and work less efficiently when engaged in long periods of uninterrupted instructional time. Armed with these findings, the researchers advised that educators could more effectively use instructional time in the classroom by allowing recess within the context of the school schedule.

Additional Connections Between Play and Cognitive Development

In their review of the play research, Pellegrini and Bjorklund (1996) determined that young children can be taught skills usually acquired much more easily by older children. However, the authors cautioned that skill and drill instruction for young children fails to provide necessary opportunities for children to reflect on the content presented. Without those necessary interactions with others with which to equilibrate information, retention of information is unlikely. However, the idea that young children can retain information presented in skill and drill formats gives administrators and policy makers the impression that more directed instruction results in enhanced cognition for young children as well; if older children can do it, then with sufficient training, the younger children should be able to do it, too. The notions that young children are capable

of the same types of learning and retention as older children and that with more direct and intensive instruction they can accomplish these learning goals earlier go against child development theory and practice; however, these notions drive efforts to abolish recess and play from the school day.

In spite of the theory and research supporting play, many educational policies are based on the premise that play is not necessary and many adults who make educational policy decisions have great anxiety concerning the frivolity of children's play. Treating play and recess as something frivolous has added momentum to the movement toward adults organizing the kinds of play experiences through which children are expected to develop properly. As Sutton-Smith (1997) points out, it is through this lens that many see recess as unnecessary and as a potentially unproductive part of the school day.

Arguing the counter position that recess is not only a productive but also a necessary part of the school day, Frost, Wortham, and Reifel (2004) summarized research that establishes play as an essential component of child development. They reviewed a large and long standing body of evidence which indicates that play strongly promotes cognitive (Gardener, 1993;Sylwester, 1995), language (Blakeslee, 1997; Long, 1997), social (Brownlee, 1997; Hartup, 1992), emotional (Begley, 1997; Goleman, 1995; Landreth, 1991), and physical (Angier, 1992; Underwood & Plagens, 1997) development, and they drew upon these research findings on effects of play across all these domains to challenge the argument that play is superfluous.

In addition, Frost et al. (2004) and others have begun to explore research in cognitive neuroscience that provides a biological foundation for arguing that play is necessary and not frivolous. Neuroscientific evidence indicates that play is a natural,

necessary, and synergistic force in the development of young children (Frost et al., 2004; Clements & Fiorentino, 2004; Gardner, 1993; Jarrett, 2002; Shore, 1997). Before children are born, their brains are pre-wired with billions of neurons that transmit and receive electrochemical signals. Each of these neurons contains one axon and one dendrite. In order for learning to take place, a connection must be made between the axon of one neuron to the dendrite of another. This connection, or synapse, is essential for learning and development to take place. However, young children have the capacity to create thousands more synapses than they will need in a lifetime, but the ability to make synaptic connection decreases and with age. This process of discarding unused synapses, called pruning, is a lifelong process. Without the opportunities to create synapses while the ability is present, the less likely the synapse will form later (Jambor, 2000).

Therefore, the choices children make and choices that are made for children not only have the potential to enhance synaptic growth at early stages of development, but they may also affect pruning at later stages. The most practiced activities in children's daily lives are likely to be the synapses that survive the brain's natural pruning process (Bergen, 2000). Only those connections which are consistently used and applied to other information are retained. Therefore, these connections are ones that become stronger and that are maintained.

Because the formation of synapses is at its peak during the early childhood years, acquiring information and engaging in all types of cognitive and affective learning experiences during that time is of critical importance. If some experiences are not had early, the opportunity to create lifelong learning connections is lost (Frost, Brown, Sutterby, & Thornton, 2004). During the first years of life, it is the amount of playful

activity that may or may not contribute to differences in brain development and human functioning (Frost et al., 2004). Children's experiences during play greatly influence the synapses that form and remain in the brain; these in turn serve as the neurological foundation for cognitive, social, and emotional development (Frost et al., 2004). Activities such as pretend play, games involving problem solving, critical thinking, and social interaction all contribute to the development of synaptic connections and brain development (Frost et al., 2004).

Dockett (1998) conducted a study to examine how children used pretense play to construct understandings of representational "theory of mind" (p. 109). In this study, children were given opportunities to play with objects that were both accurate representations of themselves and those that were more symbolic. Based on these observations, children were then taught to engage in shared pretense play using both kinds of objects. The findings were that children who were trained showed more complex forms of play and a greater understanding and use of symbolic representations. These subjects shared perspectives and understandings that might then be internalized by individuals within their group. Dockett stated, "within play, interactions with others provide guidance, modeling, opportunities for imitation, opportunities to experiment with developing understandings, and strategies to take into account the differing views and perspectives of others" (1998, p. 113).

Recently, Christie (1980) reviewed studies from three decades that explored the relationship between children's cognitive development and play. One study by Durrett and Huffman in 1968 found that there were significant correlations between children's playfulness and measures of divergent thinking. Some of the studies also indicated that

playfulness was associated with creativity as well as divergent thinking. Christie (1980) also examined an experimental study looking at relationship between play and problem solving abilities. He reviewed a study by Dansky and Silverman (1977) that investigated the effects of play on problem solving. These findings indicated that giving children opportunities to play with objects led to increased performance on problem solving and corroborated with other research showing positive correlations between play and divergent thinking and findings that play increased children's performance on divergent thinking tasks that involved the same or similar objects.

In a classic study examined by Christie (1980), Smilansky (1968) attempted to train disadvantaged immigrant children to engage in sociodramatic play, a special category of symbolic play in which two or more children adopt roles and interact together in connection with a common theme. Smilansky noted that disadvantaged children had background experiences needed to engage in sociodramatic play but lacked the knowledge of the sociodramatic and representational techniques for translating their experiences into play. They could participate in play with their play partners, but could not relate personal experiences into a play scheme relating those experiences. Smilansky (1968) found that children needed to learn how to engage in sociodramatic play by having the social opportunities, time and materials to participate in this type of play. Materials such as dolls, play furniture, and dress up clothing, accompanied by interactions with a teacher served as play training, and resulted in greater understandings of how children imitated the world around them.

Through his review of research, Christie (1980) surmised that play facilitates young children's cognitive development and subsequent academic achievement. He

addressed the importance of playing with or exploring materials, which may then result in creative problem solving on the part of the children. Since children do not have the same language structure as adults, they cannot as easily express their understandings of the world around them through words. Instead children use symbols such as toys and manipulatives to express those understandings to others. Based on his reviews of these studies, Christie (1980) recommended that opportunities to play as well as play training are essential for cognitive growth in children; especially children of low socioeconomic status.

Effects of Recess on Symbolic and Written Language Development

Piaget and Inhelder (1969) discussed the connections children make between the social context of language and the concrete operations they are developing and applying to create knowledge of their world. They found that when children begin to develop a language system, they use combinations of signs and symbols to represent their understandings of the world. They identify signs as objects that are "arbitrary or conventional" (p. 57). In addition, they identify symbols as objects which do relate or connect to the intended meaning. In this way, children conceptualize print first as an arbitrary set of signs; without a system in place to interpret them, print remains arbitrary and non-meaningful. However, when children begin to use and then put these signs together to form words and phrases, the signs then become symbols. Children then use these symbols to express meaning in a form of communication.

Ferriero and Teberosky (1979) found that writing development in very young children initially takes two forms: continuous wavy lines or a series of small circles or vertical lines. Initially, children do not conceptualize that, when writing, their marks are

not interpretable unless the reader knows the writers intent. In addition, younger children see drawing as writing. Ferriero and Teberosky (1979) found that when younger children were asked to write began by drawing marks and picture-like images on a page. The children added strings of letters that appeared as cursive *a*'s, *e*'s, or *n*'s. When explaining these markings to the researchers, the children verbally labeled the picture and indicated that the strings of letters were elements of their picture, thus writing (Ferriero & Teberosky, 1979).

Most children begin their attempts to communicate through symbols that carry intent by writing their name. In the beginning stages of writing development, children expect the written strings of letters in people's names to be directly proportional to their size. For example, an older and fully grown person's name should appear longer than that of a child because the child is not as old or as big. Children then use this foundation of knowledge about how their own names function as symbols to build a written symbol language system.

Flavell, Miller, and Miller (1993) described the role play in symbolic representation, young children's use of symbols to represent their understanding of the world around them, and the way they acquire the ability to use these symbols. They pointed out that preschoolers have trouble tracking the flow of information to acquire intelligence. They posited that play acts as the facilitator for taking the world of mature information to the immature mind through perceptual access, within the mind through making inferences, and from one mind to another through communication. Throughout this process of building meaning and knowledge, children begin use symbols to represent their understandings to others. Flavell and his fellow researchers discussed three distinct

modes for symbolic representation: representational insight, dual representation, and representational specificity.

Through representational insight, a child uses pictures to convey their understandings. For example, they may look at a picture of a man and say daddy even though it is not *their* daddy. The child demonstrates through pictures that he understands that there is a man in the picture and that, in the mind of that child, a man is daddy (Flavell et al., 1993).

When they use dual representation, the child is thinking about one thing in two ways that the same time. For example, a child may use a model of a doll to represent the baby within their family. They act as if the doll is indeed their baby and may give it a personality and other human characteristics, but they will leave it in the car or drag it on the ground, not treating the doll like a real infant would be treated. The child is working out understandings of his world through these actions and understands there are relationships between the doll and a real child. But s/he has not worked out the more operational understandings of how to care for a real infant (Flavell et al., 1993).

Finally, Flavell, Miller, and Miller (1993) discussed representational specificity. This is when a child comes to the realization that a symbol can represent a specific entity. The picture and the doll are no longer just daddy or baby; the picture has to actually *be* of daddy and not just a man. The doll is just a model of something that may be real to them one day. It is the understanding that symbols represent many items in our everyday world and that as their development occurs and their minds mature, they are able to make these distinctions for themselves.

But this process of delimiting representational abilities cannot happen unless children interact with others and with objects. Without the opportunity to decenter and consider the perspectives of others, these models and pictures and what they represent will remain static and exactly as the children perceive them. The most appropriate way for this decentration to occur naturally is through play (Flavell, Miller & Miller, 1993).

Summary

Throughout the past few decades much research has been done to investigate the effects of recess and free play activities on children's physical, social, and cognitive development. However, despite the research conducted in these areas, recess and free play continues to be eliminated from school days across the country.

The purpose of this study was to determine whether children who engage in recess and free play before and after instruction and practice aimed at cognitive outcomes demonstrate differences in cognitive performance, specifically as manifested in their use of drawings and symbols in written products related to story content they heard and discussed in a read-aloud lesson. The main research question for this study asked: Do free play opportunities before or after read-aloud lessons and writing sessions lead to greater evidence of cognitive performance as indicated by written representation?

CHAPTER III

METHOD

"Education is not simply a technical business of well-managed information processing, not even a matter of applying 'learning theories' to the classroom or using the results of subject centered 'achievement testing.' It is a complex pursuit of fitting a culture to the needs of its members and its members and their ways of knowing to the needs of the culture." (Bruner, 1971, p. 43).

This chapter presents the methodology used in this investigation of the effects of play during recess on first graders written work. First, an overview of the study is presented, and then a demographic description of the sample and setting is provided. Then instruments used to collect the data are discussed, and a discussion of the research design follows. Finally, the chapter concludes with a description of the procedures used to administer the treatment and collect data for the statistical analysis.

Purpose and Significance of the Study

The purpose of this study was to examine the relationship between play and academic performance for first grade students in an elementary school in the southeastern part of the United States that had eliminated recess. Observations and assessments of one academic skill, writing, provided measures and indicators of academic performance between groups as well as over time. This quasi-experimental study was designed to focus on empirical findings and more clearly identify and describe the relationship between play during recess and academic performance as measured by each student's written products.

Statement of the Research Questions

This study was designed to examine the effect of recess on children's use of symbols to represent thought as they began to develop literacy skills. Additionally, the study was designed to examine the effects of recess on children's drawings and printed letters and words in classroom writing tasks. The following questions guided the study:

1. To what extent do students who get a recess break before versus after literacy lessons write retellings of a story in a complete, clear, and organized fashion as determined by scores on a story retelling rubric?
2. How does recess before as compared to after literacy lessons affect children's abilities to demonstrate story comprehension in drawings that convey story content and written work that provides evidence of the use of comprehension processes such as drawing conclusions, recalling details, inference and sequencing events?
3. How does a recess break before literacy lessons compare to a recess break after literacy lessons on total word count, conventional spelling count and total sentence count in writing samples?

