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Perceptions of recess and the effects of a morning recess break on the oral reading fluency of second grade students

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2009

ABSTRACT

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on the Oral Reading Fluency of Second Grade Students

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M.S., Indiana University, 1988
B.S., Taylor University, 1987

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Education
Teacher Leadership

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ABSTRACT

A recent trend in schools has been to reduce or eliminate recess. The assumption behind this elimination is that less recess time provides more opportunities for learning and hence, better learning outcomes. However, little research has examined the effects of this assumption, and little is known about the relationship between recess and learning. The purpose of this mixed method quasi-experimental study was to test the massed versus distributed practice theory and the cognitive immaturity theory, and to gain a better understanding of recess and its implications for learning. The quantitative question was designed to determine whether segmenting instructional time with a recess break had an influence on second grade students' oral reading fluency (ORF). Based on an independent-measures *t* test and a chi-square test of significance, no significant difference was found in ORF gain scores between the second graders who did and did not have a morning recess break, suggesting that segmenting instructional time did not have a significant impact on the student ORF. The qualitative question was designed to examine the connection between recess and learning. After data were coded and an interpretive analysis was conducted, a positive connection was found indicating that recess enhances learning. It was also noted that factors other than the timing of recess may influence children's learning. Results provide support for the inclusion of recess for every child for the development of their psychomotor, affective and cognitive needs. Results also indicate that the long-term effects of providing recess may outweigh the short-term effects of reducing or eliminating recess.

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DEDICATION

To mom: my cheerleader, my hero, my inspiration. I wish you could have seen this project to fruition, but I want you to know that you are forever in my thoughts and you were my driving force when times got tough. I owe my love of reading and my love of play to you. I dedicate this study of recess and learning to you, the epitome of a life-long learner, the ultimate in a life-long friend.

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I want to acknowledge the superintendent of schools and the principal of my school for allowing me to conduct a study on reading and recess. I have to thank the participating teachers and students (and the parents of those students) for being so willing to be a part of my project. Without them this study would not have taken place, and without the children's input from their hearts, it would not have been so enjoyable.

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SECTION 1: INTRODUCTION TO THE STUDY

Introduction

School and recess have been seen by some as incompatible and by others, as mutually exclusive. Adults have memories of recess, such as swinging, climbing, running, pretending, playing, talking, screaming, and purely enjoying the freedom to do as one pleases, yet school-aged children and their successors may be the first to have no memories of such freedom at school. Recess in the elementary school is being questioned, reduced, structured, and even eliminated (National Association for the Education of Young Children [NAEYC], 1998; Pellegrini, 2005).

The decline of recess is illustrative of lifestyle changes; children are spending less time in sports and outdoor activities than just 2 decades ago (Juster, Ono, & Stafford, 2004). Many adults have memories of getting off the bus, rushing in to the house to drop their books, and running outside to play until supper. Few children participate in this routine. Countless parents drop their children off in the morning and pick them up at supper time. Even children who live close to school get dropped off and picked up because of safety concerns, busy streets, and weather conditions, regardless of the benefits of walking (Heelan et al., 2008). Evenings for some are filled with activities such as soccer practice, piano lessons, cheerleading, and fast food (NAEYC, 1998). Other families keep their children inside after school under the guise of keeping them safe. Rather than playing outside, children are spending more time behind locked doors watching television, playing video and computer games, and growing obese (NAEYC,

1998). Gentile et al. (2004) found that the majority of pediatricians surveyed agreed that the use of media negatively affects children in the areas of brain development, eating habits, physical activity levels, risk of obesity, and aggressive behaviors. In the same survey, 365 pediatricians agreed with the recommendation to encourage alternative entertainment for children such as reading, athletics, and creative play.

A current trend has been to reduce or eliminate recess in the elementary schools to provide more time for teaching core subjects in the classroom and to keep children safer in school (Pellegrini, 2005). These cutbacks are surprising due to the research that illustrates the benefits of recess. Not only has recess has been found to improve children's social health, (Bar-Haim & Bart, 2006) and physical health (Dale, Corbin, & Dale, 2000), but recess has also been shown to positively affected student behavior (Pellegrini, Huberty, & Jones, 1995), to improve children's attention in the classroom (Holmes, Pellegrini, & Schmidt, 2006), and to enhance children's learning in the cognitive domain (Pellegrini & Bjorklund, 1997).

Research is necessary to assess the effects of no-recess policies on student test scores, attitudes, and behaviors of school-aged children (Jarrett, 2002), as research that supports the theory that children learn more when they do not take time out for recess has not yet been conducted (Clements, 2000; Pellegrini, 2005). The dilemma of whether children should have or not have recess and whether it is helpful or detrimental to children's learning is the core of the recess phenomenon that needs to be investigated. This study was conducted to explore the effects of a morning recess versus no morning

recess in terms of oral reading fluency among second grade students and to investigate the opinions of teachers and students related to recess and learning.

Problem Statement

Increasing pressure for children to meet achievement standards has caused U.S. school administrators to look for ways of increasing student's standardized test scores (Wilkins et al., 2003). Because of accountability pressures such as No Child Left Behind (NCLB, 2002), some administrators have reduced the number of recesses or the duration of recess or have eliminated recess altogether to provide large blocks of uninterrupted instructional time (Jarrett & Maxwell, 2000; National Center for Education Statistics [NCES], 2006). Despite these cutbacks, there is evidence to suggest that recess may facilitate administrator efforts to meet accountability standards. In a comparison study conducted in Texas, children who had recess were found to be more productive in the classroom (Hutchison, 2005).

The problem is that not enough is known about recess and its effects on children's learning. This problem needs to be addressed before a generation of learners gets shuffled through the educational system without having met their potential in the psychomotor, the affective, and the cognitive learning domains. To meet achievement standards, it is important for administrators and teachers to find methods to help their students succeed in reading. The goal is for all children to be reading on grade level by the end of third grade (Institute for the Development of Educational Achievement [IDEA], 2002-09). Considering the pressure on teachers and children to succeed, it is important to look for an optimal schedule that maximizes children's learning and, more specifically, children's

reading skills. The specific problem addressed in this study is whether it is better for children to have a large uninterrupted block of morning instructional time or whether it is better for children to have that instructional time broken up into smaller segments by having a recess break between two learning sessions. The researcher sought to discover whether one schedule would be more conducive over another in enhancing oral reading fluency scores among second graders in the classroom.

The lack of a clearly defined purpose of recess contributes to the problem with recess and learning among educational authorities. It was important to determine the purpose of recess as a part of addressing the problem (Weinbaum et al., 2004). Some say the primary purpose of recess is for children to engage in physical activity (Beighle, Morgan, Le Masurier, & Pangrazi, 2006; Dale et al., 2000; Jones, 2005; National Association for Sport and Physical Education [NASPE], 2004; NASPE & American Heart Association [AHA], 2006); others say that it is to give children a break so that they can return to focus in the classroom (Bjorklund & Green, 1992). A third contention is that recess gives children a chance to develop their social skills (Adams & Wittmer, 2001; Doll, Murphy, & Song, 2003; Elkind, 2006). Still others assert that play at recess helps children develop cognitive skills (Hendy, 2000; Jensen, 2000). While some purport that all of these aspects are the purpose of recess (Clements, 2000; Jarrett, 2002; NAECS/SDE, n.d.), still others say that there is no purpose for recess in the public schools, stating time constraints and safety issues as reasons for elimination (DeGregory, 2005; Johnson, 1998; NASPE, 2004). The dilemma to be addressed is whether recess should be reduced or eliminated because it is not necessary and there is no time or

whether it should be a part of the school day because it positively affects children's learning. Research-based evidence related to recess and learning will help determine what is best for children and society. This study contributes to the body of knowledge related to recess and its connection to learning.

Nature of the Study

This mixed method study employed a concurrent transformative strategy and was guided by specific theoretical perspectives in the areas of recess and reading achievement. A synchronized process of data collection was used to determine if a correlation existed between the timing of recess and oral reading fluency in second grade students at an elementary school in rural North Georgia. The design used was the quasi-experimental design as defined by Creswell (2003) and Trochim (2006). Data were combined from a reading skills assessment, the Dynamic Indicators of Basic Early Literacy Skills [DIBELS] (Good & Kaminski, 2002), and from student and teacher interviews. Integrating both quantitative and qualitative data produced more meaningful data than one method. For example, the data from the interviews provided possible explanations to the results and the interpretations of the quantitative data. It was also important to record the thoughts, beliefs, and values of the participants to better understand the recess phenomenon rather than merely listing and comparing reading scores, yet quantifiable data adds substance to any study. The two types of data used in this study complimented each other and made the results more substantial, more interesting, and more understandable.

Two second grade classes participated in the study. One class maintained the most commonly practiced schedule that allowed for 180 minutes of uninterrupted instructional time in the morning. The other class followed a revised schedule that posed 90 minutes of instructional time, a 30-minute morning recess, and then 90 more minutes of classroom instructional time, followed by lunch. Both classes invested the majority (and equal amounts) of their morning time in reading and reading-related instruction. The schedule that posed a recess break after 90 minutes of classroom learning aligned with the recommendations that state children should not be required to have work sessions longer than 2 hours (NASPE, 2001) and that lunch should be served after recess if possible (NASPE & AHA, 2006).

Research Questions and Hypotheses

Two research questions were addressed in this study. Quantitative data were gathered from comparing reading scores among second grade students. Qualitative data were generated to explore and understand the views of children and teachers as they pertain to recess and learning. The data were gathered concurrently to answer these research questions directed toward the connection between recess and reading and learning.

1. Does segmenting instructional time with a recess break have an influence on oral reading fluency?
2. What is the connection between recess and learning?

The null hypothesis stated that there would be no significant difference in oral reading fluency scores between students who had a morning recess break and those who

did not have a morning recess break. The alternative hypothesis stated that there would be a significant difference in oral reading fluency scores between students who had a morning recess break and those who did not have a morning recess break. A more detailed discussion of the research questions and hypotheses are included in section 3.

Purpose of the Study

Pellegrini and Bjorklund (1997) argued that by giving children more breaks during and between cognitive tasks, children's performance on later tasks should improve relative to children who are not given the same breaks. The purpose of this study was to determine if a recess break in the morning had an effect on the reading achievement of young children. More specifically, the purpose was to determine whether breaking up the morning instructional time with a recess break influenced second grade reading scores in the area of oral reading fluency as assessed by DIBELS, an ongoing reading assessment instrument. Also explored in the study was what children and teachers think about recess and its role in learning and reading achievement, which added to the body of knowledge available on recess and learning.

Theoretical Framework

This study was based primarily on two correlating theories. The first theory was the theory of massed versus distributed practice of learning, first hypothesized by Hermann Ebbinghaus in the late 1800s (Plucker, 2003) and most recently discussed by Willingham (2002). The second is the cognitive immaturity theory (Bjorklund & Green, 1992; Bjorklund, 1997; Bjorklund & Pellegrini, 1997). The massed versus distributed practice holds that material presented in small segments over time leads to better

retention than material presented in large blocks of time (Willingham, 2002). The cognitive immaturity theory states that cognitively children are more immature than adults. Children's immaturity is evidenced by a shorter attention span and a desire to play after concentrated efforts of attending to academic material in the classroom (Bjorklund & Green, 1992). It is common practice to teach children basic literacy skills in 3-hour instructional blocks. According to Seabrook, Brown, and Solity (2005), breaking up instructional time into shorter periods may increase children's retention rates.

Experts in the field of education support the massed versus distributed and the cognitive immaturity learning theories. Pellegrini and Davis (1993) found that children become bored with learning in the classroom, as evidenced by an increase in fidgeting after 2 1/2 hours of spelling, reading, language arts or math, and recess provides a break from that boredom. After playing, the novelty of recess wanes (as noted by physical activity levels dropping as recess time elapsed) and children are ready to get back to learning in the classroom. According to Dewey (1938), intellectual activity should be interspersed with short periods of time for reflection even for young children, but those moments are only effective when they follow times of physical activity. Perry (2000) wrote that children can only endure 4 to 8 minutes of factual lecture before their brains begin to wander or seek novelty. Young children are developmentally not mature enough to focus on one task for a long period of time (Bjorklund & Green, 1992); yet in the classroom teachers expect children to attend for periods of time that would challenge many adults (Jambor, 2000). This cognitive immaturity affects young children's ability to retain information, thus confirming that they have the most to gain from recess breaks

(Holmes et al., 2006) that allow for distributing learning time in the classroom. The idea to insert a morning recess break into the schedule of a group of second graders came from the evidence that supports the massed versus distributed and the cognitive learning theories. Following are specific terms used in this study along with their definitions.

Operational Definitions

Activities: An array of actions children may perform that may or may not have the structure of a game. Activities might include swinging on a swing, sliding down a slide, playing on a play structure, locomotor movements such as skipping and jumping around, hand clapping rhythms, cartwheels, or personal physical challenges.

Break: A respite from or interruption in a routine or duty (Barros, Silver, & Stein, 2009).

Dynamic Indicators of Basic Early Literacy Skills (*DIBELS)*:"A set of standardized, individually administered measures of early literacy development. They are designed to be short (one minute) fluency measures used to regularly monitor the development of pre-reading and early reading skills" (Good & Kaminski, 2002, para.1).

Fluency: "The ability to translate letters-to-sounds-to-words fluently, effortlessly" (Institute for the Development of Educational Achievement [IDEA], 2002-09, para. 1).

Free play: Children participating in activities of their choosing that have no particular structure, rules, beginning, or end. This type of play typically involves imagination, in which children play alone or with others.

Inappropriate games: Games with an element of danger, long periods of inactivity, few opportunities to practice skills, or potential embarrassment to participants.

Dodge ball; kick ball; duck, duck, goose; and red rover are examples of inappropriate games (Williams, 1994).

Learning domains: A method of classification for thinking behaviors that are believed to be important in the processes of learning. The framework is divided into the affective, cognitive, and psychomotor domains (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956). The affective domain includes persons' emotions, feelings, values, appreciation, enthusiasms, motivations, and attitudes (Krathwohl, Bloom, & Masia, 1973). The cognitive domain involves knowledge and developing intellectual skills (Bloom et al., 1956). The psychomotor domain includes physical movement, coordination, and use of motor skills. These skills are developed with practice and measured in terms of speed, precision, distance, procedures, or execution (Simpson, 1972).

Physical activity: "Movement of the body produced by skeletal muscles resulting in energy expenditure" ([NASPE], 2004, p. 53).

Physical education: "A planned instructional program with specific objectives. An essential part of the total curriculum, physical education programs increase the physical competence, health-related fitness, self-responsibility, and enjoyment of physical activity for all students so that they can establish physical activity as a natural part of everyday life" (NASPE & AHA, 2006, p. 8).

Play: Activities that are "a crucial dynamic of healthy physical, intellectual, and social-emotional development at all age levels" (Elkind, 2006, p. 4).

Punishment: Reliance on power to make something unpleasant happen to someone as a means for controlling his or her behavior (Kohn, 1993).

Recess: A period of time, usually 20-30 minutes, during the school day for children to engage in physical activity (preferably of their choosing) that helps them develop healthy bodies and enjoyment of movement. It is also an opportunity to practice life skills such as cooperation, taking turns, following rules, sharing, communication, negotiation, problem solving and conflict resolution (NASPE, 2001, 2006).

Recess break: This is a term used interchangeably with recess in this study.

Reward: Something desirable typically promised in advance in an attempt to control someone's behavior (Kohn, 1993).

Assumptions of the Study

In the present study, it was assumed that those who are proponents of reducing or eliminating recess and those who support recess in schools base their opinions and their actions on what they think is best for children. It was also assumed that the children involved in this study are not significantly different from any other group of second graders in the school in relation to their learning styles or their desires and needs to play and learn. Students and teachers were also assumed to be typical in their beliefs on recess and learning.

Scope of the Study

This mixed method study confined itself to the results of a reading assessment given to students 3 or 4 times a year and interview data collected over a two-week time period. The change in the recess schedule was for 9 weeks. The study was enriched by

the inclusion of individual and focus group interviews with participants on the topic of recess and learning. Comments and answers to questions in the interviews revealed opinions and expectations from the student's and the teacher's perspectives.

Limitations of the Study

This study was limited by a small sample size. Thirty-seven second grade students in two homeroom classrooms were a part of the quantitative aspect of the study. Two teachers and 18 children were included in the qualitative part of the study. Each class had recess by themselves rather than with the entire grade level as usual. The time span of the alternate recess schedule may not have been enough time to show significant differences in the oral reading fluency scores of the two groups; however, the design of DIBELS to monitor progress in 9-week increments clearly indicated how much progress was made by each group (Good & Kaminski, 2002). Gains in oral reading fluency scores may not necessarily be due to the morning recess break or to the large block of instructional time. Other factors, such as teaching styles, classroom management, group dynamics, individual attitudes toward recess and learning, and the emotional state of each child on the day of the assessments and interviews may have influenced the results. Finally, data from the qualitative portion of the study may be considered limited in scope because each group did not experience both schedules.

Delimitations of the Study

This study was delimited to only two second grade teachers and their students at just one public elementary school. Only oral reading fluency scores were considered in the quantitative aspect of the study. Time constraints allowed for only half of the students

to participate in the interview phase. This study did not address the effects of the elimination of recess from an academic program. The study also did not delineate between age, gender, socio-economic status, or race.

Significance of the Study

This study contributes to the body of knowledge that relates to recess and its connection to reading achievement. Research on recess and its role in learning has increased in recent years, but the timing of recess and its significance to reading achievement has not been fully addressed. By comparing two recess schedules this study explored whether the timing of recess had an influence on oral reading fluency and the learning of young children. This study also gave children and teachers an opportunity to express their opinions on recess. Children and teachers are affected most directly by recess; thus, children and teachers should have an opportunity to voice their opinions on the topic. The children's and teachers' understanding of the purpose of recess made a considerable impact on the results of the study. This study provided a framework for recess and learning from which administrators and other interested personnel can draw to promote intellectually, physically, socially, and emotionally healthy children.

Summary

The purpose of this mixed method study was to determine whether the timing of recess had an influence on children's oral reading fluency and to explore what children and teachers think about recess and its role in learning and reading achievement. Two classes of second grade participants were included in pretests and posttests of the DIBELS measurement system and approximately half of them were involved in

individual or focus group interviews. One group followed the commonly practiced schedule that allows for 3 hours of uninterrupted instruction in the morning and the other group followed a schedule that posed a morning recess that broke up the 3-hour learning block into two shorter learning segments. Two recess schedules were studied and teacher and student opinions about the purposes and the need for recess were gathered, thus adding to the body of knowledge on the topic of recess and learning.

This study on recess and its connection to learning and reading is divided into five sections. A review of the research and literature related to recess and its effect on learning follows this introductory section. Section 2 includes discussions on the reduction or elimination of recess, maintaining recess, uninterrupted instructional time, segmenting instructional time, the theories that were tested, research methods, and the assessment, instrumentation and data sources that were used in the study. Section 3 follows with a review of the study's methodology. The methodology section is comprised of an explanation of the research design and procedures, the setting and sample, the research questions, justification of the study, the assessment instrument and data sources, data analysis procedures, and the researcher and participants. Section 4 includes the findings of the quantitative and the qualitative data, and section 5 concludes with interpretations and applications of the findings, implications for social change, recommendations, and a conclusion of the study.