Overview of the Study

This study was conducted to examine the effects of recess before or after literacy lessons on children's use of written symbols. Writing tasks were conducted with two groups over a 14-day period. Participants were given either a short recess period before or after a story was read aloud and writing tasks were conducted. During the recess period, participants were given opportunities to play freely with toys or objects and socialize with classmates. Data were collected in the form of writing samples and

analyzed for: 1) productivity using frequency counts for words, conventional spellings and sentences, 2) content, clarity, and structure using a retelling rubric and the scores derived from it, 3) children's abilities to demonstrate story comprehension using counts for drawings that conveyed story content and evidence of comprehension processes such as drawing conclusions, making inferences, and sequencing (see Chapter I: Definition of Terms).

Participants

Participants were 32 six and seven-year-old first grade children attending the only elementary school serving a small town in central Alabama, USA. This school had only three first grade classes with approximately 12 children in each. Participants were recruited from all three first grade classes within the school (see Appendix A). Special permission was given to the researcher to conduct the study for a 15-day period only (see Appendix B). The school was required by district policies to adhere to a curriculum and schedule which had to be directly instructional in nature. Therefore strict adherence to time constraints was required as a condition for conducting the study.

Participants were recruited by having teachers send a letter explaining the purposes and procedures for the study and an informed consent form (see Appendix C) home with all of the first graders in the school. Only students who returned forms with signatures from parents or guardians giving permission for participation were invited to be a part of this research project. For each of the tests or activities included in this study, children were given the opportunity to personally assent to participation. Of the 33 students, 29 were African American, three were Hispanic, and one was Caucasian. All of these students were given the Peabody Picture Vocabulary Test (PPVT-IIIA) and all but

one was assigned to one of the two treatment groups. There were seven boys and nine girls in Group A, Recess Before Lessons, and eight boys and eight girls in Group B, Recess After Lessons.

After viewing the results of the PPVT-IIIA and the baseline writing samples, one child who was an English Language Learner (ELL) was not included as a participant because his scores on the PPVT-IIIA indicated that his English language proficiency was not sufficient to understand or complete the tasks. This child was not assigned to either treatment group.

In this school, the curriculum required the classroom teachers to engage children in representational writing practice everyday. The writing samples collected from students who had informed consent and participated in this study were available as evidence that this curriculum requirement had been met, and they were used as data that were analyzed to produce results for this study.

For the three students who did not return consent forms as well as the ELL student who did not participate, their teachers and the principal requested that they stay outside during the first recess period and come inside during the second recess period. These children did not participate in either treatment; however, they were given paper and pencil and permitted to draw or write if they chose. Their writings were not used as data in this study, and their papers were used by the classroom teachers as evidence that they also had classroom time to practice representational writing as was required by the curriculum.

Setting

The study was conducted at a rural school in the southeastern United States that included kindergarten and grades one through twelve on the same grounds but in different buildings. The entire school received Title 1 funding from the federal government because of the high percentages of low socio-economic status students who received lunch for free or at reduced fees. The school was located within a county system that abolished recess several years ago. According to Mr. Eddie Clark, Coordinator of Special Education programs and Elementary Curriculum for this system, there had been a no recess policy in this county for over 8 years. The students functioned according to a structured schedule each day of the school year. Each minute of the day had to be accounted for and documented in the teacher's lesson plans and put on file in the school's office. There was no flexibility in the routine. Except for lunchtime, the children attended classes conducted by teachers using direct instruction methods and materials from 7:30 a.m. until 2:45 p.m. daily. All students were permitted one 35-minute block of time each day with a certified teacher for Physical Education that included instruction and assessment on rules and procedures for games and sports activities in the school gymnasium. There was a playground on the school grounds but it was used only as a reward for good behavior in Physical Education and occasionally as a Fun-Friday activity.

Instruments

Prior to treatment, each child was given the Peabody Picture Vocabulary Test (PPVT-IIIA) to determine basic language ability. It was important to have a measure of language development that could be used to assess vocabulary word knowledge and

language development prior to treatment in order to evaluate equality between treatment groups. The PPVT-IIIA provided the researcher with this information as well as providing a baseline to ensure all participants would be able to understand the stories read and the instructions needed to complete the writing tasks.

Participants were given a preliminary writing task that was similar to those given during the treatment. These writing samples were used to determine the children's conception of written language and how that is derived from an oral language activity. These preliminary writing samples provided the researcher with additional knowledge of any English language deficiencies or limitations prior to the implementation of the treatment.

During the treatment, students participated in literacy lessons in which they heard and responded to multicultural folktales that came from an anthology of children's literature (Lippert, 1993) specifically designed for first and second grade students. The researcher, prior to conducting the literacy lessons, read the stories to be shared to determine appropriate language and content. Table 1 includes the story read, questions asked as prompts, and vocabulary highlighted for writing samples for each day of the treatment.

Common terms were substituted for vocabulary that was deemed difficult or so unfamiliar that students would not be able to readily understand the meaning. For example, the term *mademoiselle* in the story "The Banza," was substituted with the term *miss*. Each day one folktale was read to the children, and one open-ended question was asked. Participants could respond to the question in written sentence form, in pictorial form, or both.

Table 1: Story, Questions, and Vocabulary

Study Day	Story Read	Question Asked	Vocabulary Reviewed
Preliminary Day	"The Clever Earthworm"	What was your favorite part of the story?	No vocabulary reviewed- the word *copiously* omitted
Day 1	"The Upside Down Farm"	What do you remember about the story?	*dawn*- very early morning
Day 2	"Cooperation"	Why did the birds work together?	*quail*- a small bird; *quarrelling*- arguing
Day 3	"Why we have Dogs in Hopi Villages"	What did the dogs do?	*mesa*- a flat land with steep edges that some Native Americans build villages upon; *kiva*- a gathering place
Day 4	"How the World Got it's Wisdom"	Why did the spider want all the wisdom for himself?	*tortoise*- a land turtle; *hare*- a rabbit; *gauze*- a thin, see through material
Day 5	"The Golden Touch"	What did King Midas learn about loving gold?	*yearned*- wanted or longed for
Day 6	"Mt. Baker and the Great Flood"	What happened to the Squamish people?	*Squamish people*- a tribal people much like Native Americans; *guardians*- adults who watch out for children
Day 7	"The Banza"	How did the Banza protect Cabree?	*Banza*- a small string instrument like a guitar; *ferocious*- growling and scary; *madamoiselle*- substituted *miss*

Day 8	"Rumpelstiltskin"	Why did Rumpelstilstkin want the queen's child?	*miller*- a person who grinds grain into wheat
Day 9	"The Monkey and the Crocodile"	Who was more clever, the monkey or the crocodile? Why do you think so?	*clever*- very smart and tricky; *figs*- a small fruit
Day 10	"Kuratako the Terrible"	Why was Kuratako so terrible?	*spinning wheel*- a wooden machine used for spinning yarn; *bayonets*- guns with long pointed ends
Day 11	"The Discontented Fish"	Why did the fish want to leave his small pond?	*haughty*- bragging; *solemn*- sad; *crevice*- crack; *contented*- happy, satisfied
Day 12	"Brother's Who were Both Wise and Foolish"	Why were the brothers both wise and foolish?	*Scoffed*- to think stupid of, *buffoon*- a stupid person; *coppersmith*- a person who made pots and pans of copper; *spectacles*- glasses; *simpleton*- a stupid person; *vessel*- a boat
Day 13	"How Little Owl's Name was Changed"	Why was the little owl considered to be good luck?	*Hover*- to view from above; *alighted*- to land softly
Day 14	"Momotaro, the Peach Boy"	Why did the animals refer to Momotaro as "My Lord" after the battle of the ogres?	*fagot* (of sticks)- changed to *bundle*, *stout*- big, strong; *millet dumplings*- boiled dough like oatmeal; *pheasant*- a bird

After the completion of each story, the researcher reviewed the events in the story to help children with comprehension. Each child was then given a blank sheet of paper and a sharpened pencil with an eraser and asked to respond any way they wished. All children were encouraged to record responses to the question asked. One of the three classroom teachers remained in the classroom as an observer to monitor time spent on each task as well as ensuring the consistency of instruction. The researcher and teacher-observer then collected responses and recorded an identification number on the individual writing sample for that day. Students who chose not to participate on a given day were noted.

After all data were collected, writing samples were evaluated for productivity using a checklist to provide for total word count, conventional word count, and total sentence count. An example of the checklist is in the appendix (see Appendix D).

An adapted retelling rubric (Moss, 1997) was used to evaluate student's responses for content, clarity and structure. This rubric had to be adapted from its original form to add a section for no response. The original was designed to evaluate children's retellings by describing criteria indicating a range of comprehension from the lowest level to very detailed, clear and organized retellings. As there were several children who were unable to write according to the criteria of the original rubric, it was adapted to include a section for no response.

The rubric was used to provide scores indicating a wide range of responses from very incomplete retellings of events in the stories, to providing poor or irrelevant information to full use of main ideas as well as details, or at the highest level, to sequence

of events in correct order and summarize most of the material. An example of this adapted rubric is found in the appendix (see Appendix E).

Research Design

The treatment site had a total of three first grade classrooms. Due to the small number of possible participants and ethical concerns of denying the treatment to produce a control group, the design chosen for this study was quasi-experimental. According to Goodwin and Goodwin (1996), the quasi-experimental design was appropriate due to the ability to administer only one pre-measure for both groups as a relevant index with which to determine the equivalence of all subjects prior to the start of treatment in addition to the absence of a control group for a true experimental design. The quasi-experimental design enabled all participants the opportunity to participate in the recess period as well as listen to the stories read by the researcher. No participant was denied any possible benefits of the research study.

Based on participant's PPVT-IIIA scores, students were equally matched and assigned to treatment groups using a number generator and electronic sorter. In addition, groups were reviewed for gender, average age and number of children from each classroom teacher to ensure equal distribution of these factors within and between the groups. Sixteen children were assigned to each group. These children were given the opportunity to choose not to participate in the treatment implemented by the researcher every day of the study. One child chose not to participate and was excluded from the treatment group. He remained with the classroom teacher during the treatment time. His data was eliminated from the study; thus, the number of participants was 15 in one group and 16 in the other.

Procedure

Stories were read by the researcher from a read-aloud anthology of multicultural folktales (Lippert, 1993). Read-alouds lasted approximately three to five minutes per day. Treatment Group A was given a 15-minute recess before being asked to respond to questions from stories read aloud by the researcher. Treatment Group B was asked to respond to the same questions before being allowed to participate in the recess period. Each group was allowed a minimum of 10- minutes to write after listening to the stories and 15- minutes to play with a five-minute exchange between the two environments for a total of 30- minutes of treatment per day. Classroom teachers and student interns supervised children on the playground while one of the classroom teachers remained in the classroom to serve as a teacher-observer. The teacher-observer worked with the researcher to monitor time constraints, maintain the fidelity of read-alouds, questions and directions for responses, as well as provide assistance such as sharpening pencils and locating a place to work to the children in both groups.

Group A attended to the writing task after a 15-minute recess period. Group B attended to the writing task prior to a 15-minute recess period. Each day, both groups were read the same story and asked the same questions. In addition to being written on the classroom chalkboard, questions were read to each group of participants both before and after the story. Children were instructed to respond to the questions using sentences, pictures, or both. Participants were assigned a number for identification purposes, and those numbers were recorded to identify each student's responses on the writing task daily. The date was recorded on the writing task for identification as well to chronologically order tasks.

Each group gathered in the classroom where the literacy lessons took place daily at approximately 1:00 p.m. The literacy lessons took place one hour after the Physical Education class and immediately following the direct instruction Math lesson. This was the daily writing time for all three classes. Group A was allowed to go outside with their classroom teachers while Group B remained in the classroom with the researcher and the assigned observer for that day. The recess period was exactly 15- minutes with a 5-minute transition interval for movement from the courtyard to the classroom and vice versa.

Children were read one story from the *Children's Read Aloud Anthology* (Lippert, 1993) and asked one open-ended question per day. The question was written on the board and read before the story and after the story for clarification. Details from the story were reviewed quickly to aid comprehension before the writing tasks took place by using verbal open-ended questions from the researcher. This was done for both groups.