SECTION 2: REVIEW OF RELATED RESEARCH AND LITERATURE

Introduction

The content of this related research and literature review is primarily limited to recess and its connection to learning in the public school setting. The review is organized into seven segments. The first segment is a review of the literature related to the reduction and the elimination of recess in the elementary schools. The second offers suggestions for maintaining recess for children. The next two segments include literature on the practice of uninterrupted instructional time and segmenting instructional time. The fifth segment examines the theories related to learning and recess: the cognitive immaturity theory and the massed versus distributed theory of learning, which underlie the quantitative aspect of this study. The sixth segment contains information on research methods and the phenomenological approach. The final segment presents a discussion of the reading assessment instrument used for the quantitative component of the study and the rationale for the interviews and journals that were used to complete the qualitative component of the study.

The search for research and literature on this topic began with a simple exploration of material on recess and elementary school children. Each article inspired more search words and specific research articles of interest found in the reference pages. Through time the search expanded to include play and its effects on learning. The available literature related to recess and learning is limited and scholarly research is rare, especially in the support of the reduction or the elimination of recess and the rationale

behind the common practice of large uninterrupted blocks of instructional time. The limited scholarly research made its importance clear. More succinctly, searches for both sides of the issue led to this question: Should schools eliminate recess because there is not enough time and it is not beneficial, or should they reinstate, keep, or increase recess because it has value to children's overall learning? Waite-Stupiansky and Findlay (2001) asked the question this way: "Does eliminating recess help children learn? Or can recess benefit the learning process?" (p. 16). This inquiry initiated the review of research and literature related to recess and learning. After much study the review narrowed to recess and its impact on reading achievement and oral reading fluency in second grade students.

The Reduction or Elimination of Recess

Multiple reasons have been given for reducing or eliminating recess time for elementary school children. Schools have been pressured by accountability standards and high-stakes testing (Kohn, 2001). Some schools hold that there is no time for children to play at school (Clements, 2000). Concern for children's safety is another reason schools are eliminating playground time (NAECS/SDE, n.d.). Still others use bullying behaviors as grounds for not allowing recess (Pellegrini, 2005). Recess is also taken away from groups and from individuals as a means of punishment (Skrupskelis, 2000). Following is a more detailed rationale for each of these claims.

Pressures Created by Accountability Standards and High-Stakes Testing

Accountability in the public schools is not new. However, accountability has come to the forefront of national politics in recent years, raising public awareness of high standards for children, teachers, and schools in general (Kohn, 2001; Pellegrini, 2005). In

an attempt to increase achievement and hold school officials accountable for the equal education of disadvantaged youth, President George W. Bush signed the No Child Left Behind Act of 2001 on January 8, 2002 (No Child Left Behind [NCLB], 2002).

NCLB (2002), accompanied by its high-stakes testing, has had a ripple effect that has changed education even for preschoolers. Educational leaders from the state of Connecticut wrote as part of a 33-page curriculum guide six pages of goals and benchmarks for preschoolers (Ohanian, 2002). Jarrett (n.d.) noted, "According to policy makers, focus on academics in pre-K is needed to prepare children for kindergarten, where a focus on academics is needed to prepare children for first grade" (p. 1). Houston (2007) questioned the fact that overall instruction time has been reduced to increase the time spent on testing children to measure the effectiveness of instruction. Houston stated, "Everyone in America knew which children were being left behind long before NCLB became law. A massive system of testing was not required" (p. 746).

The Cost of High-Stakes Testing

In a study of classroom changes and school practices in relation to high-stakes testing for third graders in Texas, Hutchison (2005) noted increases in health issues related to anxiety and stress among teachers and children. Nurses from three elementary schools documented dramatic increases in visits to the nurse's offices for pain and indigestion-type medications. Nurses also noted an influx of adults and students being prescribed medications for blood-pressure, acid reflux, migraines, anxiety, depression, and other stress-related ailments each year since third grade testing started in 2002-2003. Hutchison concluded that such testing may have grave consequences in health problems

among school staff and children. Hutchison also noted that teachers had reluctantly changed their teaching styles back to traditional methods because they believed that there was no time for children to discover information on their own.

The policy of placing such importance on children's test scores that may or may not be accurate indicators of children's knowledge due to their immaturity and inability to understand the magnitude is being questioned (Pellegrini, 2005). Ohanian (2002) wrote that the practice of retaining children, turning them "off" to learning, forcing them to drop out, or turning schools into test preparation factories all under the guise of "leaving no child behind" is not about helping children become better learners. The following statement from Alfie Kohn (as quoted in Ohanian, 2002) illustrates a thought to ponder in light of high-stakes testing:

> Suppose that next year almost all the students in your state met the standards and passed the tests. What do you suppose would be the reaction from the politicians, businesspeople and newspaper editorialists? Would these folks shake their heads in frank admiration and say, "Damn those teachers are good"? That possibility, of course, is improbable to the point of hilarity. Every time I've laid out this hypothetical scenario, audiences tell me that across-the-board student success would immediately be taken as evidence that the tests were too easy. (p. xi)

This pressure and the effect on children will have a cost. Treating children like robots will not likely lead to positive results (Ohanian, 2002). Experts must consider the long term effects of expecting more of children at younger and younger ages. Jarrett (n.d.) posed concerns about the long-term effects of more time on task and less movement-based learning and outside playtime for children.

No Time for Recess

Physical education and recess time are being threatened (Pate & O'Neill, 2008). Many schools have resorted to reducing or eliminating recess from the elementary school curriculum under the guise that there is no time for recess and it detracts from the school's primary mission (NAEYC, 1998; Pellegrini, 2005; Pellegrini & Bjorklund, 1997). Eliminating or significantly reducing the amount of time children spend at recess has been a growing trend since 1989 (NAEYC, 1998; Pellegrini, 2005). Nearly 40% of the nation's school districts have eliminated, shortened, or modified recess, or are considering such actions due to accountability pressures placed on school administrators (American Association for the Child's Right to Play [IPA/USA], n.d.). Many school administrators are operating under the assumption that the time spent on recess can be more efficiently spent in the classroom on academic instruction (Clements, 2000). Even in districts where recess is still written in the lesson plans, children who score poorly on the tests are not allowed recess time. While their better-scoring peers play outside, the low scorers stay in the classroom to concentrate on academics (Ohanian, 2002).

Playgrounds Are Not Safe

Claims that playgrounds are not physically and emotionally safe because of play structures or unsafe environments or behaviors are part of the rationale for eliminating recess (NAECS/SDE, n.d.; Pellegrini, 2005). The possibility of lawsuits if children are injured or the risk of children coming into contact with potentially dangerous strangers have been cited as justifications to keep children indoors at school (NAECS/SDE, n.d.). Some schools are no longer providing potentially dangerous play structures for their

students; however, even with no equipment schools still are at risk for children getting hurt. Employees from one school in Wisconsin became involved in a lawsuit because a child was hurt playing on a snow bank and the recess supervisor had not kept the children from sliding on the snow (Sawyer, 2004).

Statistics of playground injuries are used as quantitative evidence that children should not be playing on playgrounds at school. According to the Consumer Product Safety Commission (CPSC) in 1999 an estimated 205, 850 children with playground-equipment related injuries were treated in U. S. hospital emergency rooms. Approximately 76% of these injuries occurred on equipment designed for public use and 45% of those injuries occurred at schools (Tinsworth & McDonald, 2001, p. ii). Playgrounds, however, are not the only place that children get injured. Based on the CPSC survey conducted in conglomeration with the National Electronic Injury Surveillance System (NEISS) among children less than 15 years of age, the following statistics were also reported. Injuries that occurred at home, including in tubs and showers (50,914), from televisions (18,788) and in beds (220,304) totaled 936,119 (NEISS, 1998).

Bullying Behaviors Threaten Children's Safety

The case for eliminating recess due to teasing and bullying behaviors is similar to the stance on physical injuries. Bullying is described as a form of negative actions that persist repeatedly over time and is characterized by an imbalance in strength either physically or emotionally on the part of one or more other individuals (Olweus, 1993). Bullying does take place on playgrounds across the United States, but, according to

Pellegrini (2002) it also takes place in the bathrooms, the hallways, the cafeterias, and the classrooms. Even so, less than 2% of all behaviors on the playground pertain to physical and verbal abuse (Pellegrini, 2005). Lewis, Colvin, and Sugai (2000), found that teachers and recess supervisors intervened in conflicts only when it seemed absolutely necessary or when directly asked by a student. Teachers often discourage children from discussing problems with them on the playground and encourage children to settle arguments on their own (Cunningham et al., 1998).

Leff, Costigan, and Power (2004) found that relational and verbal aggressions were reduced as a part of a comprehensive program implemented to improve playground relationships and social interactions. Relational aggression refers to behavior displayed with the intent to harm or manipulate a social relationship. Examples include leaving a child out of an activity, making hurtful comments to or about a peer, and purposefully ignoring a classmate. Verbal aggression was defined as a behavior displayed with the intent to dominate or harm another child through name calling, insulting, cursing, or making fun (Leff et al., 2004). Doll et al. (2003) noted, "Difficulty with peer conflict (including both physical and verbal aggression) is characteristic of children with poor peer acceptance and especially of rejected children" (p. 115). The absence of a caring supervisor on the playground may further affect the negative recess experiences among vulnerable students (Anderson-Butcher, Newsome, & Nay, 2003). A social skills recess intervention studied by Anderson-Butcher et al. was effective in decreasing the problem behaviors at recess. Children who have inadequate prerequisite social skills simply

cannot comply with rules and directions from adults so enhanced supervision may not be enough to eliminate playground bullying (Lewis et al., 2000).

Cunningham et al. (1998) found that mediation by peers on the playground "produced an abrupt and sustained reduction in direct observations of physically aggressive playground behavior" (p. 658). Cunningham et al. also noted that roughly 90% of the disagreements in which mediators intervened were successfully resolved. Reductions in physically aggressive behaviors on the playground in the first year of intervention were maintained in the second year. These results support the claim that a combination of focused supervision and social skills training can work together to increase safety for children (Doll et al., 2003; Lewis et al., 2001).

Recess Used As a Punishment or Reward

Another method of eliminating or reducing recess in schools is the use of recess as a punishment or a reward. This has been practiced as a way of attempting to control children's behavior for decades, yet NASPE recommends that schools not use physical activity or the withholding of such as a means of punishment (NASPE, 2006; NASPE & AHA 2006). The Council on Physical Education for Children (COPEC) also urges that recess not be treated as a reward for children, but as a necessary support component of the total educational experience for all students (NASPE, 2001). In addition, the Council states that not only should a child never be denied recess as a means of punishment, but that recess time should never be used as a time for children to make up work (NASPE, 2001).

It has been argued that taking recess away from children borders on inhumane behavior (Pellegrini, 2005). According to Skrupskelis (2000),

> Recess is the right of every child. Article 31 of the United Nations Convention on Children's Rights, states that every child has the right to leisure time. Taking away recess, whether as a disciplinary measure (a common practice) or abolishing it in the name of work, infringes on that right. (p. 126)

If a child is not allowed to play at recess, recess is being used as a punishment (Kohn, 1993). Conversely, wrote Kohn, if something (like recess) is held as something that will happen when something else happens, such as when a child finishes his math work, then it is being used as a reward.

An Alternative to Eradicating Recess

In response to those who argue for reducing or eliminating recess, Jensen (2000) suggested that recess problems begin in the classroom and that the classroom is the place to begin resolving them. When the teacher's complaint is that children are out of control, he proposed providing children with more chances for movement and personal expression in the classroom. The more they are allowed to move in the building, the less likely they will "go crazy" (p. 67) when they get to the playground. Teachers who instruct using games and movement activities in the classroom will immediately reduce problems at recess (Jensen, 2000).

Hruska and Clancy (2008) suggested incorporating movement with information from other academic areas to benefit children who have various learning styles such as spatial or kinesthetic. One activity idea was a game to be played in the classroom. Students scatter about the room and the teacher gives a command whereby each student must respond by using his or her body. An example of this concept is having the students

answer a math equation by doing the appropriate number of jumps such as 8 jumps to the problem 6 + 2. Such motor activities can help reduce stress and increase motivation and focus for some students.

Jensen's (2000) suggestions for children who have poor emotional intelligence skills are a little more complex. Students need constant reinforcement of conflict resolution, sharing, cooperation and the like. He proposed working on social skills in the classroom, making it easier to continue those habits outside at recess. Teachers modeling appropriate skills, and teaching them to children, make learning more effective. Some learners, Jensen claimed, are more troubled with serious chronic disorders. For these children he suggested getting professional help, but not "kill a recess program" (p. 67) because a few children cannot handle themselves appropriately at recess. With proper teaching, supervision and structure, the majority of students can greatly benefit from outdoor play (Jensen, 2000).

In terms of emotional and physical safety, COPEC, in a position paper entitled, "Recess in Elementary Schools," stated the need for teachers to assist in arming children with positive skills for self-responsibility during recess. Recess supervisors should also direct or intervene when a child's physical or emotional safety is an issue. The Council asserted that bullying or aggressive actions must not be tolerated and that all safety rules should be enforced at all times (NASPE, 2001).

Maintaining Recess

Much literature pertaining to recess is focused on the benefits of recess. Recess has value to children's overall growth and development (Jensen, 2000; NAECS/SDE,

n.d.). Included in this section is literature related to children's learning in the psychomotor, the affective, and the cognitive learning domains. Also noted are the possible effects of eliminating recess (Dewey, 1938; Henley, McBride, Milligan, & Nichols, n.d.) and the proposition of increasing recess time (Brewer, Luebbers, & Shane, 2009; Kahan, 2008).

Recess and Play Have Value

Recess is as valuable as any other part of the school day (Hinson, 2001b). Children learn in all three domains at recess more readily than in any other school setting when recess is a regular part of their day (Hinson, 2001a, 2001b). Jensen (2000) stated that a properly monitored daily recess program can provide children with opportunities to learn in the psychomotor, affective, and cognitive learning domains. The following excerpt from the NAECS/SDE (n.d.) position paper articulates the importance and the realities of learning in three domains.

> Recess is one of the few places and times during the day when all the developmental domains are utilized in a context that children view as meaningful. Children must function in all the developmental domains if they are to successfully adapt to school and societal norms. The domains are empirically related and should be considered intertwined. For example, social interaction and physical activity facilitate cognition; recess (indoor and outside) offers the opportunity for this development. On the playground, children can be observed actively practicing the learning and cognitive skills acquired in the classroom. (p. 2)

Learning in the Psychomotor Domain

Recess, while distinct from physical education, provides an opportunity for essential physical activity for young children (NASPE & AHA, 2006). NASPE stated that school-age children need 60 minutes of moderate to vigorous physical activity per day.

They also recommended that children get 30 minutes of physical education a day; however, according to the 2006 Shape of the Nation Report, 92% of the elementary schools in the United States are not providing the recommended allotment of physical education for their students (NASPE & AHA, 2006). Finally, NASPE recommended that school districts fulfill the physical activity requirement by providing daily recess of at least 20 minutes, and other physical activity opportunities before and after school (NASPE, 2001, 2006). Rink and Hall (2008) stated that if children are going to get 1 hour of moderate to vigorous physical activity a day, schools must use time outside of physical education to meet the requirement because the odds of children getting that much physical activity in class would be rare. Recess, health, and physical education are not listed as core subjects in the NCLB Act, so it is unlikely that schools will meet these physical activity time criteria (NASPE & AHA, 2006).

Dale et al. (2000) conducted a study to determine whether children would compensate for the lack of physical activity at school by increasing their activity in afternoon and evening hours. The researchers found that children did not compensate; after-school activity levels were actually higher on days that students had physical education and recess than on inactive school days. Dale et al. concluded that if schools are cutting back on recess and physical education, children will not voluntarily make up for the lack of activity at school when they go home. The researchers stated that it is critical that schools provide ample opportunities for physical activity during the school day.

The results of a similar study that examined the physical activity of students during recess and outside of school indicated that children spent the majority (over 60%) of their recess time being physically active. Outside of school approximately 20% of their time was spent in physical activity (Beighle et al., 2006). Based on the results of their study, Beighle et al. gave several suggestions to increase physical activity during recess. The suggestions included increasing the availability of equipment, having supervising teachers encourage unstructured games that maximize activity time, and having the physical education teacher teach games that can be played at recess that focus on inclusion, low organization, and maximized activity. Games taught by the physical education teacher for children to play at recess should be developmentally appropriate. Games such as kickball, dodgeball and duck, duck, goose and traditional sports such as soccer, football, and basketball are all inappropriate for elementary school children (Williams, 1994). These games when played in the traditional manner typically include long periods of inactivity, few opportunities to practice skills, entail an element of danger, and offer potential embarrassment to participants (Hinson, 2001b; Williams, 1994). The U.S. Department of Health and Human Services [USDHHS] (1996) noted, "Because most young people between the ages of 6 and 16 years attend school, schools offer an almost populationwide setting for promoting physical activity to young people" (p. 236). It is important to provide, promote, and encourage appropriate physical activity opportunities for these children (Hinson, 2001b).

Play is a critical aspect of children's physical and physiological development. Physical activity is essential for young children to ward off obesity and other cardiac risk

factors including high blood pressure, high cholesterol, and a sedentary lifestyle (NAECS/SDE, n.d.; USDHHS, 1996). Recess is an ideal setting for children to engage in aerobic fitness activities and practice motor skills learned in physical education. Physical education teachers, therefore, should encourage students to practice newly learned skills during recess, in after school programs, and at home (Jones, 2005).

Learning in the Affective Domain

Learning in the psychomotor domain often overlaps with learning in the affective domain. Bar-Haim and Bart (2006) found some pertinent correlations with children's athletic abilities and their social status among peers. They found that some motor skills may be regarded as prerequisites for the participation in certain social realms. Correspondingly, social physical activities provide individuals with opportunities to practice certain motor skills. Stated more succinctly, Bar-Haim and Bart found that social participation may account for increases in motor proficiency in children who tend to be more sociable.

Play is a crucial part of children's social development (Elkind, 2006). Learning how to cooperate, compete, make decisions, resolve conflict, lead, and follow can all be accomplished through recess play (NASPE & AHA, 2006). Recess is a time that affords the greatest opportunity for peer interactions with the least amount of adult supervision (Doll et al., 2003). With peer interactions often come conflicts. Doll et al. narrowed the problems that children experience on the playground to three: peer conflict, such as fighting, arguing, or teasing; social isolation, such as exclusion from a group, losing a friend, or playing alone; and problems with play gratification, such as boring or

disturbing play. In a discussion of the social benefits of recess, Blatchford (1998) wrote that life on the playground can help in the acquisition of many subtle social skills essential to life in the child's current and future world. He also stated that children with poor or inadequate social skills are more likely to behave inappropriately during recess, but argued that cutting back on recess for those students is not necessarily the answer. Social skills must be practiced and reinforced on a regular basis on the playground and in the classroom (Hinson, 2001b; Jensen, 2000).

Rather than concluding that children should not go outside for recess because of the risk of conflict, school officials may consider implementing an intervention plan designed to promote a more positive school climate. Lewis et al. (2000) conducted a study on one such plan. Prior to the study, an elementary school was involved in a project to improve student behavior. Lewis et al. reviewed supervision expectations and school rules with playground supervisors prior to the beginning of the study. Data indicated that when teachers instructed children on social skills and reviewed rules immediately prior to recess, there was a decrease in the rate of problem behaviors during unstructured activities on the playground. Interestingly, the decrease in conflicts was noted despite the observation that there was no increase in supervision techniques from the supervisors.

Play, according to Elkind (2006), is the central vehicle to children learning social skills. It is important for children to make their own games; they can make and break rules, which helps them discover that rules can sometimes be changed. As they take turns in making and following rules they learn to see situations from another child's

perspective. This type of learning occurs because in free, spontaneous outdoor play, children create learning experiences they could not have in any other way (Elkind, 2006).