The children were provided with a blank sheet of paper and a sharpened pencil each day to record their responses. Several of the children who were students in the classroom where the writing tasks took place used crayons from their desks occasionally to emphasize their pictures. The students were permitted the time after the story was completed, approximately 10-12 minutes, to write their responses. The classroom observer watched the clock daily for accuracy in timing. The entire literacy lesson lasted 15 minutes.

Two days were allotted for pre-testing with the PPVT-IIIA and 15-days were used to collect writing samples including the baseline sample. No additional post-testing measures were used.

Analysis

A rubric for scoring writing samples was adapted from a retelling rubric developed by Moss (1997). The rubric was used to evaluate the information contained in daily writing samples. Each day of attendance, the participants were assigned a numerical score for the writing sample on the retelling sample in order to quantify results. If a child chose not to participate in the literacy lessons, the child was given a score of zero on the rubric. A score of zero for non-participation was not averaged into the total group mean; the zero score was excluded from any analysis and was not factored into any analysis.

Each sample was then analyzed using the checklist for productivity to measure the numbers of words, sentences, and conventional spelling. Each day of attendance participants were assigned a numerical score for each factor on the checklist and a score for the written retelling quantify results. If a child chose not to participate in the literacy lessons, the child was given a zero for the productivity checklist and for the written retelling rubric score. However, a zero was not averaged into the overall group mean; the score of zero simply eliminated these scores from the statistical analyses.

Independent samples *t*-tests were used to compare the scores of each factor between the two groups. Data from rubric assessment of writing samples were analyzed and are reported in the results section. Additional data regarding the daily productivity between the subjects is also presented in Chapter IV.

CHAPTER IV

RESULTS

"You can discover more about a person in an hour of play than in a year of conversation" Plato (427 BC - 347 BC).

This chapter presents the results of this quasi-experimental investigation into the effects of timing for recess, either before or after literacy lessons, on students' amount of writing, comprehension processes, and use of symbols in written responses to folktales read aloud. The data answered the following questions:

1. To what extent do students who get a recess break before versus after literacy lessons write retellings of a story in a complete, clear, and organized fashion as determined by scores on a story retelling rubric?
2. How does recess before as compared to after literacy lessons affect children's abilities to demonstrate story comprehension in drawings that convey story content and written work that provides evidence of the use of comprehension processes such as drawing conclusions, recalling details, inference and sequencing events?
3. How does a recess break before literacy lessons compare to a recess break after literacy lessons on total word count, conventional spelling count and total sentence count in writing samples?

The chapter begins with a description of the quantitative analysis for data used to determine the effects of timing for recess on four specific categories of writing products which are discussed in detail throughout this section. The following section presents the analysis of descriptive data and detailed information on the measures obtained for these variables.

Data Analysis

Data collected from the writing samples were analyzed using conservative Independent Samples T-Tests and a One-Way Analysis of Variance (ANOVA) to compare the means of the groups across the four variables: total words, conventional spellings, total sentences, and written retellings. To guard against Type I error, a very conservative alpha level of .01 was set for determining statistical significance of T-Test results. Analyses using the T-Tests and ANOVA produced the same results so the outcome and statistically significant differences will be reported for the Independent Samples T-Tests. A doctoral student in English Education assisted the researcher by analyzing selected writing samples under the same criteria as the researcher to establish inter-rater agreement among scores for the outcomes measured. Originally five areas were measured: Total Count of all words used, Conventional Spellings of all words used, Non-Conventional Sentences used, Conventional Sentences used, and a Written Retelling score as defined by an adapted retelling rubric (Moss, 1997). However, after initial analyses were discussed, it was determined that Non-Conventional Sentences and Conventional Sentences did not need to be dichotomized as two separate entities for the

research questions addressed in this study, and those scores were then combined into a total sentence count.

To measure inter-rater agreement, both the researcher and the doctoral student who assisted with the analyses rated the data from the first, baseline writing samples and the samples for the overall highest scoring day Highest Scoring Day (day 8) to determine if there was consistency across the ratings done by different evaluators or writing samples for each child. Correlations were run using SPSS 12.0. The mean, standard deviations and correlations for the initial, baseline writing samples were recorded using Pearson's *r* and are reported in Table 2. Correlations between the two rater's scores ranged from a high of .999 for total word counts to a low of .879 for counts of number of sentences.

Table 2

Correlations Between Baseline Writing Samples

	Researcher's Scores		Doctoral Student's Scores		
	Student Samples (*n*= 31)				
Variable	Mean	SD	Mean	SD	Correlation
Total Word	13.06	9.161	13.00	9.125	.999
Conventional Sp.	10.68	8.207	10.81	8.134	.997
Sentences	1.81	1.493	1.58	1.689	.879
Retelling	1.26	.815	1.19	.703	.957

Since the correlation between the raters' total sentence counts was below the .9 level, results for the highest scoring day were also examined and correlations for inter-rater

agreement were established. The results were statistically analyzed using SPSS 12.0. Correlations between scores of the researcher and the doctoral student on day 8 were established using Pearson's *r* and were recorded and are reported in Table 3. In this case, raters' scores were highly correlated for all four measures with a range of .979 for sentence counts and a 1.000 for Written Retelling scores.

Table 3

Correlations Between Highest Scoring Day Samples

	Researcher's Scores		Doctoral Student Scores		
	Student Samples (*n*=31)				
Variable	Mean	SD	Mean	SD	Correlation
Total Words	22.16	15.659	22.42	15.972	.998
Conventional Sp.	18.97	14.930	19.03	15.143	.999
Sentences	3.45	2.173	3.52	2.379	.979
Retelling	1.58	.620	1.58	.620	1.000

The correlations for evaluations of writing samples on both days were statistically significant in all areas at the .01 level in a 2-tailed design. Therefore inter-rater agreement was established, and since scores produced by both raters were nearly identical, the writing samples evaluated only by the researcher were used in subsequent analyses.

After establishing inter-rater agreement, scores for each writing sample were entered into SPSS and analyzed as the dependent variables that follow: Total Word (TW) Count, Conventional Spelling (CS) Count, Total Sentence (S) Count, and a Retelling

(RT) Score based on the Retelling Rubric (Appendix A) adapted from Moss (1997). Each of these items was then given a numeric value for count and the numbers were used to perform a comparison analysis using Independent Samples T-Tests. Each value yielded statistically significant differences. Group statistics for the four variables are reported in Table 4:

Table 4

Comparison of Recess Timing Between Groups

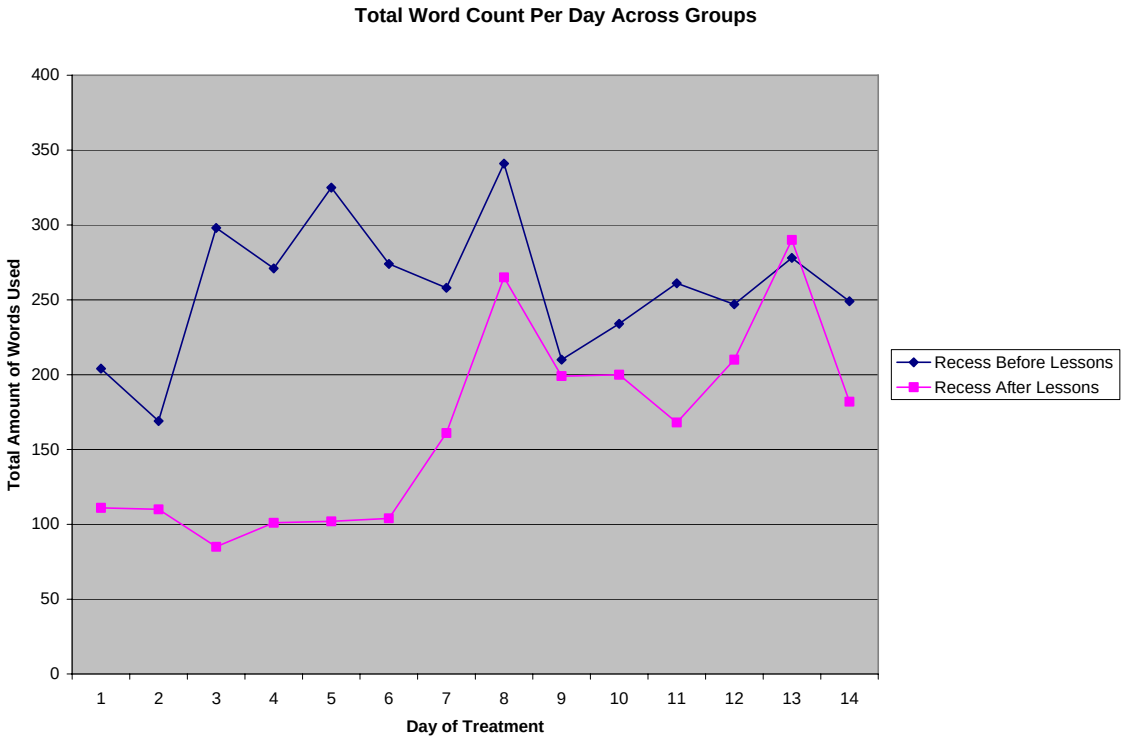
Variable	Recess BeforeLessons			Recess After Lessons				
	(*n*)	Mean	SD	(*n*)	Mean	SD	*df*	*t*
TW	15	17.83	6.7	16	10.19	4.53	29	3.739*
CS	15	13.81	5.73	16	8.37	4.40	29	2.973*
S	15	2.77	1.11	16	1.60	.060	29	3.666*
RT	15	1.50	.285	16	1.17	.246	29	3.448*

*$p<.01$

The alpha level used in the quantitative data analysis was at the .01 confidence level, even less than the .05, to guard against Type 1 error (Harris, 1998). All four *t*-tests met these stringent criteria.

Total Productivity in the four areas of total word count, conventional spelling count, total sentences, and retelling scores were combined for all group members across each day and reported in Figures 1, 2, 3, and 4. These figures represent the differences between the variables over the course of the 14 days of the study.

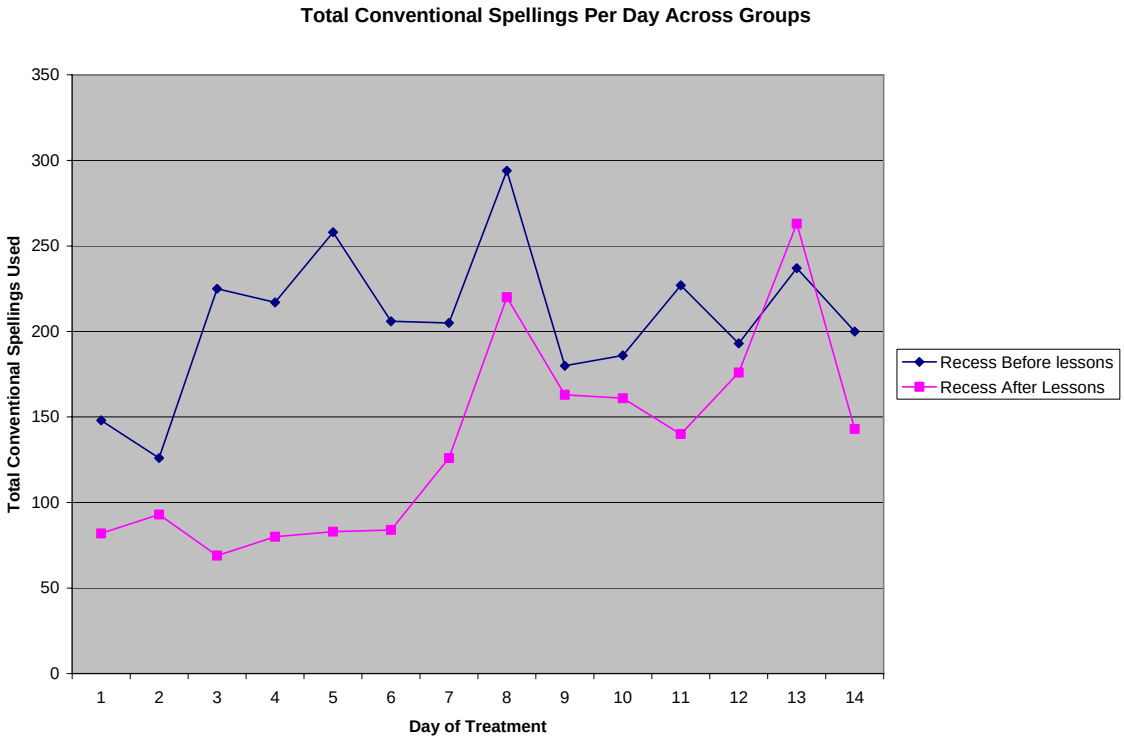
Figure 1



In Figure 1, the total number of words written per day by both groups was combined to obtain a numerical score by group per day. The Recess Before Lessons Group showed greater productivity during the days 3, 4, 5, and 6 of the treatment. By day 7, the Recess After Lessons Group began to make significant progress on their total scores for output. Day 8 indicated a dramatic improvement for both groups with a sharp decline in productivity on day 9. Only on day 13, was there a higher score for the Recess After lessons Group than for the Recess Before Lessons Group.

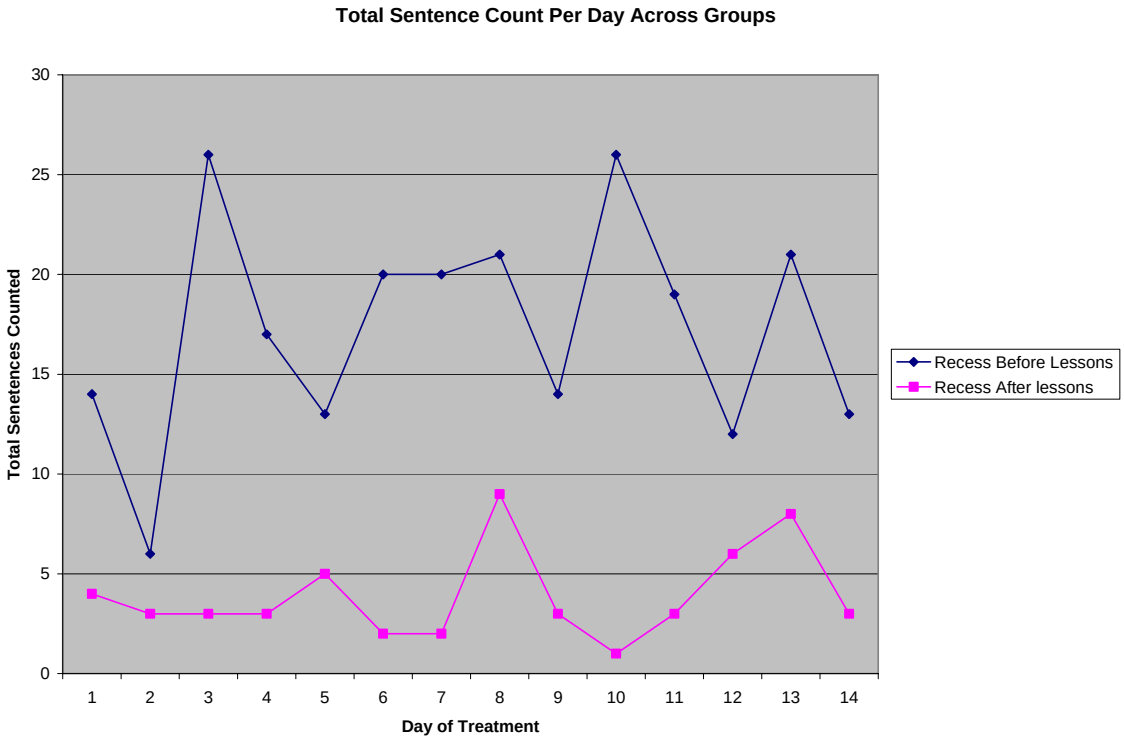
The story "Rumplestiltskin" was the story read to both groups on day 8. It is a possibility that this story was familiar to the children, therefore they were all able to respond more productively to it.

Figure 2



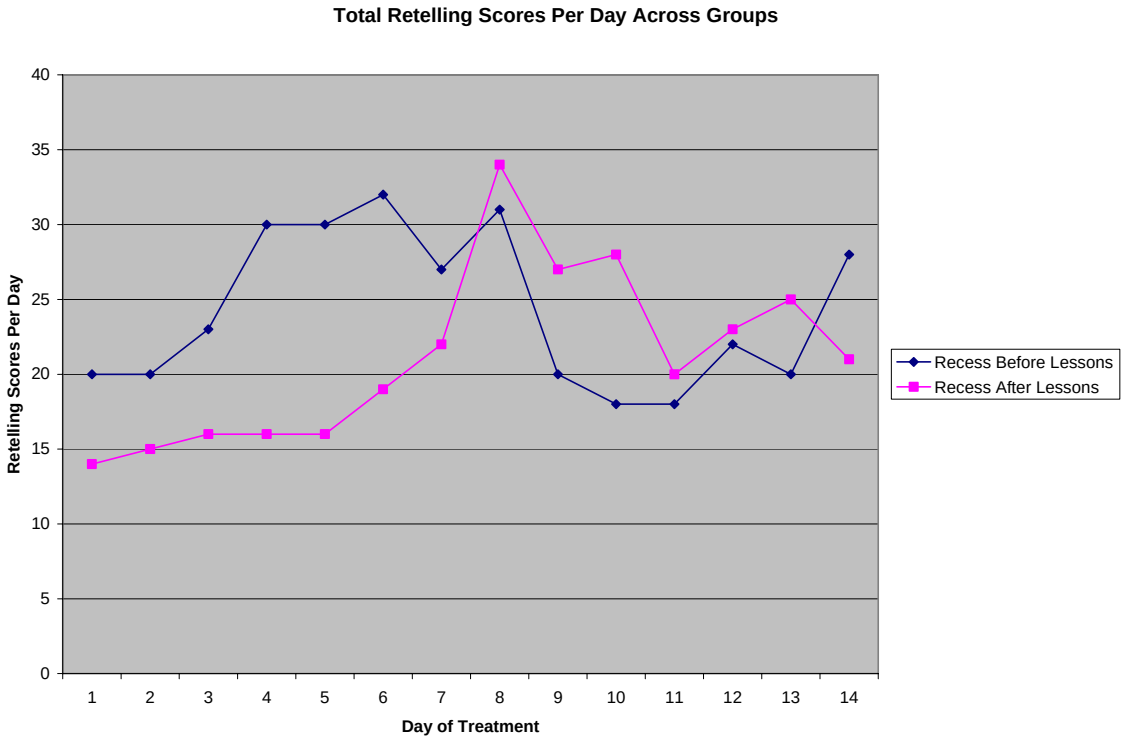
The productivity of conventional spellings is very consistent with productivity of total word count. This indicates that not only were the children writing words, most of the words they were writing were spelled correctly according to conventions of the English language.

Figure 3



Productivity in total sentences written shows large differences between the groups over the treatment period. Day 8 and day 13 were both still very productive days for the Recess After Lessons Group; however, the Recess before lessons Group also wrote many sentences to respond to the researcher's questions on day 3 of the treatment. Consistency in productivity levels was much more apparent in the Recess After lessons Group for this variable.

Figure 4



Productivity for retellings shows the largest growth for the Recess After Lessons Group. The data show both groups gaining in retelling scores for most of the first 8 days of treatment. However, after day 8, there was a steady decline for both groups with a spike in scores on the last day for the Recess Before Lessons group and a slight increase in scores for the Recess After lessons Group on day 12 and day 13 of the treatment.

Evidence of Comprehension Processes

In addition to being analyzed for productivity counts, data were analyzed for frequency in the areas of use of detail, sequencing, inference, using pictures to support or

convey meaning, and drawing conclusions. Identifying these five factors in children's writing helped to present the findings in a holistic context and were indicative of comprehension processes being applied to story content and recorded in writings.

Students were asked questions (see Table 3 in Chapter III) after the readings that provided opportunities to respond using the five components of writing identified as evidence of comprehension processes and more complex thinking skills. Several times children were not able to convey all of their understandings through written words or sentences, and instead used pictures to illustrate additional information and more fully show their understandings. For matters of clarification, the Table 5 has been included to compare the differences between the groups on each of the five categories assessed in writing samples.

Table 5

Differences in Comparisons of Evidence of Comprehension Processes

	Recess Before Lessons	Recess After Lessons
Details	60	48
Drawing Conclusions	36	11
Inference	32	30
Pictures	29	1
Sequencing	7	1
Use of Two Categories	49	6
Use of Three Categories	4	0

The children's responses were often simple details they were able to recall from the oral reading of the story. The large numbers in the Details category show that when asked to respond to a question regarding the story, most often children typically included specific detail to convey their understanding or specifically answer the question which was asked. Pseudonyms are used in references to all participants in this report.

The story "Mount Baker and the Great Flood" is about a flood that washed out an entire tribal village except for two adults and the children of the village who managed to escape in a canoe to a mountain top. Mark, of the children in the Recess Before Lessons group wrote responses with specific details such as:

"They called the Squamish people. They was living on the land. They was smart."

The word Squamish was written on the board as part of the unknown vocabulary. Mark remembered that the Squamish people lived on the land before the flood came. But he took this detail one step further by saying that the people were smart. This statement was scored as an inference that the people were smart enough to escape to the top of the mountain in a canoe or even realize that the entire tribe could not survive the flood but that the children, with the help of two guardians could rebuild the tribe. In comparison, Alice, of the Recess After Lessons group said of the same story:

"the people had dided in the water"

Alice stated a specific detail from the story; yet, she stopped short of drawing any type of conclusion or inference concerning the characters beyond the specified detail. In the same story, Shanna, of the Recess After Lessons group said:

"some of them had dide"

And Dharma of the Recess After Lessons group said:

"the Squamish peoples dide."

Only Monica, of the Recess After Lessons group went one step further by adding an evaluative opinion to her comments. She said:

"Some of the people had did and some of the people den't I love that story."

Monica used two details as well as adding her personal opinion to represent her understanding. However, opinions were not counted among the comprehensive processes as they were not indicative of actual story knowledge.

Sometimes two categories of responses were used in a writing sample from a single student for a single story. In addition, the categories Pictures and Drawing Conclusions indicated distinct differences between the groups as to how the participants responded. For example, several times the participants used pictures to convey specific and very clear understandings their verbal writings were not able to represent. For

example, the story “Cooperation” is a folktale about a group of birds that must work together so not to get caught in the net of a hunter and thus eate. Lamar, of the Recess Before Lesson Group, said:

> “the bird work togther Becauses they did not want to die”

This fact was implied in the story, but not stated; therefore the participant was given credit for inferring this detail. However, in addition to the statement showing he understood the purpose for cooperating within the story, he drew a picture with the hunter standing, mouth agape, while 3 birds that appear to be caught in a net are smiling and flying away. The statement the child made showed that he not only understood the role of cooperation in the story, but that he could visually represent it as well.

There was an example of the use of two categories from the Recess After Lessons group as well. Alexa said:

“The huntr was still picking the net out of the thorn bush. The birds worked together so the huntr would not eat them.”

Within the context of the story, the fact that the hunter pulled the net out of the bush and the birds had to work together to escape was stated; however, the detail of the hunter eating the birds was inferred, so this child received credit for two categories. Although both students used two categories in their responses, Lamar’s response visually represented his comprehension of the context of the story as well as the content within it.

Additional examples of the use of two categories came from the story of "The Discontented Fish." Sandy, of the Recess Before Lesson Group, was asked to respond to a story about a fish who was so superior in thought that he felt too good to remain in his small pond with the smaller fish who lived there. The discontented fish swam out to a larger pond. Once there, he realized that he was no longer the big fish in the little pond but just a small fish among many and he had to fight for his life. The discontented fish did make it back to his small pond, but the other fish made him promise to be nice to them in order to stay. Sandy responded by saying:

"He was sad he want to be in the tall pond He want to be in the tall pond becus all the fish was gon."

Then she drew a very large fish with a big smile on his face. To the side of the paper were three much smaller fish, swimming away from the large fish with the words "fish gon" by each one of them. This indicates that although Sandy understood that although the fish was unhappy about being in the small pond, when he went to the "tall pond" he was still unhappy. Her understanding that the fish wasn't happy until he was back in his small pond with the other little fish shows that she not only comprehended specific details but through her pictorial representation, drew the conclusion that when the fish returned home to the small pond, he was finally happy. Her writing stated specific details while her drawings actually represented her understanding of the fish's motivation to return to his home.