Free play is clearly a necessary factor in developing social skills, yet guidance from adults is equally important. According to Jensen (2000), children must be taught how to play cooperatively so that the advantages of play are not overridden by the negative social interactions that may occur through more competitive scenarios [see Williams (1994) for a discussion of the perils of children playing inappropriate games such as dodge ball and kickball and Hinson (2001a) for an explanation of many appropriate alternative games for children to play at recess that promote physical activity and proper social interaction]. Teachers who invest time in teaching children social problem solving will spend less time intervening in children's conflicts (Adams & Wittmer, 2001). Teaching children to work out differences on their own is superior to solving simple squabbles (Cunningham et al., 1998).

In addition to social development, emotional development holds a significant part in the affective learning domain. Included on the list of benefits of recess and play are the reduction of anxiety, stress management, and self-control (NAECS/SDE, n.d.). Self-regulatory skills are enhanced through make-believe or imaginative play. Children who are able to self-regulate are able to manage their feelings and their impulses so they are better able to pay attention in school and learn (Spiegel, 2008). At recess children also learn about their own abilities, perseverance, responsibility, and self-acceptance (NAECS/SDE, n.d.).

Learning in the Cognitive Domain

Landers and Kretchmar (2008) studied 14 narrative and four meta-analytic reviews that concluded exercise enhances cognitive functioning. According to NAECS/SDE (n. d.), children develop intellectual foundations and cognitive understandings through the applied, manipulative, exploratory performances that occur during play episodes and play opportunities. An obvious benefit of recess is the prospect of pure physical movement and the practice of physical skills. The context of play provides the most appropriate base for children as they develop skills (NAECS/SDE, n. d.). Through movement on the playground children learn what their bodies can and cannot do. According to Hendy (2000), the development of motor skills promotes academic readiness.

There are many benefits to playing on playground equipment designed for elementary school children. Interacting with play structures is significant to the general play experience of young children (Hudson, 2005). Movements required to navigate certain obstacles can have long-term educational effects. Play structures that provide balancing and climbing opportunities, motor planning, spatial awareness, and strength development help children increase coordination and gross motor skills, which in turn help children read, write and solve math problems (Hendy, 2000). When children play on swings, suspended bridges, merry-go-rounds, log rolls, and similar structures, they develop spatial awareness, balance and coordination. The swinging motion is a form of vestibular stimulation (inner ear development) which is significant to learning sequencing skills in preparation for reading (Hendy, 2000).

Jensen (2000) stated, “Exercise increases the connections in the basal ganglia, cerebellum, and corpus callosum and enlarges capillaries around the neurons increasing blood to the brain” (p. 75). Jensen also maintained that play lowers stress levels and that physical activity stimulates the brain. To reap such benefits from exercise, children must, in fact, exert some energy. Therefore, children need to not only be allowed ample recess time, but should be encouraged to play hard at recess (Jones, 2005).

In a study involving over 1800 students, Chomitz et al. (2009), sought to determine whether there was a relationship between physical fitness (psychomotor) and academic achievement (cognitive). Chomitz et al. found almost a perfect linear correlation between the percentage of students who passed the Massachusetts Comprehensive Assessment System (MCAS) in math and English and the number of fitness tests passed. It was observed that the odds of passing both the math and the English tests increased as the number of fitness tests passed increased. Chomitz et al. shared three possible reasons for the positive relationship between fitness and academics. The first is that motivated students may strive for excellence in academics and in fitness or athletics. The second speculation for the connection is that a student who is in good physical condition may reflect good overall health, which may reflect positively on academic performance. Thirdly, Chomitz et al. stated that physical activity, which these students obviously must have to maintain good fitness levels, may enhance students’ ability to focus and behave appropriately in school, thus allowing them to learn more and excel in the classroom. Chomitz et al. concluded that, “learning may be enhanced in physically active students” (p. 36).

More on Maintaining Recess

Learning takes place across the domains as one complements another. Children need a blend of movement experiences to expand a healthy mind and body that is capable of learning (NASPE, 2001). Moderate levels of exercise on a regular basis increases endurance, resilience, self-discipline, and motivation, which are traits beneficial to leaning in all domains (Jensen, 2000). Eliminating outdoor recess limits the learning domains exercised in the school day. Eliminating recess is contraindicative to the purpose of school (Clements, 2000; Sutterby, 2007). The predominant administrative intent of eliminating recess is to increase learning time to prepare for high-stakes tests. However, any temporary improvements in test scores that might possibly come from more uninterrupted instructional time will put the larger long-term goals of education at risk (Jensen, 2000).

In opposition to the mindset that more time in the classroom will increase academic achievement, some experts have suggested the reverse: more time on the playground (Jarrett, 2002; Jensen, 2000; Kahan, 2008). In Taiwan and Japan younger children are given twice as many recesses and shorter school days. This allows for alternating periods of cognitive intensity and mental relaxation, which encourage efficient cortical maturation (Jensen, 2000). Jarrett (as cited in Hutchison, 2005) advocated for a 20-minute recess in the morning and another in the afternoon because children can be more focused in the classroom when they have more recess breaks. Brewer et al. (2009) suggested three recesses a day. Kahan (2008) suggested scheduling

multiple, longer recess periods because they promote higher-intensity physical activity, which reduces the amount of sedentary behavior known to be a link to childhood obesity.

According to Clements (2000) and Pellegrini (2005), research has not been found to support the idea that keeping children in their seats all day will ensure higher academic achievement. Dewey (1938) spoke of the importance of movement during the school day decades ago: "Without its existence it is practically impossible for a teacher to gain knowledge of the individuals with whom he is concerned. Enforced quiet and acquiescence prevent pupils from disclosing their real natures" (p. 62). A recent study on recess and classroom behavior involving over 10,000 students found that children who received at least 15 minutes of recess a day displayed better behavior in the classroom (Barros et al., 2009). Henley et al. (n.d.) posed the question, "Is No Child Left Behind robbing American children of their childhood" (p. 61)? Banner (2005) stated that while educators aspire to produce lifelong learners, they may instead be producing a generation of individuals who do not have the necessary skills to effectively contribute to society and who have negative feelings toward school and learning.

Uninterrupted Instructional Time

From the cancellation of field trips and silent reading time in the classroom to high-quality high school electives, some of the richest learning opportunities have been squeezed out all in the name of preparing for the tests (Kohn, 2001). Jarrett (n.d.) stated that many school administrators have adopted "uninterrupted instruction" (p. 1) practices due to the pressure to improve test scores. Some school administrators have sought scheduling tactics to increase uninterrupted instructional time (Jarrett & Maxwell, 2000;

NCES, 2006). Schools have implemented various strategies to increase learning time for reading, language arts, and math, which are listed as the core subjects of the NCLB Act (National Science Teachers Association [NSTA], 2007). Sometimes the administrative strategy is to take time away from other areas and sometimes it is to not allow any interruptions during premium teaching hours.

Time is Taken from Other Areas

To make time for testing, many schools have reduced or eliminated parts of the curriculum that are not addressed on the standardized tests (Houston, 2007). A survey by the Center of Education Policy [CEP] (2007) examined the amount of time spent during the school week on core academic subjects, and how the allocation of time has changed across subjects since NCLB was enacted. The CEP found that in approximately 62% of school districts the amount of time spent in elementary schools on reading and language arts or math has increased. Time spent on science, social studies, art, music, physical education, lunch, and recess, were cut in 44% of the districts; recess was reportedly cut in 20% of the districts. The CEP reported that to increase time for reading by an average of 140 minutes, and math 87 minutes, school administrators had reduced the time for science by 75 minutes, social studies by 76, art by 57, and physical education by 40 minutes per week (CEP, 2007). NASPE recommends that elementary school children receive 150 minutes of physical education a week, yet according to the *Shape of the Nation Report,* only 8% of elementary schools provide daily physical education or its equivalent: 150 minutes (NASPE, 2006). In some schools, children who do not score well on tests do not receive art, music, physical education, recess, or special project time in the

library (Hutchison, 2005; Ohanian, 2002). While their friends are engaged in hands-on learning, the lower achievers are engaged in more mundane skill and drill-type activities (Ohanian, 2002).

Some are questioning this practice of narrowing the curriculum (Cawelti, 2006). Wilkins et al. (2003) conducted a study involving 547 elementary schools in Virginia to determine whether eliminating art, music, and physical education to allow more time for core subjects resulted in higher test scores. Wilkins et al. found that the relationship between time in these areas and achievement on high-stakes tests was statistically null. In fact, the statistical trend was generally positive, which would suggest that students in schools who have art, music, and physical education taught by specialists may actually do better on standardized tests. Based on the results of this study, the researchers concluded that as school officials search for ways to raise test scores, they need not consider reducing time in the arts or physical education as a viable strategy (Wilkins et al., 2003).

Tremarche, Robinson, and Graham (2007) sought to determine whether or not more hours of quality physical education time per week had an impact on students' standardized test scores. Test scores from two areas of the Massachusetts Comprehensive Assessment System (MCAS) from two schools were analyzed for fourth grade students. The major finding was that the students in the school who received more hours of physical education scored significantly higher on the ELA test and essentially the same on the math test. When educators and administrators are faced with the decisions to increase daily academic time to help increase test scores, this study indicated that they may need to consider adding more physical education time rather than taking physical

education time away (Tremarche et al., 2007). Currently not one state includes physical education as a core subject even though many believe that it is vitally important (Pate & O'Neill, 2008).

According to a survey by the NCES (2006), 7% of all public elementary schools have cut out all recess for children in grades one and two and only 88% of school officials claimed to have recess every day for their first and second graders. Percentages of schools providing daily recess decreased as the grade-level in school increased. Additional breakdowns of school demographics reported 84% of schools with 500 students or more to have daily recess for first and second graders; the southeast tallied in at 74% for the same age group; and only 75% of schools who had 75% or more students eligible for free or reduced-price lunch reported daily recess for this age group (NCES, 2006). Hutchison (2005), in a study on recess and high-stakes testing in Texas, found that students who did not have recess did not score better on the standardized tests than students who had recess.

Common Instructional Practice

After an exhaustive search for an instructional mandate stating that schools must provide 180 minutes of uninterrupted morning instruction for elementary school children, the researcher of the present study concluded that uninterrupted instructional blocks are merely common practice in schools and not mandated by the state or by the federal government. There was also no research found that tested this practice, yet the term "uninterrupted instruction" was often written in educational literature and discussed within educational settings as a proposed means of increasing teaching time and hence

learning. For example, in one study portraying a model of school success in Ohio, ensuring uninterrupted instructional time was listed as one of the principal's activities (Alig-Mielcarek, 2003). Another example was in a literacy collaborative research report, in which data collected from a survey of 48 schools emphasized the importance of sufficient, uninterrupted instruction in literacy (Scharer, Williams, & Pinnell, 2001).

Segmenting Instructional Time

In addition to children learning on the playground and the development of the brain that takes place during play, researchers have found that recess has more benefits in connection to learning in the classroom. Jensen (2000) stated, "Alternating periods of cognitive intensity and mental relaxation encourage efficient cortical maturation" (p. 66). Willingham (2002) noted several studies that showed that people learn best when their exertions are spaced or distributed between tasks. Recess is beneficial for children's learning in the cognitive domain to provide a break in the learning tasks; children can focus, take a recess break, and focus again in the classroom (Pellegrini, 2005). Accordingly, COPEC recommends that children not be required to sit more than 2 hours at a time (NASPE, 2001); recess can provide an opportunity for children to get out of their chairs.

Consistent with the massed versus distributed learning theory, Hutchison (2005) noted that children began to get fidgety after 20 minutes of intense concentration on high-stakes testing materials. Pellegrini et al. (1995) found that delaying recess just 30 minutes had detrimental effects on children's learning before recess. Pellegrini and Davis (1993) reported that as confinement time in the classroom increased, so did children's fidgeting;

concentration on seat work also waned as confinement time increased. According to Bjorklund and Green (1992), young children are not cognitively mature enough to attend to one task for long periods of time. Learning must be broken up into small chunks of information and time in order to be rendered effective. Hughes (2001) wrote: "The brain cannot take in new information continually (in a classroom environment) without a break" (p. 261). Recess provides an adequate break in classroom learning (Bjorklund & Green, 1992) yet, recess can also be an extension of the learning that takes place in the classroom (Hinson, 2001b).

Sutterby (2007) discussed the phenomenon by explaining the time-on-task hypothesis. The concept is based on the belief that more time devoted to learning a subject will produce better results. If one, for example, studied for an hour he or she would learn more than if he or she studied for 30 minutes. However, this idea only holds true to a point. At some point the mind loses focus and the concentrated effort produces less and less. Long periods of uninterrupted study, then, leads to more inattention, which in turn slows down the learning process. In other words, Sutterby clarified that studying more or longer without a break does not necessarily lead to more learning. According to one teacher,

> I think that they need a break. You can only beat a dead horse so much. And, you can only grill them so much and you reach the point that even though you are still doing it, they are not retaining it. They are not learning. And, I think if you know when to go and you take that break and pick it up again, they are going to be better. (Banner, 2005, p. 75)

Theories Related to Learning and Recess

The foundation of this study developed from two theories related to learning and recess. The first is the massed versus distributed theory of learning and the second is the cognitive immaturity theory. Both are discussed in greater detail in this section of the review of literature.

Massed Versus Distributed Theory

A phenomenon called the spacing effect holds that distributing study time over multiple learning sessions generally leads to better memory than one long study session. The spacing effect was first noted by psychologist Herman Ebbinghaus in 1885. Ebbinghaus did a self-test (memorizing lists of meaningless syllables) and found that if he distributed his study times he could learn the lists in nearly half the time as when he studied the lists in one large block of time (Willingham, 2002). Ebbinghaus also discovered that information that had meaning was easier to memorize, that an increase in the amount of material to be learned dramatically increased the time necessary to learn it and that re-learning was easier. With each relearning session material was remembered for longer periods of time, thus giving way to the theory that learning is more effective when it is distributed over time (Plucker, 2003).

Willingham (2002) noted several studies that tested the spacing theory and found that spacing practice time improved the likelihood of students remembering new facts but found little evidence that the same holds true when learning more complex material. Because much of what young children learn, however, are facts on which more complex learning takes place, Willingham's assistants suggested spacing or segmenting learning

times for children to take advantage of this learning phenomenon. Perry (2000) suggested interweaving facts with related concepts and narratives to help keep children focused and interested in learning; however, more drastic measures may also be necessary to distribute learning time and help stimulate the brain (Jensen, 2000; Pellegrini & Bjorklund, 1997).

A common practice is to teach children basic literacy skills in 3-hour instructional blocks. Breaking up those hours into shorter periods could have a significant impact on the children's retention rates (Seabrook et al., 2005). Some school system authorities are forgoing recess to allow for uninterrupted instructional time (Jarrett & Maxwell, 2000). However, Jarrett, et al. (1998) studied recess and classroom behavior and ascertained that for most children long periods of uninterrupted instructional time may be a paradoxically inefficient use of the school day. The massed versus distributed theory asserts that memory is improved when learning is spaced or separated into smaller time periods rather than massed (Willingham, 2002). In a study of distributed versus massed practice time, improvement scores following highly distributed teaching were more than six times the improvement scores following less distributed sessions (Seabrook et al., 2005).

It is natural that children who must tolerate long periods of seat work will feel mental fatigue and restlessness, yet schools push children through stretches of time and monotony that would tax many adults (Jambor, 2000). Pellegrini and Davis (1993) explained that children need recess because after a period of time they become bored with their environment in the classroom. The playground provides a break from that boredom, but after a time the playground becomes boring and the novelty of recess begins to wane.

At that time the classroom becomes novel again and students can actually pay closer attention to the learning that takes place in the classroom.

In a study on the impact of recess on classroom behavior Jarrett et al. (1998) found that children were less fidgety and more on task on days they had recess. In another study, the massed versus distributed practice was generally supported. Children in the study were more restless before recess when recess was delayed 30 minutes (Pellegrini et al., 1995). Pellegrini and Bjorklund (1997), in their study of the role of recess and children's cognitive performance, reported that children in kindergarten, second grade and fourth grade were significantly more attentive after recess than before. Jensen's research of the brain supports the need for information to be distributed over time and the need for a recess break: "The brain is protected from overload by allowing only so much learning to be done before sleep or other down-time activities are required, relieving the brain of new input" (p. 65).

All learning is brain-based and learning requires attention; however, neural systems fatigue quickly. Within 3 to 5 minutes of sustained brain activity neurons become less capable of holding attention and they need a break (Perry, 2000). Perry stated that if children are hearing only factual information in the classroom, their brains will seek other stimuli after just 4 to 8 minutes, whether by daydreaming or focusing on other stimuli about the classroom or down the hallway. Continuous presentation of facts without a break will bring about mental fatigue quickly. The mental fatigue causes children to not learn as much and may cause the anticipation and enjoyment of learning to diminish. Perry noted: "Taking a break from focused cognitive activity will actually

improve memory because it provides the brain with a rest from new information and an opportunity to subconsciously process and sort the material that it has just encountered" (p. 35).

Cognitive Immaturity Theory

The cognitive immaturity hypothesis studied by Bjorklund and Green (1992) is consistent with the massed versus distributed practice theory. Bjorklund and Green proposed the idea that children's cognitive maturity compared to adults is characterized by a shorter attention span and a desire to play after periods of concentrated efforts of attending to academic material in the classroom. Young children are developmentally not mature enough to focus on one task for long periods of time. In addition, young children think differently than older children, who in turn think differently than adults (Pellegrini & Bjorklund, 1997). Young children simply do not process information as effectively as older children (Bjorklund & Green, 1992).

The immaturity of young nervous systems and lack of experiences render young children unable to perform advanced cognitive skills with the same efficiency as older children and adults (Bjorklund & Green, 1992). This immaturity directly influences their ability to learn. As a result, children are especially susceptible to the effects of interference and should experience the greatest gains from recess breaks between focused intellectual activities (Holmes et al., 2006). Pellegrini and Bjorklund (1997) noted, "Educators can do little to hasten the maturation of attentional skills, but they can do much to foster maximum attention from children through curriculum design, structuring the classroom, and organizing school schedules" (p. 36).

Children's slow brain development may protect children from overstimulation (Bjorklund, 1997). Bjorklund discussed that young children tend to overestimate their abilities, but that this could be perceived as a plus for children. Bjorklund and Green (1992) found that young children had a more realistic view of peer's performances than their own, but these experts elucidated that having elevated perceptions of their own abilities encourages exploration of new territories and reduces the fear of failure for young learners. The optimistic attitude prevalent among young children may encourage them to attempt tasks they would not otherwise try if they had a more realistic view of their capabilities. The unrealistic perceptions of their abilities allow young children to try skills which may foster long term cognitive benefits. Low levels of functioning, or cognitive immaturity, in some respects may actually have benefits for young learners rather than representing "imperfect stages that must be overcome" (Bjorklund & Green, 1992, p. 48).

Because of the cognitive immaturity of young children, the distributed efforts have been found to work best in maximizing attention to learning tasks in school. While any break or change in task is helpful, Pellegrini and Bjorklund (1997) found that younger children may require more dramatic changes before experiencing significant benefits. Recess should not be viewed simply as an opportunity for recreation, but as having a critical role in promoting attentional skills in children. Children particularly need the physical activity opportunities afforded by recess due to their limited information processing skills and the greater cognitive effort they must apply to their studies (Pellegrini & Bjorklund, 1997). Holmes et al. (2006) supported the call for recess

breaks when they found that post-recess attention was indeed greater following sustained outdoor play periods. Holmes et al. (2006) wrote that "breaks may be especially important for young children when they are engaged in tasks that require concentration and effort" (p. 737).

About the connection of moving to learning, Dewey (1938) wrote:

> The amount of external freedom which is needed varies from individual to individual. It naturally tends to decrease with increasing maturity, though its complete absence prevents even a mature individual from having the contacts which will provide him with new materials upon which his intelligence may exercise itself. The amount and the quality of this kind of free activity as a means of growth is a problem that must engage the thought of the educator at every stage of development. (p. 63)

Dewey also argued that if the freedom to move is forbidden, the only escape in "the standardized school is an activity which is irregular and perhaps disobedient" (p. 62). Thus, for young children, outdoor recess breaks serve to rejuvenate children's minds and help them attend to learning in the classroom (Holmes et al., 2006).

The massed versus distributed theory and the cognitive immaturity theory are the foundational theories that supported this study related to recess and learning. Following is a discussion of research methods and justification for using the mixed method design in this study.

Research Methods and Approach

Because this study looked into the phenomenon of recess through the mixed method design it is important to review each of the research methods and the phenomenological approach. This section includes a brief description of the quantitative

research design, the qualitative research design, the mixed method research design, and the phenomenological approach to research.

Quantitative Research Design

Quantitative research uses numbers to quantify a cause and effect relationship between two or more variables. It focuses on the control of a few variables to determine their relationship and the strength of those relationships (Mills, 2003). Typically quantitative research uses surveys or experiments as its strategy of inquiry. Closed-ended questions, predetermined approaches, and numeric data are also common methods of inquiry. The quantitative researcher traditionally tests or verifies theories or explanations, identifies variables to study, relates variables in questions or hypotheses, uses standards of reliability and validity, observes and measures information with numbers, and commonly employs statistical procedures to verify a claim (Creswell, 2003).

Qualitative Research Design

In qualitative research the researcher seeks to answer questions of meaning, understanding, and process (Merriam & Associates, 2002). Hatch (2002) described the characteristics of a qualitative research design as being the lived experiences of real people, understanding the world from the participant's perspectives, and having the researcher as the data gatherer. Mills (2003) noted that "Qualitative research uses narrative, descriptive approaches to data collection to understand the way things are and what it means from the perspectives of the research participants" (p. 4). Creswell (2007) wrote, "Qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning

individuals or groups ascribe to a social or human problem" (p. 37). Creswell explained several circumstances in which a qualitative study might be most appropriate: (a) when a problem needs to be investigated, (b) when a detailed understanding of a situation needs to be understood, (c) when individuals need to be given a voice, (d) if the researcher has an interest in literary writing, (e) when participants need to be studied in their own environment, (f) if it can enhance quantitative data, (g) to further develop theories, or (h) when quantitative means will not adequately answer the problem.

Mixed Method Research Design

When possible, researchers are encouraged to use more than one research method to enhance the validity of the results (Merriam & Associates, 2002). Collecting and analyzing both quantitative and qualitative data in a single study is known as a mixed method approach to research (Creswell, 2003). The mixed method approach came about when researchers believed that biases common to a single method of study could balance each other out if the methods were combined (Creswell, 2003). The challenges associated with the mixed method design included the need for extensive quantitative and qualitative data collection, the time required to analyze both numeric and narrative data, and the need for the researcher to be familiar with both methods of research (Creswell, 2003).

Phenomenological Approach

A phenomenological approach is the best qualitative research method when one phenomenon needs to be explored. This type of research best suits a situation in which the researcher's goal is to understand a group of individuals' experiences of a phenomenon. It works best when the researcher needs to develop a deeper understanding

of the intricate details of a phenomenon (Creswell, 2007). Typically a phenomenologist brings one question, one topic, one thought to the table in an effort to get in-depth information from participants on that one phenomenon (Hatch, 2002). This was the case in the present study, which examined the recess phenomenon in terms of the timing of recess and reading progress in second grade students.

Assessment, Instrumentation, and Data Sources

The quantitative data for this study was gathered from the Oral Reading Fluency (ORF) measure of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). Included in this segment is literature related to that assessment instrument. The qualitative data were triangulated from individual interviews with teachers and children, focus group interviews with children, participant journals from teachers, and the researcher's journal. Literature related to each of these data sources is also included in this section.

Dynamic Indicators of Basic Early Literacy Skills (DIBELS)

DIBELS is a set of standardized measures of early literacy development (Good, Kaminski, Simmons, & Kame'enai, 2001). Subtests of the measurement are designed to assess student development of phonological awareness, alphabetic understanding, and automaticity and fluency (Good & Kaminski, 2002). The goals are to prevent reading problems and to act proactively to minimize reading problems for those who do experience severe difficulty in basic reading skills (Good & Kaminski, 1996). The authors suggested that modifications are needed for early readers because if interventions are delayed until a reading problem is evident it is too late to be proactive. DIBELS is

designed to preempt reading difficulties and support all students to reach sufficient reading standards by the third grade (Good et al., 2001).

The DIBELS ORF measurement is "a standardized procedure to assess accuracy and fluency with connected text" (Good, et al., 2001, p. 8). Ambruster and Osborn (2003) defined fluency as "the ability to read text accurately and quickly" (p. 22). Fluency provides a bridge between word recognition and comprehension. Fluent readers do not have to work at decoding words so they can focus on the meaning of the text, and they can also read words and comprehend the meaning of the text at the same time. Oral reading fluency takes time and practice to develop from slow labored word-by-word monotone reading to a connected flow of expressive reading (Ambruster & Osborn, 2003). Readers may be capable of recognizing words automatically in isolation or on a list, but that does not mean that they can read the same words in sentences in connected text with accuracy and speed (Ambruster & Osborn, 2003). Conceptually, reading fluency can be viewed as an indicator of the extent to which a reader has grasped lower-level processes needed for reading (Schilling, Carlisle, Scott, & Zeng, 2007). Fluency measures can be used to identify children having difficulties in learning to read and also to assess the effectiveness of instruction and/or interventions used to support reading progress (Schilling et al., 2007).

A strong component of NCLB is the requirement that schools use classroom-based assessments of reading, in addition to other assessments, to determine whether students are making adequate reading progress. It is assumed that these measures will help teachers identify students who are not making adequate progress in reading so

that they can provide appropriate instruction (Schilling et al., 2007). Studies of reliability and validity with large populations are needed to determine the effectiveness of DIBELS (Elliott, Lee, & Tollefson, 2001).

To determine the accuracy of the DIBELS ORF measurement for predicting third grade reading comprehension outcomes, Roehrig, Petscher, Nettles, Hudson, and Torgesen (2008) administered the DIBELS ORF assessment to 35,207 participants enrolled in Florida Reading First schools four times during the school year. The Florida Comprehensive Assessment Test (FCAT-SSS) and the 10th edition of the Stanford Achievement Test (SAT-10) were also administered in February and March. The correlations of ORF with both FCAT-SSS and SAT-10 were high (r_s=.70-.71). As expected, the relationships between the winter 2 DIBELS measurement for ORF and both FCAT-SSS and SAT-10 were the strongest correlations observed, corresponding to the concurrent time interval the tests were given. Roehrig et al. concluded that the DIBELS ORF measurement related well to a common measure of reading comprehension used in other states as it did to a state-developed measure.

Vander Meer, Lentz, and Stollar (2005) examined third and fourth grade ORF goals in comparison to Ohio expectations for fourth grade reading proficiency, and examined the correlations between ORF and the reading portion of the Ohio Proficiency Test (OPT). Data from DIBELS and OPT were gathered from 364 students from three elementary schools in southwest Ohio. Vander Meer et al. found the correlations between the ORF scores and the OPT reading scores to be moderately high. They noted that the criteria for determining at-risk status appeared valid when the end of third grade and the

beginning of fourth grade DIBELS scores were compared to the fall OPT scores for fourth grade. However, DIBELS scores were not found to be as valid when compared to the highest OPT scores attained by students at any point during the fourth grade year. It was observed though, that when interventions were planned, the at-risk criteria were highly valid (Vander Meer et al., 2005).

Schilling et al. (2007) challenged whether fluency measures are accurate predictors of reading achievement and examined the relation of DIBELS and the Iowa Test of Basic Skills (ITBS) in the context of the Reading First initiative in Michigan. Reading First is a part of the NCLB designed to provide high-poverty, low-achieving schools with resources to help students become successful readers. The research team planned to examine the effectiveness and the trustworthiness of DIBELS fluency-based measures as predictors of students' end of the year reading success and to determine the predictive validity of the benchmarks established by DIBELS in identifying children who are reading significantly below grade level at the end of the school year. Shilling et al. (2007) addressed three issues concerning the validity of DIBELS. The first issue attended to the relationship between DIBELS subtests and the ITBS subtests. The second issue was designed to ask the extent to which the combinations of DIBELS subtests (fall and winter) predicted performance on ITBS reading scores in the spring. The third issue was to examine the accuracy of the DIBELS ORF benchmark scores in identifying students in second and third grade who are and are not reading at grade level by the end of the school year. Although the correlations varied in magnitude, the results of the study showed that there was a significant relation between

DIBELS and the ITBS subtests both at one time and across all three (fall, winter, and spring) DIBELS administrations.

In a study using a modified battery of DIBELS called DIBELS-M with 75 kindergarten participants, Elliott et al. (2001) found the combination of four subtests to provide a more standardized assessment than the individual DIBELS measures. At the end of the study, Elliott et al. concluded that DIBELS measures are practical because they are brief, easily repeated, and adapt well to standard curriculum. The measures do not require elaborate materials and can easily be administered by school psychologists and other school-based personnel with a minimal amount of training. The measures are also easy to score. Children should benefit from exposure to the skills assessed by DIBELS.

Goodman (2006) critiqued and questioned the extensive use of the DIBELS measurement and the value placed upon its findings. Goodman challenged, among other aspects of the assessment, the use of fluency in each subtest, the testing and leveling of kindergarteners, the consistency of its administration, the relevance of the subtests and the parts of reading that they measure, and the intentions of the authors of the measurement. Goodman stated that each subtest of DIBELS is timed and much significance is placed on what a child can do in 1 minute. The use of a timed test gives some children an advantage and places others at a disadvantage. The cautious and slow readers are likely to be at a disadvantage while the eager and ambitious or lively are likely to be advantaged. The problems with the ORF subtest were the choice of passages to be read, the test difficulty, the supposition that the speed and accuracy of the first minute of reading is indicative of all minutes of reading, the assumption that a pause

indicates a reader does not know the word, and the fact that only quantity is measured, indicating that quality is not so important (Goodman, 2006). Goodman (2006) concluded that DIBELS reduces reading to a few components that can be tested in 1 minute each, does not test what it says it tests, poorly meets its own intentions and criteria, cannot be administered and scored consistently, does not test the quality of reading, is likely to contribute little or nothing to reading development and actually interfere with reading development, misrepresents students, and demeans teachers.

The brief measures of key early literacy skills were designed to be indicators and not intended to represent all important early literacy skills or ways of measuring early literacy skills; rather, DIBELS measurements were designed to provide a quick, reliable, and valid measure of important indicators for early readers (Good & Kaminski, 1996). Good and Kaminski claimed that the skills measured by DIBELS are not the only skills important to assess or to teach, the methods used for assessment were not suggestions for instruction, and DIBELS measurements should not be the sole method used to assess young children's reading skills.

Individual Interviews

Qualitative interviews are appropriate when more in-depth, descriptive information about a phenomenon are desired than can be gathered from a survey (Merriam & Associates, 2002). To obtain details, depth, and focus, researchers must work out main questions, probes, and follow-ups (Rubin & Rubin, 2005). Hatch (2002) listed several criteria for interview questions: they should be open-ended, they should use familiar language, they should be clear, they should be neutral and not leading, they

should show respect to informants, and they should generate answers that relate to the research objectives. Semistructured interviews are formal because they are lead by the researcher who begins with guided questions but are open to following the leads of the participants. They are designed to go deeply into the understandings of the interviewees (Hatch, 2002). A semistructured interview format allows participants to express themselves in detail, yet offers enough structure to prevent aimless rambling (Wragg, 2002). Hatch recommended that interviewers find a balance between too structured and too informal by encouraging them to begin with guiding questions.

Focus Group Interviews

Focus group interviews can be useful as a secondary data source in enriching the overall data of qualitative studies (Hatch, 2002). The focus group format is often used when a researcher perceives that being a part of a group may encourage informants to more readily express opinions about the topic of discussion. This type of interview depends on the individuals in the group to carry the conversation and generate rich, useful data (Hatch, 2002).

In focus interviews the interviewer usually acts as an arbiter who stimulates the conversation and prods the participants to discuss a particular topic. Just as in individual interviews, the interviewer should begin with guided questions written in advance. These questions should be open-ended, they should not lead participants in any way, and they should encourage the discussion of different viewpoints (Hatch, 2002). A major strength of a focus group is the data produced through group interaction that would not happen as readily without the group dynamics (Janesick, 2004). Adding the insights from focus

group interviews to other sources of data can improve the depth and richness of a study. Focus group data can serve as a valuable source of triangulation when particular social phenomena are being explored (Hatch, 2002).

Participant Journals

Participants are sometimes asked by researchers to keep a journal to be used as data in a qualitative or a mixed method study. Participant journaling can be a strategic data collection strategy and an interactive communication tool for researchers and their participants (Janesick, 2004). Journaling can provide direct insight from participants about ideas, beliefs, and personal thoughts on the research in progress. Participants can write whatever they want at their convenience (Janesick, 2004).

Researcher's Journal

Hatch (2002) suggested that all qualitative researchers keep a researcher's journal because journaling can help with field note interpretation and can provide an explanation of personal biases and feelings. Hatch noted that journal entries should be personal and honest accounts of the researcher's feelings, fears, frustrations, struggles, and victories that occur during a study. Janesick (2004) argued that writing thoughts in a journal improves a researcher's practice, provides a tangible method to evaluate one's experiences, improves and clarifies one's thinking, and moves one to become a better writer and scholar. In addition, journal writing helps to focus a study, assists in setting the groundwork for analysis and interpretation, allows for the review of notes and transcripts, helps awaken the imagination, and aids in keeping a written document of thoughts, feelings, and facts that occur throughout a study (Janesick, 2004).

Summary

This review of literature included the primary reasons that elementary school recess has been reduced or eliminated, such as pressure to meet academic standards, a lack of time, safety concerns, and the taking away of recess as a punishment. Some strategies being used to carve out more instructional time were to take time from other areas and the practice of 3-hour uninterrupted instructional blocks. Suggestions and rationale for maintaining recess included more movement-based learning in the classroom and the consideration of the benefits of recess in terms of the psychomotor, the affective, and the cognitive learning domains. Details about the massed versus distributed learning theory and the cognitive learning theory were a part of this literature review. Additionally incorporated were segments on research methods, the phenomenological approach to research, and literature related to the DIBELS measurement system, which fulfilled the quantitative aspect of the mixed method study. The literature review concluded with a discussion of the qualitative data sources: individual and focus group interviews and participant and researcher journals that were used to complete this study. Section 3 discusses the methodology used in this study on recess and reading and learning.

SECTION 3: METHODOLOGY

Introduction

The problem addressed in this mixed method study was whether it is better for children to have a large uninterrupted block of morning instructional time, or whether it is better for children to have their instructional time broken up into smaller segments by having a recess break between two learning sessions. Quantitative data were collected to address whether the timing of recess had an influence on reading achievement, and the qualitative aspect conveyed stakeholders' opinions about recess and learning. This section details the research design, study procedures, the setting and sample, a clarification of the research questions, justification of the study, the quantitative assessment instrument, variables, and the qualitative data sources. Data analysis procedures, the researcher, protection of the study participants, and researcher bias are also discussed in this section.

Research Design

According to Creswell (2003), when a researcher wants to test a theory, the quantitative approach is best; when a concept or a phenomenon needs to be better understood, the qualitative approach is best. My research objective was to test two theories, the massed versus distributed practice theory and the cognitive immaturity theory, and gain a better understanding of recess and how it relates to learning. Therefore, the balance provided by the mixed method design was the best fit.

Creswell (2003) indicated that quantitative research involves highly systematic procedures, and qualitative research allows for more creative, literary-style writing; thus, the mixed method approach fits a person who enjoys both structure and flexibility. Consequently, I selected the mixed method design because it fit my need for order and freedom of originality.

I implemented the concurrent transformative strategy, which means that the quantitative and the qualitative data were collected at the same time using a theoretical lens as an overarching perspective (Creswell, 2003). Data were collected simultaneously and given equal precedence. The rationale behind the concurrent strategy transpired from the concept that the data from both strategies can be incorporated in the analysis of the overall results at the same time; the rationale behind the transformative lens is that it provides a framework for data collection (Creswell, 2003). The specific experimental design I selected was the quasi-experimental design as defined by Creswell (2003) and Trochim (2006).

This quasi-experimental design closely followed the parameters identified by Creswell (2003) as a nonequivalent pretest, posttest control-group design. In keeping with the design parameters, two groups were compared in the study, but the groups had already been formed into two homeroom classes. In addition, both groups of second graders took a reading assessment called DIBELS as a pretest and posttest, and only the experimental group received the treatment. In this case, the experimental group had a mid-morning recess break with 90 minutes of instruction before and after the recess. The control group had 180 minutes of uninterrupted instruction before going to recess.

DIBELS ORF scores were analyzed because ORF is the only DIBELS measure used throughout the entire second grade year (Good & Kaminski, 2002). It is standard procedure at the school for students to take the assessment three times per year. For the purpose of this study, the participating classes were scheduled to take the assessment four times, which is a common practice (Good & Kaminski, 2002).

The qualitative component of this research was fulfilled by individual interviews with students and teachers and focus group interviews with students from each classroom. After completion of DIBELS pretests, I referred to the *class list report*, which ranks students from lowest to highest in regard to ORF scores (Good & Kaminski, 2002), to determine who would be interviewed individually. To provide a purposeful sampling of qualitative data, the children selected to be interviewed were the individuals in each class who were ranked the lowest and the highest on the ORF and also the children who possessed the median score in each class. Each teacher also participated in an individual interview. This method of participant selection was in line with Creswell (2003), who stated that the underlying concept of qualitative research is purposeful selection of participants.

Procedures of the Study

After individual participants were determined, I put the names of the remaining student participants in a hat and drew six names from each class to form the focus groups; then four more student's names to act as alternates. In addition to interviews, participating teachers were urged to keep participant journals, and I logged developments in a researcher's journal with the intention that the journals might be used as

supplemental data (Hatch, 2002). I asked teacher participants to journal thoughts and observations about children's behavior before, during, and after recess, and to document such information as the class having indoor recess due to inclement weather or children not having recess because of a special event. This qualitative aspect of the study aligns most perfectly with the phenomenological strategy, which describes the essence or structure of human experiences concerning a phenomenon (Creswell, 2003; Merriam & Associates, 2002), which in the present study was the phenomenon of recess and its relation to learning and reading. Because a phenomenological strategy uses words rather than numbers to convey what the researcher has discovered about a phenomenon (Merriam & Associates, 2002), raw qualitative data from interviews were recorded, transcribed, and coded before analysis commenced.

For individual and focus group interviews, I employed a semistructured interview format. Interview times were set in advance, an audio recorder collected verbal data, and meetings began with guiding questions, which led to follow up and probe questions as the interviews transpired (Hatch, 2002; Wragg, 2002). Before beginning with interview questions, as the interviewer I informed the interviewees that there was no right or wrong answer to any of the questions and that they should merely speak from their own perspectives and experiences (Hatch, 2002; Rubin & Rubin, 2005). Open-ended questions encouraged rich, descriptive dialogue from participants, because open-ended questions allowed interviewees the opportunity to share their thoughts in their own words (Hatch, 2002).