In addition to using two categories to convey understanding, several of the children in the Recess Before Lessons Group used up to three categories to convey their understanding. In the story “How Dogs Came to Hopi Villages,”
Samantha responded:

“The dogs kept the peols from fing. The dogs smoked the poip they tossted it to the other dog. The dogs get the food. The man fed the dogs The dogs was friends the dogs played well the dogs liked each other”

In her response, Samantha tried to explain how , a young boy in the story went to a village of dogs to see if they could help him find a way to keep the people in his *own* village from fighting. The dogs smoked the peace pipe with the boy and told him that he would have to find a way to make some of the dogs go back to his village with him. He did this by feeding them when they became hungry. When the dogs ate his food, they were bound to him and thus had to follow him back to his village. There he gave each of the dogs to a villager. The villagers were so happy with their new pets, they stopped fighting.

Samantha made an attempt to sequence the events of the story. She was given a score for drawing conclusions about the dogs playing well and becoming friends because those details were not stated as such in the story. She brought out specific details such as smoking the peace pipe. And finally she drew a picture of a home. Even if the picture did not represent any specific comprehension processes, this child still used a minimum of three categories to respond to the question and let the reader know her understanding.

There were no responses in the Recess After Lesson group that used any more than two categories to represent comprehension processes.

The story of "Kuratako, the Terrible" is about a rooster who is raised by an old man and an old woman. The rooster eats and eats until one day he eats his owners and goes off down the road to eat everything that comes in his path. For this story, Monica of the Recess After Lesson group wrote:

"He ate the grampo I think he was mad becoue he was hogre and I ate peple"

Monica showed that she was trying to figure out why Kuratako would eat those who loved him and was given credit for drawing conclusions. By stating that the rooster actually *ate* the grandpa (old man) she earned credit for details as well. But there was no picture to support this understanding; there were no additional details that could have shown sequencing. She stopped at what happened and why she thought this did indeed happen.

One of the most interesting findings came from the two children who were classified as English Language Learners (ELL) in the groups of participants. They were both assigned to the Recess Before Lessons Group. The first child, Robert, wrote very extensive responses every day. He counted the number of sentences he wrote. If he did not feel he had enough, he continued to write until he ran out of time. For example, "How the Spider Got his Wisdom," related an Ananse tale of how all the stories in the world came from one place and the king who possessed those stories was considered the wisest of all. On that day, Robert wrote:

"He wanted to be king.

He wanted to be ruler.

He needs to be a star.

He had to have it.

He needed to be rich.

He wanted a machin.

He wants to be a movie star."

He continued writing the word "He" down the side of the paper to let him know he still had things to write. This child seemed to equate *more* with better. Then at the bottom of his paper, under the last "he" Robert drew a spider. The spider had an angry look on his face. In the story, the spider was angry because he could not keep the wisdom of the world in a jar all for himself. Robert was given credit for Inferring details, Drawing Conclusions, and using a Picture to convey meaning. It was noted that Robert was a child whom the other children liked to sit close to and he was always talking out his responses while he wrote.

In contrast, Jessica, the other ELL child in the study, was significantly quieter. The first few days of the study, she wrote nothing. Then when she began to write, she usually could not read back what she had written. It was impossible to tell if she was writing for meaning or because she felt that she had to write something. When her behaviors indicated she was getting frustrated by having to write, she was asked to draw a picture if she wanted to. The story "How the Little Owl Got His Name" is an Inuit tale

about a family who almost froze to death on the ice because some thieves stole their fire from their igloo, Jessica listened intently to the story. However, she seemed unsure as to what to write. She tried writing a response:

"I hti The hwe mom"

But she drew an igloo with a little girl standing inside with a very sad look on her face. She drew a house (a conventional house with sides) beside the igloo, but then erased that house and kept the igloo. There was a hole in the top of the igloo, because in the story, the eagle flew down in through the hole and got the fire back from the thieves to save the family. Jessica understood the elements of the story, even though she was unable to represent her understandings through conventional writing using words and sentences.

Differences among the children's responses to all stories were similar to the examples described. These descriptive results also indicate distinct differences for all variables between the groups as evidenced by data showing that symbolic representation and complex understandings were consistently produced more frequently by the children in the Recess Before Literacy Lesson group than by the children in the Recess After Literacy Lessons Group

CHAPTER V

LIMITATIONS, IMPLICATIONS, CONCLUSIONS

"When a child has lost the ability to play, he is physically dead and a danger to anyone who comes in contact with him. It is an intriguing thing, yet most difficult, to assess the damage done to children who have not been allowed to play as much as they wanted to." (A.S. Neill, 1960).

The findings in this report are consistent with those produced by research on physical, social, and cognitive development and from play studies done over the past 50 years. In spite of the limitations inherent in this study, the results indicate that several conclusions may be drawn about changes in educational policy that need to take place to accommodate for recess within the school day. First, as the results in Chapter 4 showed, when given a recess break before literacy lessons, children are more productive and more thoughtful with their writings and representations then when children are given a recess break after literacy lessons. Second, writings and representations became more productive and thoughtful, for both groups over the time span of the 14 days indicating that the recess treatment was a benefit to all participants. Results of this study suggest that recess may be most beneficial when it is consistently given over time whether recess occurs before or after academic lessons such as listening to read alouds and producing written retelling. Sporadic implementation of the recess period may provide some benefit to students, but for maximum advantage, recess probably should be implemented within the course of every school day. Third, children are able to more fully comprehend

material presented to them in classroom settings when given the opportunity to process and reflect on that information. Recess may provide opportunities for children to not only reflect on material presented in class, but to interact with their classmates and exchange ideas and point of view. The result of this study support Piaget's (1962) theory that interaction between children helps to build cognitive structures and encourages decentration that allows children to produce more representational writing that shows greater comprehension and complexity of thought. Finally, the children in this study demonstrated that when teachers set expectations for responses that encourage children to can reason through what they know, they can demonstrate cognitive growth that can be measured in written retellings.

Limitations

This study was done on a very small scale. Due to time constraints placed on the researcher by the school and school system, it was not possible to conduct the study for a longer period of time or to have a control group to isolate recess as the actual contributor to the change in productivity and thought processes. However, the data all showed statistically significant benefits of providing a recess period before literacy lessons despite these limitations. Although this study was not longitudinal and could not provide compelling evidence to support the effects of recess before literacy lessons over the long term, it did provide some very conclusive evidence. Even in the short term, recess served to benefit the participants and enhance academic outcomes in the writing domain and it was not the detrimental influence identified by proponents of the conservative view of play that are leading the trend to eliminate free play during recess from schools across this country.

The children with Recess After the Literacy Lesson seemed less willing to write. They did write or draw when asked, but often they just put something down on paper in order to then go out to play. Many times the representation given was either arbitrary in that it had nothing to do with the story being read, or it was a simple detail; something that could very easily answer a simple question. Students in the Recess After Lesson Group seemed more unfocused and restless than the group with Recess Before Literacy Lessons. Their attention was not on writing or responding; rather it was on just getting finished with the task. Even though they were given the exact same amount of time to write or draw, the same directions, and knew that they were going to have a recess break within a few minutes, many preferred to wait by the door quietly than use all of the time given for attention to the writing task.

On the other hand, students in the group with Recess Before Literacy Lessons seemed to be able to think in more complex ways. When they could not express themselves through verbal symbols, they often turned to pictorial representations to convey their understandings. For example, when responding to the story of King Midas in "The Golden Touch," Zendrae not only wrote details to show that he understood that King Midas was greedy in his lust for gold, but also drew an elaborate picture complete with King Midas wearing a large crown and carrying a golden staff (which looked more like a knife). He thought beyond the basic details of the story to visually show that King Midas was a man motivated by a quest for immeasurable wealth and acquisition of gold. This substantiates Piaget's (1962) statement "Play is an assimilation of reality to the ego as distinct from serious thought in which the assimilating process is in equilibrium with accommodation to other persons and other things" (p. 148). Zendrae may not have been

able to understand the reality of or the serious aspects of greed. But in his reality, he understood in that kings wear crowns and rule with power, as he represented through the drawing of the staff. He used his knowledge of this reality to represent his understanding through this drawing. In Zendrae's drawing, King Midas did not look like an ordinary man. He looked like a king.

The written representations of children in the group with Recess Before Literacy Lessons were more detailed and sophisticated and showed evidence of student communication and cross-fertilization of ideas from students. This supports Frost's (1998) statement, "Through a negotiation during play, [children] develop mental and emotional mastery and learn cooperation and leadership skills. [Their] imaginative or make-believe play is a powerful medium for socialization, allowing them to simplify a complicated world and make otherwise complex and frightening events manageable and comprehensible. Such play assists the development of cooperating, sharing, negotiating, and problem solving skills and helps the child to get along in an increasingly complex world"(p. 10). By allowing the children the opportunity to play and negotiate situations such as sharing the materials provided, they were able to concentrate and focus on more specific details when asked. The children had to negotiate both on the playground as well as in the classroom. As this classroom belonged to only a few of the participants, others had to learn to cooperate to find seating to listen to the story, to work on writing, and how figure out how to get and maintain supplies. During the first few days of the treatment, just finding a place to sit could easily turn into chaos or a fight. By the end of the treatment, the children had negotiated where and with whom they felt the most comfortable listening, working, and interacting. The process of negotiation was also

evident in the way they worked, and the amount of work produced by both groups increased over time. This supports Frost's (1998) statements and may account for the greater quantity as well as quality of written work toward the middle and end of the treatment period.

The research questions formulated for this study specifically addressed the extent to which the children who had the recess treatment before or after the lessons differed in the quantity and quality of their writings. Stories that may have frightened them, such as "The Banza" in which a little goat was about to be eaten by tigers, were responded to by focusing on how the little goat outsmarted the tigers. The children in the group with Recess Before the Literacy Lesson focused on how the goat got away where as most of the children in the Recess After Lessons group focused on how many tigers there were in the story. But a consistent pattern was evident as the group with Recess After Literacy Lessons negotiated a solution to how the main character in this story was able to outsmart her enemies. For these children, there was much less talking during the writing time than for the children in the group with Recess Before Literacy Lessons.

Children who were permitted a recess break before the literacy lesson were clearly more productive in using written or drawn symbols than those children who were asked to perform the literacy tasks first. The quantitative analyses indicate that the children who were given a break before the literacy lesson not only performed using more complex writing, but also produced greater quantities of writing.

Children during preoperational stage of development use the stages of representation: deferred imitation, symbolic play, drawing, mental imagery, and spoken language, to communicate their understandings of the world around them to adults and

peers. Without the opportunities to interact socially and physically with the world around them, these stages may be hindered in their development and the child may be unable to reach more advanced stages of cognition and development

Implications

Perhaps rather than eliminating recess from the school day, it would serve education better to examine the school day to see where time could be readjusted to accommodate this important play period for exercise and interaction. In addition, lessons could be re-evaluated to provide more social interaction and opportunities to act upon objects and the environment to encourage behaviors that young children need to form synapses that will strengthen and mature into a more developed knowledge system. However, without a careful re-examination of the current national and local school attitudes and policies concerning appropriate instructional techniques for young children, the United States may continue to be a nation struggling with an education system that perpetuates failure and graduates ill prepared adults.

Testing has become the central focus of our current education system; and testing is important. It provides information concerning our students' knowledge as well as teaching practices which may contribute to success or failure. But to use testing as the central indicator, and recently the only indicator of all academic achievement, discounts decades of research showing that other factors, too, are important to consider. Testing, however informative, is unable to account for development. Without considering the element of development, education is severely limited, and children's achievement is hindered.

Play has long been assumed as a right of passage in childhood; as a time honored tradition that is freely given to all children. However, the current trends in education are greatly diminishing the right to play for children, particularly in elementary schools. Accountability for academic improvement has been imposed on school administrators, teachers, and students and has all but eliminated this tradition of play during recess that has been around for hundreds of years (Mulrine, 2000). In the words of one of the most notable educational theorists of all time, Piaget, play is easily seen by traditionalists as a waste of time:

> In spite of the prophetic visions of the great educationalists, play has always been considered, in traditional education, as a kind of mental waste-matter, without functional significance, and even harmful to children, keeping them from their homework (Piaget, 1962, p. 151).