In the second semester of the 2008-09 school year, two different recess schedules were set in place for the two second grade classes and continued on a daily basis for 9 weeks. Recess for one class was scheduled after 180 minutes of morning instruction and recess for the other class was scheduled after the first 90 minutes of morning instruction. Because recess in the middle of a large instruction block is not necessarily considered a treatment this study was not considered a true control group design, but rather a comparison study that simulated the control group design (Creswell, 2003).

Prior to the recess schedules being put in place, the first administration of the DIBELS ORF assessment was administered to each student in both classes (the pretest). Interviews and focus groups were conducted in the last 2 weeks of the 9-week altered schedule. At the end of the 9-week period all of the second grade participants took the DIBELS ORF assessment again (the posttest). The second graders at the participating school were familiar with the procedure of DIBELS as they took the assessment in kindergarten, in first grade and at the beginning of second grade.

Interviews were scheduled before or after school at times that were convenient for the participants and myself. Individual student interviews and focus group interviews all took place in the hour between student arrival time and the hour school officially began so that students did not miss any instructional time. Interviews took place in a quiet, familiar location, which minimized distractions and offered the best setting for recording interviewees. As the researcher I gathered, coded, analyzed, and interpreted both types of data at the conclusion of the data collection time period, at which time I integrated the quantitative and the qualitative aspects of the study.

Setting and Sample

The primary population under investigation was second grade students enrolled in public schools in the United States. The sampling frame was second grade students from an elementary school in rural North Georgia. Based on the economic status of the families in the district, the school was considered a Title I school. Enrollment was 659 students in kindergarten through fifth grade, of whom 50% had come from economically disadvantaged homes (Georgia Department of Education [GADOE], 2008). There were 99 second graders on roll. Two homeroom classes were selected from this sampling frame to participate in this comparison study. One class had 20 students; after some students moved away, the other class had 17 students at the time of the study, thus making the sample 37 second grade students. No students moved in or moved away during the 9-week study period.

Second graders were selected for this study because they are articulate enough to provide the researcher with usable, coherent answers to interview questions. Additionally, second graders are old enough to understand time and scheduling practices, yet perceived to be young enough to test the cognitive immaturity theory (Bjorklund & Green, 1992) in relation to the massed versus distributed learning theory (Willingham, 2002). Older children may not necessarily display significant differences in learning with a long uninterrupted learning time or with two shorter times with a break between (Holmes et al., 2006).

Two classes for comparison were selected from the second grade homerooms at the school involved in the study. By the flip of a coin, one class was chosen to be the

class with the uninterrupted morning schedule, and the other class to have a recess break after the first 90 minutes of classroom instruction followed by another 90 minutes of classroom instruction. As the researcher I made it clear to all potential participants that their participation was voluntary, that they could withdraw at any time, and that their identities would be kept confidential (Rubin & Rubin, 2005). Teachers signed a consent form before data collection began to document their agreement to being a part of the study. In addition, I read an assent form to the two classes in their homerooms prior to inviting the children to take the form home to discuss participation with their parents before signing and returning it. I also asked parents to sign a consent form for their children. Additionally, a transcriber signed a confidentiality agreement before data collection to further protect participants. Pseudonyms for the school and participants helped ensure confidentiality, and the transcriber omitted any personal identifying information that occurred in the interviewing process to protect the identity of the participants involved.

After consent and assent forms were signed and returned to me, and the DIBELS ORF pretest was complete, I selected 3 children from each classroom to be interviewed. I used the DIBELS class list report to select students for individual interviews, for a total of six student interviews. After students were identified for the individual interviews, student participants were selected for focus group interviews using the simple random sampling method. Simple random sampling is a fair way to select a sample, which makes it reasonable to generalize the findings to the population (Trochim, 2006). Six students from each class were randomly selected to participate in one of two focus groups and two

alternates were selected in case a selected child was absent, unable, or unwilling to participate in a focus group interview, as suggested by Janesick (2004). Remaining participants were noted on a reserve list in case any alternates were needed. This is typical practice when random sampling is the chosen method of participant selection (Wragg, 2002). Both teachers were asked to participate in individual interviews after school on a day that was convenient for them.

All students who agreed to participate in the study took the DIBELS ORF assessment before and after the alternate recess schedule began with the experimental group. DIBELS at the beginning of the semester is standard procedure at the participating school, but an additional assessment at the end of the 9 weeks is considered optional and not typical practice at this school. Interviews required some time and effort on the part of the participants, but no preparation for interviews was necessary. Due to the nature of the topic of recess, little or no emotional anguish was expected nor observed. Because of the short time frame in which this study was conducted and the amount of time involved in interviewing, transcribing, and analyzing data, Wragg (2002) suggested selecting a small number of representative people for intensive interviews. It was anticipated that 18 students and their 2 teachers would be ample to produce volumes of qualitative data, but not so much that it could not be contained in the scope of this study.

Clarification of Research Questions

I addressed two research questions in this study. The first question I addressed was connected to the quantitative component of the study and stemmed from the massed versus distributed learning theory (Willingham, 2002), and the cognitive immaturity

theory (Bjorklund & Green, 1992). The first research question was, Does segmenting instructional time with a recess break have an influence on oral reading fluency? This first question helped me pursue insight into two areas: (a) whether children showed a significant increase in oral reading fluency, as assessed by DIBELS, when their classroom learning time was distributed into two smaller segments with a recess break dividing the time, and (b) whether they showed a significant increase in oral reading fluency when they had a long uninterrupted instructional time with no recess break. The second research question was, What is the connection between recess and learning? With this qualitative question I sought to explore and understand the views of children and teachers as they pertain to recess and learning. I questioned whether the participants believe recess has an effect on children's learning and I documented their opinions on the timing of recess as it relates to reading and learning. The quantitative and qualitative data were gathered concurrently to best address the objectives of this study.

Justification of the Study

This study emerged from the importance of two societal issues facing elementary school students across the country. The first is the fact that children, for various reasons, are not getting enough physical activity (Kahan, 2008), which may lead to educational, social, emotional, and health related problems. Children should get a minimum of 1 hour and up to several hours of physical activity a day (NASPE, 2004). The second issue is related to the push in society for children to learn more, to meet the standards and not be "left behind" (NCLB, 2002). The NCLB has challenged school officials to "close the achievement gap by assuring that all America's children can do grade-level schoolwork

by the year 2014. The 'achievement gap' is the difference in performance between groups of students, especially groups defined by race/ethnicity and family income" (U.S. Department of Education, 2007, p. 1).

In an attempt to enhance learning, a trend in schools has been to reduce or eliminate recess time (NAEYC, 1998; Pellegrini, 2005), thus providing more time for instruction. However, the practice of reducing or eliminating recess decreases physical activity time, and research to determine whether this practice produces better learning outcomes is still under investigation. The underlying question that emerged from these two issues is whether eliminating recess will help children learn, or if recess has an impact on the learning process (Waite-Stupiansky & Findlay, 2001).

At the school of inquiry, morning recess had been eliminated to provide more uninterrupted instructional time, but one recess still remained in the schedule. Therefore, I did not address a schedule with no recess at all, but rather a schedule that addressed the timing of recess. A study related to the effects of no recess should be saved for a school that has adopted a no-recess policy. Through this mixed method comparison study I endeavored to find a schedule most conducive for second graders by having one class experience a morning recess break and another class experience the morning learning instruction with no recess break.

The Quantitative Assessment Instrument

The quantitative data were collected from a reading assessment, DIBELS, an ongoing assessment system designed to assess reading progress for children in kindergarten through sixth grade (Good & Kaminski, 2002). DIBELS is a set of

standardized measures of early literacy development, designed to be short appraisals used to monitor students' early reading skills, predict reading proficiency, and assist in early identification of a lag in reading progress. The assessment is designed to evaluate the areas of phonological awareness, alphabetic understanding, and fluency. Second graders are assessed in the area of oral reading fluency (ORF) three or four times per year (Good & Kaminski, 2002). Participants in the study were assessed before and after the 9-week altered recess schedule time frame.

Scoring

To identify a score for a student on his or her oral reading fluency, the student reads three passages aloud for the duration of 1 minute each. The passages are regulated for the reading level benchmark for every grade level. Any words that are omitted, substituted for, or elicit more than 3 seconds of hesitation are scored as errors. Words that are read correctly or are self-corrected within 3 seconds are scored as correct. The administrator tallies the number of correct words the student reads in each minute separately. The median correct words-per-minute from all three passages is deemed the student's oral reading fluency rate (Good et al., 2001). These oral reading fluency scores indicate whether students are at risk in their ability to read connected text in grade-level reading material (Good & Kaminski, 2002).

The goal is for students to be fluently reading 90-100 words per minute of grade-level connected text by the end of second grade (IDEA, 2002-09). Benchmark scores for three and four administrations per year are not to be reproduced, but are available on the DIBELS website. Data collected from the assessment of literacy development means that

performance on one of the categories is predictive of performance on another, which is said to be predictive of overall reading success in young readers (Good & Kaminski, 2002).

Validity and Reliability

Administration of each part of the DIBELS is standardized, as are the scoring procedures so that the scores have significance. The data produced by the assessment may be used to assess children's reading progress and help determine the effectiveness of instructional goals. Each part has been researched and has demonstrated to be a reliable and valid indicator of early literacy development (Good & Kaminski, 2002). Studies of reliability and validity have been performed by Vander Meer et al. (2005), Elliott et al. (2001), and others. Testing takes less than 10 minutes per child (Good & Kaminski, 2002) and was already a part of the reading program at the school where this study transpired. The participating teachers were trained in administering DIBELS, and they tested each of their students every time, which assisted with the reliability of results.

Variables of the Study

Data were collected to address different variables in the study. The recess schedule was the independent variable. The children's gain scores on the DIBELS ORF assessment was the dependent variable. As the dependent variable of the quantitative phase of the study, these scores were compared in terms of group changes. Qualitative data in the form of individual and focus group interviews were added to the quantitative data to gather thoughts and opinions from second grade students and their teachers.

Qualitative Data Sources

I developed all of the questions asked in the qualitative portion of the study (Appendix A). I asked participants questions about their beliefs and values of recess, the purpose of recess, and its connection to reading and learning. I personally conducted and recorded all of the individual interviews and also served as the moderator for the focus group interviews. Teachers were asked to keep participant journals and I kept a researcher's journal throughout the study. The interviews and journals were used to triangulate the qualitative data.

Validity

It is important to show validity and reliability of the collected data. Validity means that the interview measures what it is supposed to measure (Wragg, 2002). Several validation strategies were used in this study as suggested by Creswell (2007). Triangulation of the study was realized by the use of individual and focus group interviews, a researcher's journal, and teacher participant journals. Member checking ensured precision by allowing the teachers to read the transcription of what they said to check for accuracy. The reporting of negative or discrepant information that emerged from the study, rather than leaving it out, proved to be significant because the reporting of diverse data added credibility to the findings. This reporting came in the final analysis stage to avoid influencing interviewee's responses. Finally, peer debriefing enhanced the accuracy of the data. My primary peer debriefer was familiar with this study, knew what questions to ask, talked through relevant issues concerning the study on a day-by-day basis, and generally proved to be invaluable in each phase of the study.

Reliability

The reliability of a study refers to stability and consistency (Creswell, 2007). A test of reliability is whether two interviewers would get similar results and whether the same interviewer would get similar results on different occasions (Wragg, 2002). To maintain consistency, I was the only one to ask all of the questions in the interviews, and multiple interviews were conducted to get a variety of viewpoints from several participants. To ensure reliability, I recorded each interview, each interview was transcribed verbatim, and transcriptions were reviewed for accuracy by the transcriber, a peer debriefer, and me.

Data Analysis Procedures

Data segments were analyzed separately before all of the data were analyzed and interpreted to determine what all of it meant collectively. The procedures for the quantitative data analysis are discussed first, followed by the procedures for the qualitative data analysis.

Quantitative Data Analysis

For the quantitative analysis of this mixed method study, an independent-measures *t* test and a chi-square test of significance were run with the use of the Statistical Package for the Social Sciences 15.0 for Windows (SPSS). An independent-measures research design uses a separate sample for each treatment or for each population. The goal of the independent-measures *t* test was to evaluate the mean difference between two treatment conditions (Gravetter & Wallnau, 2005). The null hypothesis stated: there is no significant difference in oral reading fluency scores between

students who have a morning recess break and those who do not have a morning recess break. The alternative hypothesis stated: there is a significant difference in oral reading fluency scores between students who have a morning recess break and those who do not have a morning recess break.

A chi-square test of significance was run to determine whether there was a difference in gain scores when the students' gains scores were divided into low, moderate, and high. The null hypothesis in this study would state that the groups were statistically the same and the alternative hypothesis would state that the groups were different.

Qualitative Data Analysis

To analyze the qualitative data, I adopted the interpretive analysis framework as described by Hatch (2002). Because the interview questions identified basic categories, the analysis of the qualitative data began with pre-set phrases that provided a basic framework to separate data into groups, as suggested by Hatch. The pre-set categories determined by the interview questions and their initial codings were: recess and behavior (R&B), recess and learning (R&L), recess and testing (R&T), recess and reading (R&R), the purpose of recess (PR), the timing of recess (TR), no recess (NR), and negative or discrepant comments (ND). Creswell (2007) noted that developing codes or categories to sort text into useful and containable like-groupings proves beneficial in reducing the data. He suggested starting with a few categories with shorthand labels, expanding the categories as data is reviewed, and then narrowing the codes once again when it is time to write the narrative.

After the data were collected, the next step was to listen to and transcribe the interviews. To analyze the data from the interviews and focus groups it was important to first read over each transcription to obtain a sense of the overall data. I followed the suggestions made by Rubin and Rubin (2005) and jotted notes in the margins, looked for specific words or metaphors that were repeated, and highlighted or underlined key words at this phase of the analysis. Creswell (2007) explained that as the researcher reads and re-reads the data, more categories may develop; I found that additional categories emerged during the analysis phase. I added the following codes: recess activities (RA), inside or outside recess (IO), before and after recess (B&A), beliefs and feelings (B&F), off topic (OT), recess and punishment (R&P), classroom management (CM), and classroom behavior (CB). At the conclusion of this initial overview, I coded and placed each data unit into categories. Coding or labeling each data unit permitted the sorting of statements by concepts rather than by the persons who said them (Rubin & Rubin, 2005).

By reading the data over and over I became immersed in the data, allowing for interpretation. I then followed a suggestion by Hatch (2002) to make notes related to impressions, which stemmed from the readings. Once interpretations had been narrowed and refined I went back to the data once again and coded the interpretations to fit the rest of the previously identified codes. I also read, coded, and analyzed participant journals and my researcher's journal during this phase. Finally, at the end of the analysis of the qualitative data a connection was made to the quantitative data and I interpreted the data to make some final conclusions.

The Researcher

I had been the physical education teacher at the school for 20 years and therefore had natural access to potential participants. Being a teacher in the same community for so many years made securing individuals to participate fairly simple. I had developed a good relationship with potential participants by working with them, teaching them, and greeting many of them in the mornings as they arrive to school. School events such as PTO meetings, performances, awards day, and field day are additional occasions in which I had developed rapport with participants. Being a part of a small community for many years afforded me the opportunity to get to know many of the families. The relationship with teachers, students, and their parents was friendly, familiar, and professional.

As the physical education teacher at the school, I explained to participants that my roles for this study were as an interviewer and a researcher. Adults and especially children need to feel comfortable with someone before they will speak openly. Developing relationships and rapport with interviewees is vital to the outcome of a qualitative study (Hatch, 2002; Wragg, 2002). I had no influence on the quantitative data, as my role was to collect the results from qualified personnel. However, as the interviewer my goal was to encourage more rich and descriptive qualitative data. With the exception of the help of a transcriber, I accepted the responsibility of all data collection and analysis for the qualitative portion of the study. The majority of the analysis of data in this study did not take place until student participants had completed the pretest and posttest assessments and all interviews were complete.

Protection of Participants

Each individual invited to participate agreed to take part, and written consent and assent forms were secured before including individuals in the study. Participants understood that their participation was voluntary, that they could withdraw from the study for any reason, and that it would not pose a problem if they choose to not participate or not answer an interview question.

To further protect the student participants, I reviewed recordings with participants in the individual interviews and allowed them to make additions or clarifications if they chose. I also asked clarifying and follow-up questions during those sessions. Teachers were given an opportunity to read transcriptions of their interviews and make clarifications if desired, but no clarifications were made. Names and other identifying information were left out of the study to ensure confidentiality. In the review and the discussion of the interview portion of the study, participants were given pseudonyms to differentiate what was said by whom for analysis purposes and to maintain confidentiality. The school was also given a pseudonym to help protect the participants.

Data collected for this study will be kept confidential. All recorded data from individual and focus group interviews were saved on two secure, privacy edition USB3 flash drives, which feature security measures including complex password protocol. Records or data such as the researcher's journal, the teacher participant journals, student assessment scores, consent, assent, and confidentiality agreements, were transferred and saved on the same password protected flash drives. Security will be maintained as one

flash drive is being stored in a safe deposit box for a period of not less than 7 years. A second secure flash drive is being stored in an undisclosed location.

Researcher Bias

In qualitative research, the researcher is actually the primary research instrument (Merriam & Associates, 2002). Although there are advantages to this concept of being a human instrument of data collection, such as the ability to immediately process data, expand the understanding of a concept, or check with respondents for interpretations, a disadvantage can be that the biases the researcher has may impact a study (Merriam & Associates, 2002). As one who had fond childhood memories of playing at home and at school (three recesses a day), and as a physical education instructor, I could not conceal my bias toward the need for children to play. Additionally, as the daughter of an avid reader who had an unquenchable thirst for knowledge, I also had a bias toward the need for children to develop a love of reading in their early years.

The passions for play and reading brought me to this study, but I guarded against allowing those biases to influence the outcome of this research investigating the connection between recess and reading. Rubin and Rubin (2005) warned that to be a good interviewer, one must be aware of his or her biases and compensate accordingly. I also had a tendency to empathize with people, which might have created bias in the interviewing phase had I not guarded against such inclinations. Being aware of my biases assisted my refraining from asking leading questions and agreeing with interviewees—two factors that may otherwise have influenced the outcome of the qualitative data.

Summary

I selected the mixed method approach for this study because the research objective was to test two learning theories and to gain a better understanding of the recess phenomenon. Approval to conduct the study was granted by the Walden University Institutional Review Board (12-10-08-0333900). The concurrent transformative strategy was implemented and the study followed the quasi-experimental design. Thirty-seven second grade students were given a pretest and a posttest of the DIBELS ORF assessment; 18 students and their teachers were interviewed about recess and reading and learning. An independent-measures *t* test and a chi-square test of significance were used to analyze the quantitative data, and an interpretive analysis framework was used to analyze the qualitative data. In the end both forms of data were combined to make a final analysis of the data collected in the study. Pseudonyms were used and all data were stored on two secure, privacy edition USB3 flash drives to protect participants. Section 4 presents the findings from the quantitative and qualitative data and summarizes the results of the study.

SECTION 4: RESULTS

Introduction

The results of this mixed method study, which addressed the timing of recess and its possible influence on oral reading fluency scores, and teacher and student perceptions of recess are presented in this section. The problem is that not enough is known about recess and learning. The purpose of this study was to explore whether it is better for children to have a large block of uninterrupted morning instructional time, or whether it is better for children to have their instructional time broken up into smaller segments by having a recess break between two learning sessions. Quantitative and qualitative data were collected concurrently and given equal precedence. The findings of the quantitative data results, including relevant tables, are presented first; the qualitative data of this quasi-experimental design are presented next, and a summary of the results concludes this section of the study.

Quantitative Data Results

Two theories, the massed versus distributed theory of learning and the cognitive immaturity theory were the foundation of the quantitative aspect of this study. Based upon these theories, the researcher sought to determine if the timing of recess had an influence on children's reading achievement, specifically their oral reading fluency. This quasi-experimental design consisted of a pretest and posttest of the DIBELS measurement system of second graders from two classes at an elementary school in rural North Georgia. Each student was administered the DIBELS ORF assessment in January

and then again in March, 9 weeks after one class had a change in its recess schedule. One class maintained a schedule of 180 minutes of uninterrupted morning instruction, and the other class changed to a schedule that began with 90 minutes of instruction followed by a recess break and then another 90 minutes of classroom instruction. It was speculated that the group with the early morning recess break would make greater gains in DIBELS ORF scores due to children's need for a break in classroom learning. DIBELS was used in this study because it is an ongoing assessment that is already a part of the reading program at the school studied in this project, and the ORF scores are the only measures used throughout the entire second grade year. Following are the results of an independent-measures *t* test and a chi-square test of significance, which were run on the Statistical Package for the Social Sciences 15.0 for Windows (SPSS) software.

Findings of Independent Measures t Test

Research Question 1 asked, Does segmenting instructional time with a recess break have an influence on oral reading fluency? Table 1 displays the results of the *t* tests for independent means comparing the classrooms with different recess schedules for the DIBELS ORF pretest, posttest and gain scores. This analysis was used to determine whether the null hypothesis would result in a rejection or a failure to reject. No significant differences were found in the DIBELS ORF scores for pretest ($p = .73$), posttest ($p = .82$) and gain ($p = .84$) scores suggesting that DIBELS ORF performance was not influenced by the timing of recess. Therefore, the null hypothesis was not rejected.

Table 1

t Test for Independent Means for DIBELS ORF Scores Based on Time of Recess (N = 37)

DIBELS	Classroom	*n*	*M*	*SD*	*t*	*p*
Pretest					0.34	.73
	Early recess	20	75.55	39.05		
	Late recess	17	79.41	27.04		
Posttest					0.23	.82
	Early recess	20	87.45	45.44		
	Late recess	17	90.41	29.73		
Gain Score [a]					0.21	.84
	Early recess	20	11.90	15.23		
	Late recess	17	11.00	9.88		

[a] Gain Score = Posttest minus pretest.

Findings of Chi-Square Test of Significance

DIBELS ORF gain scores were divided into thirds (low, moderate, and high) to provide an additional analysis to address the question of whether segmenting instructional time with recess was related to oral reading fluency. Students were categorized into groups by how much they gained on the ORF test over the 9-week period. This variable was associated with the time of recess using a chi-square test of significance (Table 2). It was found that the association was not significant ($p = .47$),

further suggesting that the timing of recess did not have an influence on students' ORF scores.

Table 2

Association of Amount of DIBELS ORF Gain with Time of Recess (N = 37)

Gain		Early recess		Late recess		Total	
Group	DIBELS scores	*n*	%	*n*	%	*n*	%
Low	-20 to +7	5	25.0	7	41.2	12	32.4
Moderate	+8 to +15	8	40.0	4	23.5	12	32.4
High	+16 to +40	7	35.0	6	35.3	13	35.1
Total		20	100.0	17	100.0	37	100.0

X^2 (2, N = 37) = 1.51, p = .47.

Qualitative Data Results

Research Question 2 asked, What is the connection between recess and learning? The researcher conducted two teacher interviews, six individual student interviews, and two 6-student focus group interviews from two homeroom classes to explore this phenomenon.

Prior to data collection the researcher developed eight pre-set codes; eight more emerged after listening to each interview and reading each transcript. Upon further

analysis, the 16 categories were diminished to four overlying themes. The first theme that developed consisted of the codes labeled before and after (B&A), beliefs and feelings (B&F), inside or outside (IO), recess activities (RA), and purpose of recess (PR). This first theme was labeled *purpose of recess* (PR). The timing of recess (TR), no recess (NR), classroom behavior (CB), classroom management (CM), recess and punishment (R&P), and recess and behavior (R&B) codings were grouped into the second theme of *recess and behavior* (R&B). The third theme comprised of recess and reading (R&R), recess and testing (R&T), and recess and learning (R&L), was labeled *recess and learning* (R&L). Finally, the off topic (OT) and the negative or discrepant (ND) codes represented the fourth theme labeled *negative or discrepant* (ND). Notes were written in the margins, analysis related thoughts were written in a journal, themes were color coded and data were highlighted according to theme for quick reference. Following are the findings of the qualitative portion of this study logically built by these four themes to address the problem that not enough is known about recess and its effects on learning.

The Purpose of Recess Findings

Students at Battle Creek Elementary (pseudonym) stated that the purpose of recess was to go outside, play, get some exercise, take a break, have some free time, talk, scream, expend some energy, stretch their muscles, move, and be with their friends. When asked why they have recess, Ben (all student names are pseudonyms) responded:

> Well I don't… It's up to my teacher... Well, well, I guess so that you can like get outside and work your body and so you can get all the crazy out of you and stuff and... I think that's what it is, like, so you can get your body worked out a little bit too.

Jamie answered, “Um, because we take a break of writing, and learning. We need to take a break. And then when it’s time to go in, we can do some more work.” When asked for further clarification of what recess is supposed to be, she responded, “Time to play!” Brandon shared many purposes for recess.

> Recess is good for your, for your legs, cause they get them moving and um, recess is good for your energy. Recess is good for your energy, your buns and thighs, and when you run you use your buns and thighs, that’s what you learn off of Nickelodeon. [We have recess] so we can get some exercise...and um, and recess is good for your um, heart!

Aedan said that we have recess “so you can get exercise, um, and when you’re sitting in the class, criss cross applesauce, um, you ain’t getting no exercise. So the teachers take you out for exercise.” Then he added, “If we didn’t have recess, um, we would be tired at, um, while we’re doing other stuff.” Sandra Lynn said that maybe children have recess because they need to get some exercise and doing activities like the monkey bars helps make their arms stronger. Ivan stated, “we can get something to do besides learn the whole time.” Ross added, “we get some exercising and, and get our heart stronger and our bones stronger.” William’s answer to the question of why do you have recess was the most simplistic. He stated, “Um, so you can play outside.”

Teachers were also asked to give their opinions on recess. When asked about the purpose of recess, teacher, Pamela Porter (pseudonym) shared:

> I guess to give the kids a mental break, I mean, there’s physical benefits of course, but, you know at school I guess it gives their brain a time to just relax and take a break from what it’s doing and then come back and be more serious, we hope.

After a brief discussion about recess and learning, Ms. Sharon Ledford (pseudonym) noted the purpose of recess from her perspective:

> Probably just that, to give them a break, you know? I mean, everybody needs that, so, I think recess is um, just a time for them to get out, to run. You're sitting; you're sitting for a long time during the school day. We all know sitting's not fun. And you know, it's not, it's not good for us, physically or I think even emotionally. You gotta get outside and have some time to talk to one another and communicate. And I mean, yes, kids can do that in the classroom, but not, you know, just about what they want to all the time. So I think recess provides a few different things for them.

Several of the children expressed specific activities that they like to play at recess. For outdoor recess, children spoke of jumping rope, playing kickball, swinging, playing chase, playing house, exercising, running, and playing on the playground structures. Jamie shared that when it is recess time, "instead of working we can, we can just go outside and start talking, and screaming and running and stuff and exercising." Before a question was even asked, Brandon began with his thoughts on recess:

> We, like, like, we play tag, and we, like, run around, boys against girls. Girls are it and the boys have to run from the girls! But they'll catch you, because they go like this and they take you to the swings and you try to cut it, and it goes like this, shhhhhh! We play we're like characters off of, like, TV channels, like Phantom, and Nickelodeon, Disney and Animal Planet.

Sitting in a chair, Brandon tried to demonstrate what he sometimes does on the swings and then shared that one of the things he likes about recess is that he gets to play basketball and soccer. Sandra Lynn shared that her favorite activity is to jump rope with her friends. William first said his "favorite recess is to play on the playground." Later he shared, "My favorite playin' to do is, play house with the others."

When the conversation turned to indoor recess, students shared that they participated in activities such as; playing a jumping game they learned in physical education, coloring, looking at *Where's Waldo* books, playing with blocks, playing with army men, or playing with a class pet. Ms. Porter said, "These past 9 weeks, the majority

of our recess time has been inside. So they've been inside activities, that are usually self-directed, free-choice type activities." In her participant journal she wrote: "Children played a variety of indoor games such as cup stacking, legos, cars/army men, store/cashier, computer, drawing, play dough, board games, snap cubes, etc." Ms. Ledford added that if recess was indoors, children might catch up on something, play with sport stacking cups, make towers with building manipulatives, create designs around the room with dominoes, or play string games like cat's cradle. After a brief teacher-researcher meeting, this was noted in the researcher's journal: "Teachers said they are giving children choices of activities to do in the room on cold days."

When asked about whether children need recess, Brandon's response was very clear, "Yes. Yes we do." In fact, all of the children responded to this question in the affirmative except one. Although Jamie's responses were always positive regarding recess, she was not sure if children needed recess. Some of the children shared how they feel immediately before and after recess. The general consensus was that before recess they were happy and excited and afterwards they were tired, hungry, sweaty, good, and excited, but in a different way. Ben said before recess, "I'm like getting really happy, really happy." After recess, he said, "I think it's like fun that we get to come back in, cause I really like it whenever we have to come back in to do writer's, cause I'm always into writin' like poems and stuff and writin' stories."

Recess and Behavior Findings

Ms. Porter shared her thoughts on how the morning recess schedule was working:

> Um, well as I said before, it seemed like with this group we have a harder time. I wished it were a little bit later, cause it seems like we've only worked, you know,

> for an hour and a half or so, they're not really that tired they, you know, we've had some movement, with the reading centers it seems like after we come back they're not as, "We're done!" you know. It's like while we're working and we're concentrating and they're focusing so early in the morning, you know, they're really not that tired that early. So I kinda think if they work a little bit longer then their break may be more beneficial than they really are. Showing their fatigue, or you know, they're not really showing that they're tired or frustrated or anything and it still kinda makes for a longer day.

When asked about whether she had noticed any differences from the old schedule to the new schedule she responded:

> Yeah, I mean, I guess they're not as tired, but they do too, they'll come in, the kids, we've got a few that'll come in late occasionally. And they know they can go straight to, you know, it's recess time now, you know and it's like, oh let me skip, I don't know that that's what they do, but. Yeah, they know recess is early, they have, they have a concept of, it's early. You know, Brandon will come in and say, "Have I missed recess?" You know, he knows we're taking our bathroom break before we're in the, yeah we're fi...No, you haven't missed it, you know. Let's get there in time for our recess in the morning.

Ms. Porter summarized her thoughts about the altered recess schedule in her journal:

> The kids were eager to have recess, as always. However, having recess early in the morning, the kids came in school wanting recess. After recess it was hard to settle them back down for instruction, which is typical. However, we still had a long time to go until the end of the day. I think recess is a great way to provide students with much needed "down time". But, at 9:30 in the a.m. students were not really in need of a break, yet.

If given the opportunity to schedule recess at a time she thought would be most beneficial, Ms. Porter said, "You know, in an ideal schedule, I would do my special areas and my recess later in the day. You know, sometime after lunch and keep the morning for the academics."

Ms. Ledford shared her feelings about having the uninterrupted morning instructional time:

> Um, it works well, my kids know exactly what's expected and we, I mean I try my very hardest never to change that schedule. As far as what we're doing in that 180 minutes of time, they know. It works well for them, they know exactly what's expected and they sometimes don't even have to look at their task cards anymore. And it, I think it's good for them, 'cause like I said, it's uninterrupted and it's always the same thing. It's first thing in the morning and they know, let's get going; let's get it done. So, they seem to do fine with that.

When asked how she might foresee how the early morning recess schedule might work with her class she shared:

> I wouldn't have enjoyed it. Just to be honest with you. I have um; I have probably two that I can tell you would not have done well on that because there is so much transition in it. They have a hard time calming down after, after recess. Um, you know, sometimes, even sometimes when we get back from PE, they're so just excited and wound up that I tell them, put your heads down on the desk for five minutes. Let's calm down before we start math. You know and I could see that happening if we had had that recess right in the middle of that, it would've been hard to get a few of mine to reign back in and kinda stay on task and really pay attention to what was going on... My children, this worked well for them...I like the way that schedule works, yeah.

When the children were questioned about the time of recess only one student in each class knew the hour, but most knew how recess fit into their daily schedule. One child thought that recess was after lunch, but the others could list the activities of the morning as though they were reading their schedule off the wall. Thomas thought 9:30 was a good time, "Because you get to do recess earlier than any class in the whole school." The children in Ms. Porter's focus group agreed that after their morning bathroom break they were only left with about 15-20 minutes for recess. In addition, all of the children in the focus group plus the 3 children who were interviewed individually from that classroom shared that they had all missed recess time as individuals and as a group. It was agreed that 1 student in the group consistently lost some of his recess time, and often all of his recess due to disruptive behaviors in the classroom. The children

shared that recess was consistently taken away as a punishment. The children in Ms. Ledford's focus group agreed that right before lunch was a good time for recess. When asked why that seemed to be a good time for her class, Rebecca explained, "Because if you eat lunch before you go outside to play, it, the food won't have enough time to digest." Her classmates concurred.

Brandon explained that the two things that he did not like about recess were "when it rains," and "when you get to stand out." When the interviewer asked him, "Why do you have to stand out at recess?" he answered, "Because when you pull your card, you have to stand out on recess." He further explicated, "Like when you're on red, you'll get no recess. And when you're on blue you get 10 minutes (off), when you get on yellow, you get 5 minutes (off). In the focus group interview, Molly Reann's response to "Why do you think we have recess at this school?" began with an explanation of the purpose of recess and ended with the sorrow of recess being used as a punishment. "Um, because when you have recess, it makes your heart pump faster, and it, that's how all the energy and then you still have some left and then it calms you down in school, so you won't get your card pulled. And I don't like getting a card pulled." Another child added, "I don't neither." Marc explained that when he got his card pulled and had to miss recess, he got grounded at home and would not get to go outside to play at home that day either. As Molly Reann was making her point that she did not like "cards cause you gotta move 'em everyday," Patrick summed up the group's sentiments: "all of us are trying to say that we do not, I mean absolutely do not want to lose any more recess..."

Ms. Porter shared her thoughts on recess and children's behavior:

> Well, I don't know, I kinda have mixed thoughts on that. Sometimes, I mean, I know the kids need to get outside and so I do. I think it just depends on the maturity of the kid's level. 'Cause like the group I have now, they seem to get more fired up by having more activity then being able to come back in and focus. It takes us quite a while to settle back down.

She continued on the same theme as she pondered what the children were thinking:

> I think it kinda fires 'em up for the rest of the day and they don't wanna settle down. I don't know, maybe they think because they've already, like their punishment's done at recess, if they have to stay in or something, you know, and they, they're not really worried about their consequences, cause we'll worry about that tomorrow. 'Cause that's what kids do, they, they don't think, as long as they know they're good to go for the rest of the day... Yeah, 'cause anything, we take it off the next day, cause recess is in the morning. So it carries over, whatever behaviors they've had for the afternoon.

To explain the behavior plan she uses she said:

> Cards, cards, we flip for their colors. And so we reset them when we come back in from recess. So they don't get reset until every day at recess. So they know, even if they misbehave more, they're not worried about it cause I'll face that punishment tomorrow, I guess, I mean I don't know if that's what they think or. I don't know.

In her journal Ms. Porter wrote: "Most students participated in recess daily. Students loose recess time for misbehaviors, 5 minutes for each offense. Usually a few students would have to sit out 5 minutes."

Ms. Ledford's beliefs on recess and behavior were quite different from her colleague. She responded to the same inquiry about recess and behavior with these words:

> I think that there are many times when it (recess) can improve a child's behavior. I think sometimes with certain students, that's not all the time, it depends on the type of behavior that's occurring with the student. Um, I think that recess benefits them all, they need fresh air and they need a chance to just get out and kind of relieve a little bit of stress. I think we do too, as adults. Um, in certain cases with behavior, it'll, it can improve it. I've never known a recess to not improve it. You know, doesn't mean that it's totally gonna fix if there's like a behavior problem,

> but overall it will improve behavior. Just to give them a chance to ah, get out and release a little bit of energy. But, and then every once in a while you have some kids that have a hard time transitioning back from recess because they want to still kinda be out and doing stuff like that. So, you know, I think it's a good thing. It gives them a chance to have a little bit of a break.

Ms. Ledford described how the morning routine worked and how her class was divided into four reading groups by reading ability. She shared that she had children in both her high and low reading groups who, "have to have recess! Like if you don't let them get out and do something, they just, oooo, it's going to be a long day. You know?" She said, "They play hard. They're my hard players. They're running, they're jumping, they're... I mean they're just non-stop. But that's very much their personalities throughout the day. They're just non-stop...so they need that." She shared that all of her children were extremely hard workers in the classroom and they played hard at recess, but the few of them she described as "non-stop" she believed really needed that outdoor recess.

Recess and Learning Findings

The question, "Does recess have anything to do with learning in the classroom?" did not illicit a unanimous response from the children interviewed by themselves. Some of the children said, yes, one said no, some said yes and no and some indicated that they were not sure. Ben responded in the affirmative by saying it gave his teacher a break, and "It helps you a lot because, like, you're crammed up in your desk or something and you gotta get out. And you're just tryin' and tryin' and tryin', but you can't." He also said that it helped with physical education because it "works our bodies and gets us ready for stuff..." Jamie explained that recess did not have something to do with learning, "Because we don't do recess during work time." After thinking a moment, she surmised

that yes it would help if children who had lost their recess because they had not gotten their work completed did their work at recess time. Brandon thought it helped because recess "helps you learn how to get your energy up," and said that children need energy for the classroom, but after the interviewer asked, "Why would you need energy for the classroom...for learning in the classroom?" He rescinded with, "No. You don't need no energy for the classroom." Aedan believed that recess had something to do with learning in physical education because he and his classmates learn games they could play at recess, but he did not see a connection with recess and math, reading, or writing. Sandra Lynn answered the first question with, "Um, maybe, I don't know. Maybe." Then she expounded that maybe it would help if "we weren't doing our work, and we went outside and we went to go play and then we came back in and then we did our work, and then, that would make recess better for us to learn and stuff like that." William's opinion was not clear as he nodded and shook his head with each probing and follow-up question. Unsure whether he understood the question, the interviewer moved on to the next question.

The focus groups were asked if recess had anything to do with learning and with learning to read. The first group had plenty to share. Thomas said, "No. Because all you do at recess is run and play." The interviewer asked for clarification: "Okay, so playing doesn't have anything to do with learning?" To that Thomas responded, "Well, some, sometimes, because you can do new activities and stuff. So sometimes it can help you learn." On the connection between recess and reading, Ross had this to say: "Yes, because you learn how to do stuff what you don't know how to do. And, and you learn

stuff what you haven't learned and it makes your heart pump." Catherine said she did not know if recess helped her with reading, and Patrick shared that reading was good, but not better than recess. Finally, Molly Reann agreed that recess did have something to do with learning. She explicated, "Um, I think it um, does have something, I think recess um, it does help you learn, and it, it makes you have more energy and when you get back inside you can actually do your work."

Each participant in the other focus group agreed that school would not be fun and that they would be sad if their school did not have recess. Zachary's perspective was that they would "just be bored all day long" if they had no recess, and Jodi said it would be sad because they would not get to play with their friends. Ivan agreed, "if you didn't have that (recess) you'd probably be learning the whole day at school." Billy agreed, "Yeah...cause you can't play and you gotta do work, work, work, work." However, when the researcher asked if recess had anything to do with learning to read, Billy gave an emphatic "Nooo!" and Zachary, Jodi, Rebecca, Ivan, and Alyssa all agreed with him. The group also agreed with him when he stated that having no recess would not change the way that children learned, but that they would just be sad or mad.