With the emphasis on high stakes testing and student performance in schools taking precedence over the developmental aspects of a child's education, more and more school environments are eliminating the time for play in school. Recess, specifically, has been targeted as a waste of time that is better spent on academics (Johnson, 1998). The value of play has taken a direct hit with current policy makers debunking the necessity of recess and in lieu of free time, recommending or requiring more academic tasks in all school environments.

As stated in Chapter II, cognitive neuroscience research provides the framework in which to view the role that play has on synapses formed in the brain. During the first

few years of life, it is playful activity, not direct instruction or deprivation from that activity that makes a positive difference in brain development and subsequent human functioning (Frost, 1998). A child is born with trillions of neurons that are ready to create these synapses, and if left unused, the neurons do not survive. Early experiences determine which neurons are to be used and which are to die thus determining whether the child is to become brilliant or dull, confident or fearful, articulate or unable to communicate (Begley & Hager, 1996). Simply put, "if you don't use it, you lose it" (Jambor, 2000).

Many researchers have outlined connections between play and child development (Frost, Wortham, & Reifel, 2005; Jambor, 1995; Pelligrini & Glickman, 1989). Children need opportunities to act on materials and individuals within their environment through play in order to fully develop these neurological connections and become more fully developed adolescents and eventually adults.

> Brain development and cognitive achievements of very young children are well disguised in the seemingly innocuous cloak of play. Essentially, only neuroscientists see the physical evidence [through brain scans] that reveal the relative consequences of environmental stimulation or neglect. The casual observer does not grasp the profound relationships between achievement and the endless games that are very young play, that in reality are storehouses or machines for programming the brain for language, art, music, science, kinesthetic, and interpersonal abilities and intelligence (Frost, 1998, p. 9).

Without opportunities to play and interact with objects as well as individuals, children are greatly hindered in all aspects of their development; cognitive, social and physical.

Pelligrini and Bjorklund (1997) discussed a study which lead them to claim that young children do not process information as effectively as older children and adults due to the immaturity of their nervous systems and lack of experiences. Frost (1998) agreed and he stated that "Merely filling the child with information or scheduled activities may lead to overstimulation" (p. 9). Direct instruction environments have some role in a classroom, but children need opportunities to reflect on the information given and process in order to represent it through alternate means effectively. The children in this study who had the opportunity to process information through a recess period before their literacy lessons were more likely to represent story content and their own ideas more elaborately. The children given the recess break before listening and responding to the stories could more fully develop ideas and recreate those ideas through symbols such as letters, words, sentences, and pictures. The children who went from a direct instruction environment to a literacy lesson and then to recess were less productive and less creative than their counterparts who were given a short break before the literacy lesson. They still produced writing; they still functioned adequately for their age; but they were not nearly as creative in how they accomplished this task. The group with recess after the literacy lessons were more likely to re-produce straight facts than critically think about those facts and use them to explain their understandings in greater detail to an outside audience.

The literature review included a study by Jarrett et al. (2001) that discussed the effects of the recess break on classroom behaviors, specifically those that require attention to detail. The results of this study concurred with this investigation's findings that the children who were given the recess break before the literacy lesson added more detail to their writings and drawings. Additionally, they used more advanced literacy

skills such as inference and drawing conclusions to communicate their understandings. The children who were given a break before the literacy lesson used multiple literacy skills in conveying understandings. Although both groups had exactly the same amount of time to write and draw, the researcher observed that children who had a break before the literacy lessons were less fidgety and inattentive than their non-recess classmates. The data showed that those without breaks before the literacy lessons often wrote only one detail or expressed themselves in much less sophisticated ways. They rarely used pictures or sequenced events. Several times, the children wrote only the question that was written on the board; no response; no detail. Very little, if any, attention was given to an outside audience. The children who wrote before the recess period were demonstrated little creativity and imagination.

This study yielded interesting social effects as well as cognitive effects. Two of the participants were ELL students. One of those students was very English proficient even though English was not the primary language spoken in his household. The other was not proficient in the English language. She had difficulty in communicating through written symbols in words and sentences. However, through informal observations throughout this study it was noted that being given an opportunity to play with her classmates seemed to open her up to attempting to convey her understandings through the responses she gave. At the beginning of the study, there were several days when she had no response to the questions asked. But as time progressed, she began to write letters and phrases, although they were not easily interpreted by the researcher. When questioned about her responses, she would often pull away and lower her eyes. Throughout the treatment she began to draw pictures to show that she did indeed understand and

comprehend the details of the story. She became excited about participating in both the outdoor recess period as well as the writing tasks. By the end of treatment, she smiled and showed off her work instead of hiding it as she did in the beginning. She wanted to show what she represented to others and often tried to communicate, although haltingly, to do so. Without the opportunity to interact through a play environment, this child may have remained silent or very cautious in her willingness to produce utterances and use of the English language. This substantiates Jambor's (1995) results and his insistence that, without opportunities to interact with other children, reciprocating relationships, the ability to view events from different perspectives, and social competence are less likely to be established.

Additionally, the children in this study were rarely given the opportunities to interact socially with each other during the normal school day. Informal observations noted during the first few days of data collection suggested that the constrained background of structured, direct instruction environment with known-answer responses expected made the participants unable to understand that a response to questions posed in this study could be whatever they chose it to be. They consistently asked "What do we write?" and sometimes whined "I don't know what to do!" They become frustrated with the lack of direct instruction during the time to respond to questions from the story. The participants were consistently encouraged to respond in any way that they wished and informed that answers were completely their own choice. When they realized they could in fact talk and interact with each other to write, without fear of incorrectly responding, they then began to draw, use colors, and write in non-conventional and conventional

ways. The responses became more child centered and more relaxed, thus more creative for all participants than those first tedious writing attempts during the first few days.

Throughout the study, the research questions were a consideration in both planning and implementation. To really determine if the children were going to be able to express themselves in a creative yet clear fashion, the stories had to be carefully screened and very specific types of questions had to be asked. The questions that accompanied the stories had to provide opportunity to think, recall, examine, comprehend, and finally represent both what was asked of them and elicited writing that showed how well children were able to express their ideas to others. Without all of these factors taken into account, the possibilities for the types of representations that were produced in the end would have been severely limited. Procedures and questions used in this investigation were adequate and appropriate for determining the provision that a recess period provided those opportunities to write in a creative yet coherent fashion.

Conclusions

The way young children learn is very different than that of adolescents and adults. Children must be given opportunities to interact socially with peers and adults in order to construct understandings of the world around them. To expect children to gain all knowledge from direct instruction situations within school and home settings is unrealistic. This type of transference greatly hinders the advancement of social and emotional skills and decreases opportunities for synapses to form and lead to greater cognitive growth.

The results of this study support school policy changes that need to be made to recognize the importance of free play on children's development. Rather than instituting

policies to deny children a fundamental right to play, school policy makers should be considering the importance of time for children to develop at their own pace and in their own ways. Direct instruction methods do have a role in a classroom setting. However, using purely direct instructional techniques disregards the need for free play and use of symbolic representation in a child's development. Social interaction provides opportunities to reflect on information, encourages children to negotiate understandings with peers and adults, and allows children to build on that knowledge in a developmental context in order to reach their full potential as individuals. Until policy makers and administrators recognize and value the necessity of children's play as a fundamental element in classrooms on an everyday basis, our education system as we know it will be far behind environments that do recognize the importance and value of a child's play.

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APPENDICES

APPENDIX A:

IRB Protocol & Approval

Auburn University

Auburn University, Alabama 36849

Office of Human Subjects Research
307 Samford Hall

Telephone: 334-844-5966
Fax: 334-844-4391
hsubjec@auburn.edu

March 7, 2005

MEMORANDUM TO:	Barbara Hall Curriculum & Teaching
PROTOCOL TITLE:	"The Effect of Recess on Children's Use of Symbols"
IRB FILE:	#05-016 EP 0503
APPROVAL DATE: EXPIRATION DATE:	March 4, 2005 March 3, 2006

The above reference protocol was approved by IRB Expedited procedure under Expedited Category #7 on March 4, 2005. You should report to the IRB any proposed changes in the protocol or procedures and any unanticipated problems involving risk to subjects or others. Please reference the above authorization number in any future correspondence regarding this project.

If you will be unable to file a Final Report on your project before March 3, 2006, you must submit a request for an extension of approval to the IRB no later than February 18, 2006. If your IRB authorization expires and/or you have not received written notice that a request for an extension has been approved prior to March 3, 2006, you must suspend the project immediately and contact the Office of Human Subjects Research for assistance.

A Final Report will be required to close your IRB project file. You are reminded that consent forms must be retained at least three years after completion of your study.

If you have any questions concerning this Board action, please contact the Office of Human Subjects Research at 844-5966.

Sincerely,

Peter W. Grandjean

Peter W. Grand jean, Chair
Institutional Review Board for the Use of Human Subjects in Research

cc: Dr. Andrew M Weaver
Dr. Edna G Brabham

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

RESEARCH PROTOCOL REVIEW FORM

For information or help completing this form, contact: **THE OFFICE OF HUMAN SUBJECTS RESEARCH**, 307 Samford Hall,
Phone: 334-844-5966 **e-mail:** hsubjec@auburn.edu **Web Address:** http://www.auburn.edu/research/vpr/ohs/index.htm

Complete this form using Adobe Acrobat Writer (versions 5.0 and greater).

1. **PROPOSED DATES OF STUDY:** FROM: 03/01/2005 TO: 05/31/2005

REVIEW TYPE (Check one): ☐ FULL BOARD ☑ EXPEDITED ☐ EXEMPT

2. **PROJECT TITLE:** The Effect of Recess on Children's Use of Symbols

3.

Barbara Norvell Hall	Doctoral Candidate	C&T	844-4434	norveba@auburn.edu
PRINCIPAL INVESTIGATOR	TITLE	DEPT	PHONE	E-MAIL

5040 Haley Center, Auburn University, AL 36849 — ADDRESS FOR CORRESPONDENCE

84-6789 — FAX

4. **SOURCE OF FUNDING SUPPORT:** ☑ Not Applicable ☐ Internal ☐ External (External Agency): _____

5. **STATUS OF FUNDING SUPPORT:** ☑ Not Applicable ☐ Approved ☐ Pending ☐ Received

6. **GENERAL RESEARCH PROJECT CHARACTERISTICS**

A. Research Content Area

Please check all descriptors that best apply to this proposed research project.

- ☐ Anthropology
- ☐ Anthropometry
- ☐ Biological Sciences
- ☐ Behavioral Sciences
- ☑ Education
- ☐ English
- ☐ History
- ☐ Journalism
- ☐ Medical
- ☐ Physiology
- ☐ Other (Please list:) _____

Please list 3 or 4 keywords to identify this research project: recess, free pla

B. Research Methodology

Please check all descriptors that best apply to the research methodology.

Data collection will be: ☑ Prospective ☐ Retrospective ☐ Both

Data will be recorded so that participants can be directly or indirectly identified: ☐ Yes ☑ No

Data collection will involve the use of:

- ☑ Educational Tests (cognitive, diagnostic, aptitude, achievement)
- ☐ Surveys / Questionnaires
- ☐ Private Records / Files
- ☑ Interview / Observation
- ☐ Audiotaping and / or Videotaping
- ☐ Physical / Physiologic Measurements or Specimens

C. Participant Information

Please check all descriptors that apply to the participant population.

- ☑ Males
- ☑ Females

Vulnerable Populations

- ☐ Pregnant Women
- ☑ Children
- ☐ Prisoners
- ☐ Adolescents
- ☐ Elderly
- ☐ Physically Challenged
- ☐ Economically Challenged
- ☐ Mentally Challenged

Do you plan to recruit Auburn University Students? ☐ Yes ☐ No

Do you plan to compensate your participants? ☐ Yes ☐ No

D. Risks to Participants

Please identify all risks that may reasonably be expected as a result of participating in this research.