Ms. Porter had this to say in response to whether she saw a correlation or a connection to recess and academics:

> Nah, I mean, not that I know. I mean, I may ponder it after I do the DIBELS testing, but, then, you know, I don't know how much to contribute to. And I've thought about it, you know. There's gains, which they would have gains, usually see gains overall, with or without. You know, recess at a certain time, but I don't know. I don't really know what my thoughts are. Not specific, but you know.

In terms of recess and standardized testing Ms. Porter said it would be hard to know over the year whether recess had an impact on standardized test scores. As far as the week of testing goes, though, she said they definitely need some activity and she tries to take them outside for recess then. She said she would hate to see the children never have recess, but whether recess was beneficial for behavioral reasons or academic, she did not know which one it affected the most.

The researcher questioned Ms. Ledford on whether she saw a connection between recess and academics.

> Um, I do and I don't. Like I said, I think it can go either way, some kids handle transitions very well, and some kids don't. That's just, you know, I think that's just with everybody. The kids that handle transitions well, I think that um, recess benefits them, in the fact that they are able to transition from one to the other smoothly and it gives them a break, so that their brains are kind of ready to refocus on things and they can pay a little bit better attention. For the kids that have a hard time transitioning, sometimes it can be a little difficult for them because they're coming back in and they might even have a harder time focusing on the academic issue. So, I kind of can see it both ways. Um, but I mean that's just, that's just kids. I mean the same thing with Special Areas, if a transition is a problem; it's gonna be a problem throughout. Um, it's not just recess.

About recess during the week of standardized testing, Ms. Ledford said recess would definitely be important. She speculated:

> Oh, I mean I think it's the same thing like with academics, they need that break. Especially probably more so with like, standardized testing, for us, with the CRCT, just because it is so time constrained and it is um, so scheduled. You know? And it's kinda this built-up pressure, even if we don't mean for it to be on them. For them to have it on themselves, it kinda just naturally is, you know, when you're put in a position like that, where it's like, you have this time to this time to get it done. Obviously some pressure's gonna, kinda start to rise in them. So, I'm, I'm guessing it's gonna be a good thing for them to get out there and have some time and just kinda release a little bit and stop worrying about what the next section's gonna be. So, but I don't know that yet. So.

Her next thoughts were related to recess and reading. She shared the importance of having a set schedule, maintaining consistency for her children, and needing to have a structured learning environment to help children stay focused.

> Just like I was saying with the other parts of the academics, um, um, the schedule we were on, we did the full block of reading in the morning and then we took a recess. So my children had already had all that direct..., all that instruction during that first block. So, the recess really didn't affect them in the way that they had to come back and refocus on reading, if that makes sense. They'd already had that time to kind of work hard, and then got to go out and do stuff. So, um, I mean, I, I, I think reading's probably like any other part of the academics, as far as it goes, where, you know, they need a break and that gives them the break. However, just the, the schedule we were on, we had a block of time and then recess, which worked well because it kept the transition during that reading time, they were able to just totally focus on it and it wasn't throwing anybody off. They knew, everyday, we do guided reading, then we'll do, you know, some part of our writing mini-lesson, then we have recess. It wasn't ever a question, so they didn't ever get off task for that. They knew what was going on. So I guess as far as that goes, it was well, they weren't stopping and asking, they knew what was going on, so they're able to put...the energy into that.

When the interviewer asked Ms. Ledford if she noticed a difference in how her high readers played at recess compared to her low readers she did not hesitate:

> I don't see any difference at all with them. They both have, I both have children in there that I feel like there are many times I can't wait to get them out to recess, so they can run off some energy. Um, in particular, I have two boys, one in my red [high reading group] and one in my blue [low reading group] that I'm like, they gotta go run. They gotta get it out. So I have, and there are other kids within that red group that need it too and there's other kids in the blue group.

Negative or Discrepant Comment Findings

This segment included off-topic statements or discussions that occurred in the interviews and negative or discrepant comments. Individuals and groups got off topic on occasion. Two of the boys told stories of events that happened with classmates from previous years. One of the girls seemed to not fully understand the difference between

playing at recess and playing and exercising at home, nor did she comprehend the difference between learning at school and doing homework on the back porch at her home. On a couple of occasions her thoughts on playing on the playground led her to stories of playing at home. A third child in his response to, "Why do you have recess?" went off on a tangent of how he has to get the mud off of his shoes before going into the classroom after recess. The same child commented on a picture on the wall, asked about the recorder, and told about how one of the students in his class cries on certain occasions. One of the girls in a focus group segued from recess calming her down at school to jumping on the trampoline and exercising with her dog at home. A boy in the same group later asked if the interview would be a part of their grade, which led to a "why?" from another boy later in the discussion. The *Eye-Spy* and *Where's Waldo* books that children looked at during indoor recess in one classroom added nearly a minute of off-topic dialogue among the group members.

Only a few comments made during the interviews could be perceived as negative or discrepant. As he was explaining how his teacher takes his recess away 1 child expressed, "and you're teacher's not really mad at you." When the children were asked to think about what it would be like to not have recess, 1 focus group member spouted, "It wouldn't be no fun and you wouldn't lose any weight and your heart wouldn't be pumping very good and you wouldn't have strong bones. All you would be doing is learning and not no recess." One of the girls reiterated his sentiments: "Um, it would, like, not be fun and your heart wouldn't beat fast and you wouldn't get any exercise, and you need exercise or all you would be doing is learning all day and not having any fun."

In response to the inquiry, “Why do you think you have recess at this school?” the same boy responded with, “Because um, because the parents would be mad...” A final discussion that could be labeled negative or discrepant was when one boy shared that the other kickball team kept on cheating. When the interviewer asked, “What are they doing that you would call cheating?” he answered, “Because they keep on winning, and that’s not um, good. And they keep, and they still keep on cheating.” The interviewer clarified, “So when they win, they’re cheating?” He nodded his head.

Summary of Results

The findings from the quantitative tests were straightforward. The independent-measures *t* test suggested that DIBELS ORF performance was not influenced by the timing of recess. There were no significant differences in gain scores between the group who had the early morning recess and the group who had 180 minutes of uninterrupted instruction. Based on the results of the chi-square test of significance the researcher found that the association between children’s scores based on degrees of gain was not significant, which also suggested that the timing of recess and children’s reading achievements, in terms of ORF scores were not related.

The findings deduced from the qualitative data are best summarized by the four categories in which they were reported. Students and teachers agreed that the purpose of recess was to provide a mental break in which children could play a variety of games and activities, get some exercise, expend some energy, socialize with their friends, and add enjoyment to the school day. The participants also responded with multiple answers when asked what activities were common for recess.

The findings on recess and behavior were multifaceted. While one teacher believed that recess could improve behavior by allowing children release time, the other teacher thought that recess was a disruption in the day because children could not settle down afterwards. Recess was a necessary blessing to one teacher and often taken away as a punishment by the other. Children who were perceived as the ones who needed recess the most in one class always got recess and in the other class they were the ones who had it taken away most often. The children in Ms. Ledford's class said that not having recess would make them sad, and the children in Ms. Porter's class said that they did not want to miss any more recess. A few of the children shared that after recess they could come back and focus on their work, and both teachers shared that they thought the uninterrupted morning instructional time worked best or would work best for their classes.

The results of the category of recess and learning were divided. Some of the children believed that recess most definitely had something to do with learning, some were not sure and others did not see any connection. In terms of recess and reading, a few of the children thought that recess would help them with reading by giving them a break or by helping them to concentrate after a chance to play, but most of the children did not think recess had anything to do with learning to read. Ms. Porter said that she did not really see that recess helped children with academics, and Ms. Ledford saw that it could be beneficial or not, depending on the children and on the time it was scheduled.

There was little to summarize in the final qualitative category, which included off-topic remarks and negative or discrepant comments. Two interviewees did not get off topic or make any negative statements. The rest of the interviews got off topic at least

once, but only briefly because the interview questions were written out so that the interviewer could easily move the conversation back to the topic. The majority of the negative comments were related to not having recess or the idea of not having recess. The children all agreed that not having recess "would be boring," "make them sad," or cause them to "work all day."

From the quantitative data it was found that segmenting instructional time with a recess break did not have an influence on oral reading fluency. In summarizing the qualitative findings of this study it can be said that there are several connections between recess and learning. Participants noted connections such as recess providing a break from sitting in the classroom, and being able to return from recess better able to focus. Another connection was that the children associated recess with fun and the absence of recess with sorrow or anger. The statements that supported the idea that recess could bring joy to a child's school day provided evidence to show that recess has a positive influence on learning. Overall the data showed that the timing of recess may not be as important as the assurance of having a consistent recess break. Section 5 concludes with a summary and recommendations based on the findings of this study.

SECTION 5: SUMMARY, RECOMMENDATIONS, AND CONCLUSION

Introduction

This study evolved from a concern for children with regards to recess and learning. A recent trend in schools has been to reduce or eliminate recess (NAEYC, 1998; Pellegrini, 2005), yet it is not known whether this practice produces better learning outcomes. I began an investigation after determining that not enough was known about recess and its connection to learning. The school studied in this research project did offer students a 30-minute recess break, which led me to explore whether the timing of recess made a difference in learning and to seek the opinions of teachers and students in relation to recess and learning. The mission of this mixed method inquiry sought to find an optimum time for recess in terms of reading achievement and to give the primary stakeholders an opportunity to voice their opinions. To best meet these objectives, a concurrent transformative strategy was selected. Two research questions guided the study:

1. Does segmenting instructional time with a recess break have an influence on oral reading fluency?
2. What is the connection between recess and learning?

The role of the final section of a doctoral study is to summarize and make sense of the findings as well as to make recommendations for further research and policy changes based upon those findings. Included in this section are the following subsections: an overview of what took place at Battle Creek Elementary School (pseudonym), including

a summary of the results of the investigation; my interpretations of those findings in light of the relevant research; and practical applications of those results. Also included in this final chapter are implications for social change, policy and practitioner recommendations, the plan for the dissemination of the results, recommendations for further study, reflections from me as the researcher, and a final conclusion of this project.

Overview

The purpose of this study was to determine whether the timing of recess had an influence on children's oral reading fluency and to explore what children and teachers think about recess and its role in learning and reading achievement. Two underlying theories were a constant in this investigation: the cognitive immaturity theory and the massed versus distributed learning theory. Two second grade classes at Battle Creek Elementary School were selected to test these theories relative to their oral reading fluency. Both classes were given the DIBELS ORF assessment as a pretest measurement. One class was given an alternate recess schedule, which involved 90 minutes of reading instruction, a recess break, and then 90 more minutes of reading-related instruction for a period of 9 weeks. The students in the other class continued with their practice of 180 minutes of uninterrupted morning instruction before taking a recess break. At the end of the 9 weeks, both classes were given the DIBELS ORF assessment again as a posttest. The teachers and 18 students were interviewed individually or in focus groups to gather opinions on recess and learning. Statistically the timing of recess did not have an influence on DIBELS ORF gain scores. The connections between recess and learning were generally positive, although one teacher and a few students did not see a connection.

Interpretation of Results

In this section the quantitative and qualitative results of the study are synthesized. The quantitative results are presented first, followed by the qualitative results.

Quantitative Results

Based on the quantitative aspect of this study I did not find that the timing of recess had an influence on oral reading fluency. The results of the *t* test showed that there were no significant differences on the DIBELS ORF assessment between the two classes; therefore the null hypothesis was not rejected. The gain scores of the children with the early morning recess versus the gain scores of the children with the late morning recess were 11.9 and 11.0, respectively. According to the cognitive immaturity theory, the immaturity of young children's brains effects their ability to retain information, which points toward the idea that young children would gain the most from recess breaks (Holmes et al., 2006). However, it is feasible that second graders may be beyond the age that necessitates a long recess break. If instructional time was lost in settling Ms. Porter's (pseudonym) class down after the morning break that could be an explanation as to why the *t* test showed no significant differences in oral reading fluency among the two classes. Also influencing the results may have been that Ms. Porter's class did not all get 30 minutes of recess every day for 9 weeks. In other words, not following the study protocol precisely may have had an influence on the quantitative results.

Another influencing factor in the quantitative analysis that resulted in no significant difference in scores may have been attributed to the extreme range of reading ability between these second grade students and the wide variability of individual scores.

Pretest scores ranged from 9 to 164 on the ORF assessment and posttest scores from 19 to 186, resulting in high standard deviations of 39.05 and 45.44 for the early recess class and 27.04 and 29.73 for the late recess class. The children's gain scores ranged from -20 to +40 in a 9-week period. DIBELS were designed to provide a quick, reliable, and valid measure of important indicators for early readers (Good & Kaminski, 1996, p. 328), yet young students are influenced by so many variables at school that it is possible that some of the students could have had extremely different gain scores on a different day. Although every measure was taken to make the study valid and reliable, the small sample size and just two homeroom classes to compare made it difficult to determine whether the results would be the same if the study were replicated.

In analyzing the chi-square test of significance, I found that the timing of recess did not have an influence on children's oral reading fluency gain scores. However, a closer look revealed a tendency toward the low gain scores supporting the late recess group (41.2%) and the moderate gain scores supporting the early recess group (40.0%). If the study were replicated with a larger sample size and for a longer period of time, these tendencies may indicate that the timing of recess does have an influence on children's oral reading fluency.

Another consideration in this study was the massed versus distributed theory. This theory holds that when material is presented in small segments it leads to better retention than when material is presented in large blocks (Willingham, 2002). I hypothesized that breaking up instructional time into shorter periods might increase children's retention rates as was found by Seabrook et al. (2005). This hypothesis was not found to be true in

this study. One class had two learning segments broken up by a recess break, and the other followed the common practice of one long 3-hour instructional block, yet the ORF gain scores of the two groups were statistically null. This finding may have been due in part to the schedule of the late morning recess class. The class with the uninterrupted morning schedule was broken up into small learning segments with children working in small groups and being allowed the freedom to move about the room. Although the children had 3 hours of learning time with no recess break, the changing of one learning activity to another may have been sufficient to keep pace with their counterparts in the experimental classroom. In addition, this late recess class was always assured a recess break at the end of the morning instructional time. Recess was not contingent upon the students' behavior.

Qualitative Results

One problem discussed in section 1 of this study on recess and learning was the unclear purpose of recess. Literature related to recess revealed many purposes, but I could not identify the one true purpose, the one sole reason for including recess as a part of the school day. After speaking with second grade teachers and students about the purpose of recess the answer became crystal clear. In section 4, children and teachers explained that the purpose of recess was to give children a mental break from what was going on in the classroom, give the teachers a break, allow children to play outside, get some exercise, play with their friends, have an opportunity to scream, keep school from being boring, help students focus again in the classroom, have a chance to play and have fun, help children's behavior--and the list went on. These responses were in keeping with

the literature that claimed multiple purposes for recess (Clements, 2000; Jarrett, 2002; NAECS/SDE, n. d.). Participants in the study did not have to research the purpose of recess. They knew intuitively that recess has many purposes, none more important than another, but collectively a necessary part of the learning curriculum.

Recess and behavior was the next category discussed in the findings section. Under the umbrella of recess and behavior also fell the timing of recess, recess and punishment, classroom behavior, and classroom management. This section entailed the most diverse data of the study. Ms. Ledford (pseudonym) believed that having recess improved behavior, especially for some of her students in her high and low reading groups that she described as "non-stop" and "hard players." She said, "I feel like there are many times I can't wait to get them out to recess, so that they can run off some energy." Although, Evans and Pellegrini (1997) explained that the excess energy theory is not a valid argument, as children are not steam engines who run out of steam, this is an enduring theory still believed to be true among children and adults alike. Contradicting herself, the teacher admitted, "They don't stop. They don't tire." Theory or no theory, however, this teacher found that giving her children a chance to go outside and run and play, was helpful in improving behavior.

In opposition to this teacher's opinion that recess benefits behavior, the other teacher-participant believed that recess sometimes had the opposite effect. Ms. Porter stated, "I think it kinda fires 'em up for the rest of the day and they don't wanna settle down." Following are some thoughts on why Ms. Ledford and Ms. Porter had different views. The first is that Ms. Porter's class was changed to the early morning recess, and

she did not believe that the children really acted as though they needed a recess that early in the day. The second is that she was using recess as a punishment and the children reported that sometimes the whole class would miss part of their recess. Every child interviewed said he or she had occasionally or often missed all or part of their recess on an individual basis. I was unaware that this was happening until the end of the 9 weeks when the topic came up in the focus group interview. According to the NASPE (2006) and the AHA (2006), physical activity or the withholding of such should not be used as a means of punishment. Although the teacher signed a consent that stated that she would take the children outside for recess every day, she apparently did not understand that that meant all of the children, all of the time. While with one class all of the children were assured recess, this was not so with the other class.

A third possibility for the belief that recess was contraindicative to behavior in the classroom was related to the instructional format or the classroom management. Ms. Porter said that the first 90 minutes of reading time was structured in a way that children were in small reading groups and not necessarily confined to their desks. After recess the lessons became more structured and students were expected to sit at their desks for whole group instruction and then seat work. She mulled the idea that the order of learning activities in the classroom may have a part in the students' behavior. She said that children might need a break if the day started with 90 minutes at their desks, and I proposed that they may be able to settle down more quickly if they were not expected to sit at their desks immediately after recess. Ultimately, I wondered if the instructional time

lost due to the children's inability to settle down after a morning recess may have negated the benefit of having an early morning break.

A fourth matter to consider is that of the amount of time the children had to play. Children in the early morning recess group did not always get 30 minutes of recess due to a restroom break or due to recess being taken away as a punishment. Pellegrini and Davis (1993) found that children become bored with learning in the classroom and that recess provides a break from that boredom. After playing a while, though, they found that the novelty of recess wore off and children were ready to get back to learning in the classroom. It is feasible that because Ms. Porter's students' recess break was not long enough, the novelty of recess had not yet waned and they were justifiably not yet ready to focus in the classroom.

Related to this novelty concept is that the study was designed with the cognitive immaturity theory at the forefront. Deeper study found that this theory specifically targets young children (Bjorklund, 1997). It is possible that second graders are past the age of needing a full 30-minute morning recess break, and an activity such as a 15-minute contralateral movement program in the classroom as proposed by Walker (2008) might be more effective. One final observation that may have made a difference in behavior was the relationship that the students had with their teacher.

The heart of this study hinged on the topic of recess and learning, more specifically, recess and reading. This aspect of the qualitative results was the most enlightening. The children were divided on whether they believed recess had anything to do with the way they learned, or whether recess had anything to do with them learning to

read. Ben, Sandra, and Molly Reann were extremely clear on their reasons for why recess helped them with learning in the classroom. Thomas, Ross, Patrick and Marc saw some connection, but the others were either not sure or did not see a connection at all. One rumination I derived from this was that second graders may not be developmentally able to conceptualize an idea that play might affect anything else. Ms. Porter did not see a correlation between recess and learning, even though a majority of her students did. These beliefs may once again be attributed to the classroom routines and discipline procedures. Ms. Ledford looked at both sides of the equation and illustrated that for some children recess probably did help with learning, but for others, maybe it did not. Both teachers, however, believed that recess would be important on standardized testing days because the children would definitely need a break after long concentrated efforts.