- ☐ Breach of Confidentiality
- ☐ Coercion
- ☐ Deception
- ☐ Physical
- ☐ Psychological
- ☐ Social
- ☑ None
- ☐ Other (please list):

For OHSR Office Use Only

DATE RECEIVED IN OHSR: _____ by _____ PROTOCOL # _____

DATE OF OHSR CONTENT REVIEW: _____ by _____ DATE ASSIGNED IRB REVIEW: _____ by _____

DATE OF IRB REVIEW: _____ by _____ DATE IRB APPROVAL: _____ by _____

INTERVAL FOR CONTINUING REVIEW: _____

7. **PROJECT ASSURANCES**

PROJECT TITLE: The Effect of Recess on Children's Use of Symbols

A. PRINCIPAL INVESTIGATOR'S ASSSURANCE

1. I certify that all information provided in this application is complete and correct.
2. I understand that, as Principal Investigator, I have ultimate responsibility for the conduct of this study, the ethical performance this project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the Auburn University IRB.
3. I certify that all individuals involved with the conduct of this project are qualified to carry out their specified roles and responsibilities and are in compliance with Auburn University policies regarding the collection and analysis of the research data.
4. I agree to comply with all Auburn policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection of human subjects, including, but not limited to the following:
   a. Conducting the project by qualified personnel according to the approved protocol
   b. Implementing no changes in the approved protocol or consent form without prior approval from the Office of Human Subjects Research (except in an emergency, if necessary to safeguard the well-being of human subjects)
   c. Obtaining the legally effective informed consent from each participant or their legally responsible representative prior to their participation in this project using only the currently approved, stamped consent form
   d. Promptly reporting significant adverse events and/or effects to the Office of Human Subjects Research in writing within 5 working days of the occurrence.
5. If I will be unavailable to direct this research personally, I will arrange for a co-investigator to assume direct responsibility in my absence. This person has been named as co-investigator in this application, or I will advise OHSR, by letter, in advance of such arrangements.
6. I agree to conduct this study only during the period approved by the Auburn University IRB.
7. I will prepare and submit a renewal request and supply all supporting documents to the Office of Human Subjects Research before the approval period has expired if it is necessary to continue the research project beyond the time period approved by the Auburn University IRB.
8. I will prepare and submit a final report upon completion of this research project.

Barbara Norvell Hall		
Principal Investigator (Please Print)	**Principal Investigator's Signature**	**Date**

B. FACULTY SPONSOR'S ASSSURANCE

1. By my signature as sponsor on this research application, I certify that the student or guest investigator is knowledgeable about the regulations and policies governing research with human subjects and has sufficient training and experience to conduct this particular study in accord with the approved protocol.
2. I certify that the project will be performed by qualified personnel according to the approved protocol using conventional or experimental methodology.
3. I agree to meet with the investigator on a regular basis to monitor study progress.
4. Should problems arise during the course of the study, I agree to be available, personally, to supervise the investigator in solving them.
5. I assure that the investigator will promptly report significant adverse events and/or effects to the OHSR in writing within 5 working days of the occurrence.
6. If I will be unavailable, I will arrange for an alternate faculty sponsor to assume responsibility during my absence, and I will advise the OHSR by letter of such arrangements.
7. I have read the protocol submitted for this project for content, clarity, and methodology.

Edna G. Brabham, PhD		
Faculty Sponsor (Please Print)	**Faculty Sponsor's Signature**	**Date**

C. DEPARTMENT HEAD'S ASSSURANCE

By my signature as department head, I certify that every member of my department involved with the conduct of this research project will abide by all Auburn University policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection and ethical treatment of human participants.

Andrew M. Weaver, PhD		
Department Head (Please Print)	**Department Head's Signature**	**Date**

8. **PROJECT ABSTRACT: Prepare an abstract (400-word maximum) that includes: I.) A summary of relevant research findings leading to this research proposal; II.) A concise purpose statement; III.) A brief description of the methodology; IV.) Expected and/or possible outcomes, and V.) A statement regarding the potential significance of this research project.** ***Please cite relevant sources and include a "Reference List" as Appendix A.***

Piaget spent his career exploring how a child "works" through play. Within the field of early childhood education, it is necessary to understand how this happens. Around the age of 18-24 months, a child's symbolic function begins to develop. The symbolic function is the child's ability to use symbols to represent his understanding of the world.
He goes on to detail how intellectual development occurs. The child takes in new knowledge (accommodation) and applies it to an existing knowledge base (assimilation). Through this assimilation accommodation process, the child equilibrates the new knowledge into a scheme. These schemes are the intellectual foundation of a child's intelligence. For young children, this process is achieved through play.
The role of play is vital for the child in processing the world around him. Through the pre-operational period a child comes to represent his understandings through the phases of representation. These phases are deferred imitation, symbolic play, drawing, mental imagery, and language. Children develop these representational functions through play. By participating in pretend play, the child begins to use these symbols to represent his understandings of the world around him.
Frost, Wortham, and Reifel (2005) have studied the impact of play on children's development. They found that play deprivation had long lasting impact on children's social and emotional growth as well as their cognitive development. Their studies show that children who were deprived play opportunities during developing years were more likely to be unable to handle cognitive stress and social interactions when older.
Children must be given the opportunities to co-operate (reason together) in order for decentration. Pelligrini has worked extensively with collaborators such as Peter K. Smith and David Bjorklund conducting studies exploring the role of recess in young children and how that role affects them currently and in later adolescence. Pelligrini and his colleagues argue that recess provides release from mass practice of skill and drill, giving children distributed practice and opportunities to process information. With mass practice, disequilibrium is more likely to take place. Without the opportunity to reflect on knowledge thus assimilating and accommodating, equilibration cannot take place. Without this equilibration, children are unable to operate along the developmental continuum. Free play opportunities, such as recess, provide the opportunity to process information through social interaction and play methods, such as symbolic play, shared pretense, parallel, and rough and tumble play.
Piaget found that children are greatly influenced in their interactions with the world around them. Construction of knowledge comes from the interactions a child has with objects and others around him. Internal operations only develop when assimilating and accommodating occur in meaningful contexts to the individual.

9. **PURPOSE & SIGNIFICANCE.**
   a. **Clearly state all of the objectives, goals, or aims of this project.**

Given these research findings, it is important to conduct further research of the effects of recess on children's use of symbols to represent thought as they begin to develop literacy skills. The purpose of this study is to examine the effects of recess on children's use of symbols (such as drawings and printed letters and words) in classroom writing tasks. The researcher will examine the findings for a link between free play or recess opportunities and cognitive development.

This study is designed to empirically explore the causal relationships between recess or lack of recess and children's use of symbols through writing to represent thoughts.

   b. **How will the results of this project be used? (e.g., Presentation? Publication? Thesis? Dissertation?)**

This results of this study are to complete dissertation requirements for a PhD in Early Childhood Education and may be used for conference presentations and possible publications in professional journals.

10. **KEY PERSONNEL INVOLVED WITH DATA COLLECTION. Identify each individual involved with the conduct of this project and describe his or her roles and responsibilities related to this project. Be as specific as possible.**

Individual: Barbara Norvell Hall **Title:** Doctoral Candidate **Dept/ Affiliation:** C&T
Roles / Responsibilities:

I will be the primary investigator and will conduct all pretests, writing tasks, collection of data and data analysis associated with this research.

Individual: Edna G. Brabham, PhD **Title:** Advisor **Dept/ Affiliation:** C&T
Roles / Responsibilities:

Consultation

Individual: Charlotte Jackson & Ami Gordo **Title:** Teachers **Dept/ Affiliation:** Loachapoka Elem. School
Roles / Responsibilities:

These first grade teachers will supervise students during recess activities on the playground while the primary investigator is inside assessing students.

Individual: _____ **Title:** _____ **Dept/ Affiliation:** _____
Roles / Responsibilities:

Individual: Charlotte Jackson & Ami Gordo **Title:** Teachers **Dept/ Affiliation:** Loachapoka Elem. School
Roles / Responsibilities:

11. **LOCATION OF RESEARCH. List all locations where data collection will take place. Be as specific as possible.**

This research will be conducted at Loachapoka Elementary School. Actual data collection will take place in the participants regular classroom or the school Media Center with the researcher present at all times. Recess will occur at a designated confined area on the school grounds.

12. **PARTICIPANTS.**

a. **Describe the participant population you have chosen for this project.**

Only First Grade students will be involved in this research.

What is the minimum number of participants you need to validate the study? 24

What is the maximum number of participants you will include in the study? 36

b. **Describe the criteria established for participant selection. (If the participants can be classified as a "vulnerable" population, please describe additional safeguards that you will use to assure the ethical treatment of these individuals.)**

Only those children whose parents complete and return consent forms will be selected as participants for the study. After the study begins, each child will have the opportunity to decline to participate in the pre-testing with the PPVT, and either the recess sessions or the writing tasks.
Research will be carried out during regular school hours. Participants will be supervised on a confined playground area by the classroom teacher and in the classroom by the researcher. Data will be collected in the participants classrooms or in the school media center with the researcher present at all times.

c. **Describe all procedures you will use to recruit participants.** ***Please include a copy of all flyers, advertisements, and scripts and label as Appendix B.***

Consent letters will be sent home with children and signed by parents. The only special treatment given to participants will be participation in pre-testing with the PPVT and completing written tasks used for data collection. Within each classroom, participants and non-participants in the study will both be allowed a recess period.

What is the maximum number of potential participants you plan to recruit? 36

d. **Describe how you will determine group assignments (e.g., random assignment, independent characteristics, etc.).**

Participants will be randomly assigned and coded according to treatment group.

e. **Describe the type and amount and method of compensation for participants.**

There is no monetary compensation to participants.

13. **PROJECT DESIGN & METHODS. Describe the procedures you will plan to use in order to address the aims of this study. (NOTE: Use language that would be understandable to a layperson. Without a complete description of all procedures, the Auburn University IRB will not be able to review protocol. If additional space is needed for #13, part b, save the information as a .pdf file and insert after page 6 of this form.)**

a. **Project overview. (Briefly describe the scientific design.)**

The design for this study is experimental. Participants will be randomly assigned to two treatment groups. Participants will be coded with numbers and names will not be used for data collection in order to maintain confidentiality. Treatment Group A will be given written symbol tasks immediately following a 15-minute recess period. Group B will be given written symbol tasks prior to a 15-minute recess period. Students written work will be analyzed to evaluate and quantify their use of drawings and use of letters and words as symbols to represent their thoughts. Results will then be statistically analyzed using SPSS and MANOVA.

b. **Describe all procedures and methods used to address the purpose.**

1- All participants with signed consent forms who agree to participate will be given the PPVT individually before the recess treatment begins. This screening will be administered with the child and the researcher in the school media center.
2- Each day of the treatment period, approximately a three week- to one month time frame, students who agree to participate will hear a different story read aloud by the researcher and then will be asked to draw a picture and write about something they think is important in the story. This will be done in the participants classroom. In the event of possible disruption on the tasks, students may be asked to write in the school media center. Students may opt out of participation on any day and rejoin the study the next day without risk to the data. The only risk would be possible less frequency of given responses. Any student who chooses not to participate in the writing tasks will join the classroom teacher in the regularly scheduled classroom activities. Any student who chooses not to participate or does not have consent from their parents will still be allowed to participate in the recess period and will continue to participate in regularly scheduled classroom activities with the classroom teacher.
3- The two treatment groups, A and B, will be involved in a recess period for the same length of time (15 minutes each) and be asked to complete the same drawing and writing tasks. The only difference between the treatment groups will be the timing of the recess period, either before or after the drawing and writing tasks.
4- The children of the first grade classrooms will still participate in the regularly scheduled Physical Education period each day that class is scheduled.

c. **List all instruments used in data collection. (e.g., surveys, questionnaires, educational tests, data collection sheets, outline of interviews, scripts, audio and/or video methods etc.)** ***Please include a copy of all data collection instruments that will be used in this project and label as Appendix C.***

The pre-test instrument used will be the commercially produced Peabody Picture Vocabulary Test to determine written and picture vocabulary knowledge. Fifteen different children's stories such as Aesop's Fables will serve as the read-aloud texts. Researcher-prompted, student-produced drawings and writings will be the instruments that provide the data for statistical analysis of independent variables related to students use of symbols to represent thoughts.

d. **Data Analysis: Explain how the data will be analyzed.**

Data will be analyzed using Multivariate Analyses of Variance (MANOVA) using Statistical Programs for Social Sciences (SPSS).

14. **RISKS & DISCOMFORTS: List and describe all of the reasonable risks that participants might encounter if they decide to participate in this research.** ***If you are using deception in this study, please justify the use of deception and be sure to attach a copy of the debriefing form you plan to use and label as Appendix D.***

The PPVT will be administered individually to all participants by the researcher in a safe environment provided within the public school setting.
Any potential risks and discomfort for participants are common to public schools with recess and may include and over exertion from physical activity. These should be no greater than what the children would experience during the normal Physical Education class. Materials used during recess will consist of balls, jump-ropes, sidewalk chalk, and other playground equipment. The risk should be further reduced by providing supervision of the students in a designated confined playground area by the classroom teacher and the student intern teacher.
The possible risks included in the classroom drawing and writing activities amy include frustration of time limits. In the event of either of these discomforts or risks, the researcher will alter the schedule of data collection to include time to complete the tasks. Participants will exposed to no unusual risks or possible discomforts, and no deception will be involved in this research project. There is a risk of coercion in that many children will want the opportunity to participate in the recess treatment. This risk can be eliminated by giving all students in participating classrooms the opportunity to participate in recess, regardless of participation in the study.

15. PRECAUTIONS. Describe all precautions you have taken to eliminate or reduce risks that were listed in #14.

Since the PPVT will be administered individually in a safe environment within the public school, the researcher will be able to safeguard each child's safety and well being during this task. Recess periods will be supervised by the classroom teachers and student intern teachers. Drawing and writing tasks will be conducted by the researcher abiding by normal class routines. This monitoring and supervision of participants in all tasks related to this study should eliminate or reduce any risks to participants described in #14.

In addition, to prevent the risk of harm to the children participating in recess, there will be a designated area in which to allow the recess period away from traffic or other possible dangers. Materials will be chosen based on their appropriateness for children and safety.

To ensure all students understand the necessity for safe playground play, a list of rules and appropriate playground behavior will be discussed prior to the recess period. Students who do not adhere to the rules of safety will be redirected to play in a safe manner. Any student who continues to risk the safety of himself or others will be removed from the recess period for that day and remain in close proximity to the classroom teacher or the student intern.

16. BENEFITS.

a. List all realistic benefits participants can expect by participating in this study.

Ensuring that these children receive recess during the treatment will provide participants opportunities to expand cognitive, social and physical development.

b. List all realistic benefits for the general population that may be generated from this study.

The benefits to the general population will be to provide research to lead to the support that recess is a beneficial part of an elementary school day. In addition, this study could lead in the advocacy of timing of recess within the context of the school day.

17. **PROTECTION OF DATA.**

a. **Will data be collected as anonymous?** ☐ Yes ☑ No *If "YES", go to part "g".*

b. **Will data be collected as confidential?** ☑ Yes ☐ No

c. **If data is collected as confidential, how will the participants' data be coded or linked to identifying information?**

Each student has a lunch number already assigned to him by the classroom teacher. The researcher will use this lunch number to code students to obtain information for data collection.

d. **Justify your need to code participants' data or link the data with identifying information.**

The information needs to be coded to ensure that the writing samples can be linked together according to participants in order to determine cognitive growth during the study.

e. **Where will code lists be stored?**

Code lists will be stored in the classroom teacher's filing cabinet until the conclusion of the study. Upon conclusion of the study, it will be destroyed.

f. **Will data collected as "confidential" be recorded and analyzed as "anonymous"?** ☑ Yes ☐ No

g. **Describe how the data will be stored (e.g., hard copy, audio cassette, electronic data, etc.), where the data will be stored, and how the location where data is stored will be secured in your absence.**

Individual participants scores from the PPVT and samples of drawings and writings will be numerically coded and stored in a locked filing cabinet in the researcher's office. Electronic files with data and results of all analyses will be stored and backed up on disks that also will be housed in the locked filing cabinet.

h. **Who will have access to participants' data?**

Only the researcher and members of the researcher's doctoral committee, will have access to the data.

i. **When is the latest date that the data will be retained?**

For publication purposes, data will be retained for a period of at least three years as requested by most refereed journals to which articles based on this research may be submitted.

j. **How will the data be destroyed? (NOTE: Data recorded and analyzed as "anonymous" may be retained indefinitely.)**

This data will be recorded anonymously and may be retained indefinitely.

PROTOCOL REVIEW CHECKLIST

All protocols must include the following items:

☑ **1.** Research Protocol Review Form (All signatures included and all sections completed)

☑ **2.** Consent Form or Information Letter (examples are found on the OHSR website)

☑ **3.** Appendix A "Reference List"

☐ **4.** Appendix B if flyers, advertisements, generalized announcements or scripts are used to recruit participants.

☐ **5.** Appendix C if data collection sheets, surveys, tests, or other recording instruments will be used for data collection. Be sure to mark each of the data collection instruments as they are identified in section # 13, part c.

☐ **6.** Appendix D if a debriefing form will be used.

☑ **7.** If research is being conducted at sites other than Auburn University or in cooperation with other entities, a letter from the site / program director must be included indicating their cooperation or involvement in the project. NOTE: If the proposed research is a multi-site project, involving investigators or participants at other academic institutions, hospitals or private research organizations, a letter of IRB approval from each entity is required prior to initiating the project.

☐ **8.** Written evidence of acceptance by the host country if research is conducted outside the United States.

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

REQUEST for PROTOCOL RENEWAL

For information or help completing this form, contact: **THE OFFICE OF HUMAN SUBJECTS RESEARCH**, 307 Samford Hall
Phone: 334-844-5966 **e-mail:** hsubjec@auburn.edu **Web Address:** http://www.auburn.edu/research/vpr/ohs/index.htm

Complete this form using Adobe Acrobat Writer (versions 5.0 and greater).

1. **PROTOCOL NUMBER:** 05-016 EP 0503 2. **ORIGINAL DATES OF STUDY:** **FROM:** 03/04/2005 **TO:** 03/03/2006
3. **REQUESTED RENEWAL PERIOD:** **FROM:** 03/04/2006 **TO:** 12/31/2006
4. **PROJECT TITLE:** "The Effect of Recess on Children's Use of Written Symbols"

5.

Barbara N Hall	Doctoral Candidat	C&T	843-488-1935	bnorvell@coastal.edu
PRINCIPAL INVESTIGATOR	**TITLE**	**DEPT**	**PHONE**	**E-MAIL**

1203 7th Avenue, Conway, SC, 29526
ADDRESS FOR CORRESPONDENCE

PI SIGNATURE

6. **Use the space below to describe the research activities of the preceding year.**

During the months of March-May of 2005, I investigated the effect of recess breaks on children's understanding of story elements in a first grade classroom. I collected writing samples of these understandings and analyzed each for content, mechanics, and conventions of print concepts. All items were identified with numbers only and the masters list of numbers is kept in a locked cabinet in my office. All data is organized by treatment group and locked in a filing cabinet. The master list and the data are in separate files and cannot be connected by any indvidual other than the principal investigator.

7. **Explain why you are requesting additional time to complete this research project.**

Data analysis is complete, but writing and polishing of my dissertation in still in progress. I would like to keep the data until the dissertation is defended this summer. This way if any questions arise from my committee, I may address them accurately.

8. **Do you plan to make any changes in your protocol (e.g., research design, methodology, participant characteristics, authorized number of participants, etc.) if the renewal request is approved? (If you answer "YES", please complete and attach the "REQUEST for PROTOCOL REVISION" form. The IRB will review both requests at the same time.)**

☑ NO ☐ YES

9. PARTICIPANT INFORMATION

a. How many participants have you been authorized to include in your research project? (The total should include subjects authorized in the original protocol AND in a previous modification of this protocol, if any.)

Maximum Number Authorized to Recruit: 45

Minimum Number of Participants Proposed: 34 Maximum Number of Participants: 45

b. How many individuals have actually participated in this research? 32

c. Were there any adverse events, unexpected difficulties or unexpected benefits with the approved experimental procedures or techniques?

☑ NO ☐ YES (If YES, explain)

d. Of the total number approved, how many subjects have withdrawn from the research? 1
If applicable, use the space below to identify and explain all instances of participants withdrawing from this project.

e. How many individuals, of the remaining number authorized, do you plan to contact during the renewal period? none

f. Do you plan to re-contact any individual that has already participated in your research project during this renewal period?

☑ NO ☐ YES

(If "YES", please use the space below to explain reasons for re-contacting participants. PLEASE NOTE: If this procedure has not been previously approved, please complete and attach the "REQUEST for PROTOCOL REVISION" form. The IRB will review both requests at the same time.)

APPENDIX B

Permission Form

Loachapoka Elementary School

P. O. Box 60
Loachapoka, AL 36865

Principal: James Davis

Assistant Principal: Clarence Magee

February 22, 2005

To Whom it May Concern,

Ms. Barbie Hall has requested the use of our facility and the opportunity to conduct research with several of our first grade teachers and their students. After reviewing her proposal, I have agreed to grant her request to conduct this research.

Thank you for your consideration in this matter. If I can be of any further assistance, please do not hesitate to contact me.

Sincerely,

James Davis
Principal
Loachapoka Elementary School

Telephones: (334) 887-8066 or (334) 887-8094
Fax: (334) 887-2948

APPENDIX C

Letter of Informed Consent

Loachapoka Elementary School

P. O. Box 60
Loachapoka, AL 36865

Principal: James Davis

Assistant Principal: Clarence Magee

February 22, 2005

To Whom it May Concern,

Ms. Barbie Hall has requested the use of our facility and the opportunity to conduct research with several of our first grade teachers and their students. After reviewing her proposal, I have agreed to grant her request to conduct this research.

Thank you for your consideration in this matter. If I can be of any further assistance, please do not hesitate to contact me.

Sincerely,

James Davis
Principal
Loachapoka Elementary School

Telephones: (334) 887-8066 or (334) 887-8094
Fax: (334) 887-2948

relationship with Auburn University, the Department of Curriculum and Teaching, or with Loachapoka Elementary School.

To allow your child to participate, please fill out the consent form, sign it, and return it to your child's teacher. If you have any questions, please feel free to email me, Barbie Hall, doctoral candidate, at norveba@auburn.edu or call (334) 844-6877. For more information regarding your child's rights as a research participant, you may contact the Office of Research Programs by phone or email. The people to contact there are Mr. Chip Burson at bursoen@auburn.edu or (334) 844-5966 or Dr. Peter Granjean (the chair of the Auburn University Institutional Review Board) ar grandpw@auburn.edu or (334) 844-1462.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH YOUR CHILD TO PARTICIPATE IN THE RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR PERMISSION TO PARTICIPATE.

Child's Name	**Investigator's signature Date**
Parent/ Guardian's Name	**Parent/Guardian's signature Date**

HUMAN SUBJECTS
OFFICE OF RESEARCH
PROJECT #05-016EP0503
APPROVED 3-4-05 TO 3-3-06

APPENDIX D

Productivity Checklist

Checklist for Productivity

Number_____ Treatment Day_____

Definition	**Count**
Word: a word is any unit of language that is made up of graphemes (symbols) and phonemes (sounds) which carry meaning and can thus be used to form phrases and sentences.	
Conventional Spelling: any spelling of a word that fits a widely accepted pattern of the letters in the word to make that word hold the same meaning by anyone with knowledge of that language system. For matters of this report, English is the language in which conventional spellings are judged.	
Sentence(s): Any group of words which represent a complete thought. Punctuation is not necessary for credit to be given for a sentence.	

APPENDIX E

Retelling Rubric

Retelling Rubric

Adapted from Moss, B. (1997). A qualitative assessment of…retelling of expository text. *Reading Research and Instruction, 37*, 1-13.

Student_____

Student's Retelling Response	Comments	Score
No Retelling Student gives no response.		**0**
Very Incomplete Retelling Student gives poor sequencing; provides irrelevant information; focuses on details only; has very incomplete information.		**1**
Incomplete Retelling Student includes a few main ideas and details; attempts to sequence events or information with difficulties; may give irrelevant information or opinion.		**2**
Fairly Complete Retelling Student includes some main ideas and details; sequences most material; understands text organization; gives opinion.		**3**
Cohesive, Complete Retelling Student includes most main ideas and details; sequences events or procedures in order, understands text organization; summarizes; gives opinion and justifies it.		**4**
Very Complete Retelling Student includes all main ideas and details; sequences all events or procedures in order; makes inferences beyond text; connects text to experiences; understands text organization; summarizes; gives opinion and justifies it.		**5**