One final factor may have influenced the results of this study: unusually cold and rainy weather forced the majority of recesses indoors. According to Waite-Stupiansky and Findlay (2001), "A key component of recess is that it is unstructured and undirected" (p. 16). To Jarrett (2002), a primary characteristic of recess is that it provides a break in the routine of the school day. I would be amiss to not acknowledge that indoor recess is not the same as outdoor recess, nor will it provide all of the benefits of outdoor recess. Dale et al. (2000) found that children did not compensate for a lack of physical activity throughout the day during evening hours. In looking at all of the purposes of recess that the children listed, it is evident that not all of those purposes were met on those many days that recess was held indoors. Weather, however, was a factor with both classes as

the experimental group and the control group attended the same elementary school, and the groups participated during the same 9 weeks during the winter months.

Practical Applications of Results

As indicated by the results of the quantitative aspect of the study, the timing of recess did not have an influence on DIBELS ORF scores for either of the groups. Based on the results of the qualitative aspect of the study, it is clear that there are multiple purposes for recess. Numerous factors were involved in the findings. To summarize, several events or beliefs may have influenced the outcome of this mixed method study. The contradicting beliefs about recess and behavior among the teacher-participants allowed for one class to be assured recess and the other to often have a shortened recess or in some cases, no recess. The class schedules in relation to the massed versus distributed theory may also have had an impact on the results. Inclement weather and classroom management were two additional possible external influences on the findings. The age of participants related to the cognitive immaturity theory, and the idea that the first 90 minutes of the day may have been better suited for the learning style of some children in the experimental group than the next 90 minutes of instruction, possibly affected the results. Finally, the extreme range of reading abilities among participants and the relationships developed between teachers and students may too have been factors in the results of this study.

I found that not only does the timing of recess influence children's learning and their reading scores but there are also a number of dynamics that must be considered. The assurance of recess, the overall schedule of the school day, and classroom management

styles were factors in the findings of the study. Every child needs to know that he or she will get to have a recess break. Skrupskelis (2000) noted, “Recess is the right of every child. Article 31 of the United Nations Convention on Children’s Rights, states that every child has the right to leisure time” (p. 126). Behavior for the experimental group did not improve when recess was taken away, as evidenced by the students stating that it was a reoccurring event. For the control group, the teacher was quoted as saying, “I’ve never known a recess to not improve it [behavior].” Though many factors played a part in the results that showed no significant differences between classes in terms of oral reading fluency scores, recess should be scheduled as a break for every child.

Implications for Social Change

As reported in the findings of section 4, recess has a positive influence on learning. This link has numerous implications for social change. Interviews with students and teachers revealed that the purpose of recess was to assist children in all three learning domains: the psychomotor, the affective, and the cognitive. Stated differently, recess benefits the whole child. In the scurry to “leave no child behind,” policies and practices have focused on only the cognitive aspect of learning. This idea inadvertently leaves gaps in a child’s education. If these practices continue for the next 5-10 years, an entire generation and society as a whole will be sorely affected. Two tangible improvements are discussed here in relation to the significance and the results of this study.

The intent of this study was to provide a scaffold for recess and learning to encourage the promotion of physically, emotionally, socially, and intellectually strong children in schools. This study also gave teachers and students an opportunity to express

their opinions on recess, which were noted in section 4 and reiterated here. The psychomotor domain was important to many of the children interviewed. They shared that exercise and play were one of the purposes of recess. They discussed what they played and how they exercised in depth, stressing the importance they placed on the psychomotor domain. One of the teachers mentioned *play* or *players* nearly 20 times in her interview with me, which indicated the significance she placed on play for children.

The magnitude of the affective domain cannot be adequately emphasized. The children spoke of the value in being with their friends at recess, and they expressed that having no recess would or did make them sad. School officials must make sure that recess is not reduced or eliminated. The children deemed recess to be a major part of the school day, stating that without it school would be boring or no fun. Recess is the one time during the day that children are allowed the freedom to socialize and express themselves how they please. If second graders see the importance of the affective domain as it relates to recess at school as a top priority, one can speculate that it would be that important or more to older elementary school children. Could this one event, this one 30-minute break, be cause for certain children to come to school? Could the joy extrapolated from this one segment of the school day be reason enough to consider school fun? If school is considered fun, the learning that could occur would be limitless, making recess invaluable in terms of its role in learning at school.

A limitation of this study was that the children would have recess with only their own class and it was thought that they might miss playing with their friends from other classes. None of the children mentioned having a problem with having recess with only

their class in any of the interviews. They did, however, speak of playing with their classmates. They spoke positively about playing together. These findings are similar to those of Banner (2005), who noted that all interviewed students stated they enjoyed recess, and most discussed the social benefits. None told about how they liked to play by themselves, but how they enjoyed playing with their friends. Additionally, neither the teachers nor the students in the current study talked about arguing, being bullied, playing alone, or getting hurt, which were stated as reasons for the elimination of recess at some schools by NAECS/SDE (n.d.) and Pellegrini (2005).

In regard to the cognitive benefits of recess, one of the teachers said she thought recess benefited children by giving them a break so that they could focus again in the classroom. One of the students shared that recess helped her learn because it gave her more energy so that she could focus on her work when she got back inside. These comments align with the findings of Bjorklund and Green (1992) and Pellegrini and Bjorklund (1997), who found that children could return to focus in the classroom after having a recess break.

An unexpected finding indicated another implication for social change. One of the teachers interviewed delved into the proposition that the order in which subjects were taught may have some bearing on children's behavior and their need for recess at a certain time. After this discussion I contemplated the possibility of teachers structuring more of the instructional time as this teacher had structured her first 90 minutes of reading time in small groups. The teacher did mention that she had tried having children work in small groups for different parts of the day, but that the children argued and it did

not seem to be effective. Other than the first 90 minutes of the day, it appeared that this teacher primarily structured her lessons so that children were doing work or learning individually at their desks. The children interviewed indicated that they liked recess because it was a chance to be with their friends, therefore, it is likely that they would enjoy learning in the classroom more if more of it could be accomplished with their friends. Yes, classrooms must be structured in a way that is conducive to learning, but this study indicated that educators should become facilitators of learning rather than continue to use the traditional lecture, skill and drill, and seat work methods. The format of lessons, the structure of classrooms, the teaching styles, the teacher-student relationships, and the frequency of opportunities to learn with their friends may all be as central to children learning as the surety of their recess break in which they can play with their friends.

Recommendations for Action

Policy Recommendations

It has been suggested that children need recess because it offers an opportunity to get some physical activity, it allows time for social interaction, and it provides a mental break so that they can return to focus again in the classroom. Education policy makers have tried eliminating recess, rationalizing that there is no time, the children do not deserve it, it interrupts the flow of the day, it is too dangerous, it is not necessary, and the list continues. However, it is time for this pendulum to swing in the other direction. This study has added to the research that suggests that the benefits of recess outweigh the

detriments. This question needs consideration: Is eliminating recess becoming a detriment to society?

The experts in the field of physical activity, NASPE, and the experts in the field of physical health, the AHA, have made many recommendations, but policy makers, lobbyists, and educational administrators have not given these recommendations reasonable consideration. I recommend that we begin by adhering to the recommendations of NASPE and the AHA. These suggestions follow:

1. Elementary school children should receive 150 minutes of physical education a week (NASPE, 2006).

2. School administrators should fulfill the physical activity requirement by providing daily recess of at least 20 minutes, and other physical activity opportunities before and after school (NASPE, 2001, 2006).

3. Teachers should never use physical activity or the withholding of such as a means of punishment (NASPE &AHA, 2006, p. 48; NASPE, 2006).

4. Recess should not be treated as a reward for children, but as a necessary support component of the total educational experience for all students (NASPE, 2001).

5. Recess should never be used as a means of punishment (NASPE, 2001).

6. Recess should never be used as a time to make up work (NASPE, 2001).

7. Children should never work longer than two hours at a time (NASPE, 2001).

8. Lunch should be served after recess if possible (NASPE & AHA, 2006).

Once these commendations are met, I would suggest that policy makers consider multiple breaks or recesses in the school day (Brewer et al., 2009; Jarrett, 2002; Kahan, 2008).

Practitioner Recommendations

Based on the findings I propose the following at the local level:

1. The authorities of the district should enforce all of the policy recommendations by NASPE and AHA previously listed.

2. The principal of Battle Creek Elementary should ensure that all of the NASPE and AHA recommendations are followed.

3. The teachers should know and follow the NASPE and AHA recommendations.

4. The teachers should understand that recess helps children develop healthy bodies and enjoyment of movement, and that it is also an opportunity to practice life skills such as cooperation, taking turns, following rules, sharing, communication, negotiation, problem solving and conflict resolution (NASPE, 2001, 2006).

5. The teachers should consider using teaching techniques that promote more freedom, movement, and social interaction throughout the school day.

6. Authorities in the district and at individual elementary schools should consider ways to incorporate more physical activity in the school day.

7. The teachers at Battle Creek Elementary should consider movement programs that allow for more structured breaks such as the 15-minute, classroom-based contralateral program designed by Walker (2008).

8. The teachers should consider an alternative to having an entire class stand quietly in the hall waiting to use the restroom.

9. The principal and teachers should share ideas that have proved successful in calming children down after transitions such as recess, lunch, and special areas times.

10. The teachers should research, share, and incorporate successful lessons that allow for children to learn with their friends.

11. The physical educator should encourage teachers to take children outside for recess if at all possible.

12. The physical education teacher should encourage moderate to vigorous physical activity at recess by teaching fellow physical educators, homeroom teachers, and children, games and activities that children should play at recess.

13. The physical educator should instruct the adults and the children at Battle Creek Elementary on the benefits of recess and its connection to learning.

Dissemination of Results

Results of a study are not valuable unless they are shared with others. After the work is complete, my desire is to tell others about my journey and what I have learned. My wish is to thank the participants publicly for their willingness to help and to express the joy the children brought to the study with their words from the heart during the interviews. I will disseminate the results of my work within 4 months of the final completion date. A meeting will be held on a weeknight at the participating school. The superintendent, the principal, the assistant principal, the participating teachers, and the participating students and their parents will all receive personal invitations to attend. An

open invitation will be extended to all other students, faculty, and staff at the school and also my friends and family members. A PowerPoint presentation will provide an overview of the research related to recess and learning as well as the findings, the analysis, my recommendations, and an explanation of what the findings signify to the stakeholders. The intention of the meeting is to show not only the results of this one study, but to also expand the picture for the audience and encourage them to use this work as a stepping stone to make an impact on the rest of the school, the district, society. The meeting will conclude with a question and answer session including comments or related ideas from participants and a final thank you to all who had a part in the process of the study. The PowerPoint will later be shared with faculty and staff at the school and interested parties will be given an opportunity to read this doctoral study in its completed form. I also plan to present the findings and recommendations at a regional conference for educators.

Recommendations for Further Study

Every study has its limitations and every researcher has an ideal study in mind. The limitations and the findings of this study naturally lead to recommendations for further research with researchers who can use this study as a springboard to gain new heights and new understandings. This study was limited by the small sample size of just two homeroom classes and by a short time span of 9 weeks. It was further limited by the fact that each class only experienced one recess schedule so the teachers and students could only speak from one perspective.

I recommend that this same study be conducted again with more participants and over a longer time frame. This study could easily be replicated with an entire grade level at a school for 1 year, or ideally at two or more schools over a 2- or 3-year period. If this study were conducted again with a larger sample size and over a longer period of time, significant differences may be found and the results may be generalized to the rest of the population. Researchers may also conduct a similar study with kindergarten or first grade students, which may better test the cognitive immaturity theory. To future investigators I would suggest that it is made clear to participating teachers that recess is non-negotiable. All participants must get the same amount of recess, every day. Recess should not be contingent upon the time available, student behavior, or any other factor. It also must be consistently held at the same time every day so that the children will know when recess begins and ends.

Another recommendation would be to add a second or third recess (Brewer et al., 2009; Jarrett, 2002; Jensen, 2000; Kahan, 2008). Future researchers could look at not just reading scores but math scores as well. Researchers might also look at not only the timing of recess but at the activities children participate in at recess, noting whether the students who play at a moderate or vigorous activity level score higher or lower on academic measurements than the students who do not exert as much effort into their play. The research question for this study might be, “Does the type of activity in which children choose to engage have an influence on learning?”

One more proposal might be to delve further into the tendencies brought out by the chi-square test of significance in this study. It may be of interest to discover if the

results of a study that included a number of 200 or more children from several homeroom classes with the same early morning and late morning recess schedules would show significant differences in DIBELS ORF scores when categorized by low, middle, and high gain scores. Still another study could allow one group a morning recess and another an afternoon recess, or researchers could experiment with various recess times in search of an ideal time to take a break in the school day. A final suggestion for further research is to conduct a study of similar structure, yet with much larger numbers of participants so that the researcher could look at whether an early morning recess makes a significant difference in reading scores among children from low socioeconomic backgrounds or participants who have been diagnosed with attention deficit hyperactivity disorder (ADHD). Interviews with two such participant groups may provide for some rich qualitative data that needs to be shared.

Reflections of the Researcher

When I began this study I believed that the morning recess would prove to be the better schedule–the schedule that was more conducive to learning in the second grade classroom. I did not believe I would see significant gains in DIBELS ORF scores, but I did expect to see moderate gains from the group with the early morning recess. I also supposed that the children and the teacher who had the early recess would speak positively about how they liked that the recess broke up that long morning instructional time and that it provided that much needed break. Instead, I found that 2 students did not know what time their recess was and even that it had changed. When I asked them to tell me about their new recess time, they compared indoor recess with outdoor recess.

The teacher who had the early morning recess schedule said that she did not like it, and the other teacher assured me that she was thankful that the coin toss went the way it did because she would not have liked her morning instructional time broken up. Students from both classes told me that they thought their recess was at a good time for them. Although I am not fully convinced, I think now that I am more sensitive to the idea that a mid-morning recess may truly be a disruption of the morning learning block for second grade students. I see now that structuring the morning block to have transitions between learning segments and offering less constricting lessons may be more conducive to learning for second graders than I had thought.

I personally have a bias toward children having recess every day, having it outside even when it is cold, and not having it taken away as a means of punishment, or because there is not enough time. It bothered me when I discovered that the teachers had not taken the students outside much and that one teacher had been taking recess time away from students as a part of her behavior plan. Since childhood I have valued recess and play, especially vigorous outdoor play such as running, chasing, climbing, and jumping rope, but also good wholesome imaginative play such as children pretending that they live on a farm, or that they are firefighters who have to rescue someone from a burning home. It warmed my heart to hear one of the children talk about playing house at recess and another playing chase with the girls. I also remember feeling good about writing in my researcher's journal about one cold March morning when I saw the early morning class outside. Some of the children wanted me to see how good they had gotten at jumping

rope. They really had improved. They were smiling. I was smiling. It was recess at its finest.

I selected the mixed method approach because I liked the structure that the quantitative approach offers, yet I also enjoyed the narratives I had read in qualitative studies. I enjoyed analyzing the students' reading scores. I looked forward to the interviews because I love to hear children's perspectives on life in general. I never imagined, though, how much I would enjoy not just the interviews themselves, but reading, re-reading, and analyzing the transcripts, and ultimately piecing together the results section. This experience was far more challenging, yet far more rewarding than I ever could have dreamed. To my students who provided that rich qualitative data, I am truly grateful.

Conclusion of the Study

Policy makers do not always appropriately represent or advocate for their constituents. This is definitely the case in the field of education. Rules and regulations are often made not only without children's consent, but without their opinions or even their needs considered. Therefore, many children spend 180 days a year having things done *to* them rather than *for* them or *with* them. Recess is one of those parts of the school day, that seems to be an afterthought for adults, yet it is at the forefront of every child's mind. Ask any elementary school aged child about his or her favorite part of the day, and listen to how many say, "Recess." This is not because they do not like school or that they do not want to learn; it is simply because it is the one part of the day that they feel they are free. This study took place with the opinions, the feelings, the needs, and the desires of

elementary school students in mind. Its purpose was to seek a schedule of learning that would be most suitable for students and to give them an opportunity to share their thoughts on recess and learning.

Not enough is known about the impact that recess has on learning. It is thought to be a frivolous part of the day by some and imperative by others. One problem underlying this mixed method study was that the purpose of recess was not clear. Two questions emerged relative to investigating the role of recess and its possible influence on learning and reading. The first question, Does segmenting instructional time with a recess break have an influence on oral reading fluency? was answered by the quantitative piece. The second question, Does recess have an influence on learning? was addressed by the qualitative aspect of the study. The cognitive immaturity theory (Bjorklund, 1997; Bjorklund & Green, 1992) and the massed versus distributed theory (Willingham, 2002) provided the theoretical framework that enveloped the investigation. Two second grade classes had two different recess schedules. Each child was assessed with a pre and post DIBELS ORF assessment and the group gain scores were analyzed. Approximately half of the students plus their teachers were interviewed about their opinions on recess and reading and learning and their opinions were categorized and analyzed.

A review of related literature showed the rationale behind reducing or eliminating recess, the tactics to increase uninterrupted instructional time, the reasons for maintaining recess, and the theories related to recess and learning. The pressure due to high-stakes testing was often cited for the reason school authorities said that they did not have time for recess. Almost 40% of the nation's school district administrators had eliminated,

shortened, or modified recess, or were considering the idea (IPA/USA, n.d.). Some school administrators reported having cut time out of physical education, art, music, science, social studies, lunch, and recess to increase uninterrupted instructional time for subjects that are prioritized on standardized tests (CEP, 2007; NCES, 2006; NSTA, 2007). Clements (2000) wrote that schools are assuming that the time spent on recess can be more efficiently spent in the classroom on academics. Children who do not fare well on the tests are not allowed recess time; they have to stay in the classroom and keep working (Ohanian, 2002). Two research teams found, however, that children who had art, music, and physical education performed as well as or better than those who did not get the arts when standardized measurements in math and language arts were reviewed (Wilkins, et al., 2003; Tremarche et al., 2007). Houston (2007) proclaimed that teachers should get back to teaching the whole child rather than just the part that can take a test.

Another culprit of stealing recess time was the punishment factor. Pellegrini (2005) stated that taking recess away as a punishment could be deemed as inhumane, and Skrupskelis (2000) argued that recess is a right. Barros et al. (2009) found that children who received at least 15 minutes of recess a day displayed better behavior in the classroom according to their teachers. In addition to helping with behavior, the physical activity engaged in at recess time is essential in warding off obesity and other cardiac risk factors (NAECS/SDE, n.d.; USDHHS, 1996). According to Elkind (2006), play is crucial to children's social development. Recess also affords children opportunities to develop skills in the areas of cooperation, competition, decision making, leading, and following, and conflict resolution (NASPE & AHA, 2006). Furthermore, playing and exercising at

recess enhances cognitive functions (Landers & Kretchmar, 2008), and motor skill development encourages academic readiness in children (Hendy, 2000).

One theory that surrounded this study was the massed versus distributed learning theory first noted by Ebbinghaus in 1885 when he found that he could memorize lists twice as fast when his study times were distributed (Willingham, 2002). Seabrook et al. (2005) also found that scores were six times higher when teaching was distributed over time. In regards to the cognitive immaturity theory, Holmes et al. (2006) reported that children are more susceptible to the effects of interference; hence, recess between cognitive activities should assist them in experiencing the greatest academic gains.

This mixed method comparison study followed the concurrent transformative strategy. I adhered to a quasi-experimental plan, using a nonequivalent pretest, posttest control-group design based on two homeroom second grade classes taking the DIBELS ORF assessment before and after a new recess schedule was put in place for one group. Gain scores were compared to determine whether the timing of recess had an influence on oral reading fluency. I investigated the phenomenon of recess and learning by interviewing teachers and children to produce qualitative data. Interviews took place at the end of a 9-week intervention and data were analyzed after the posttest scores were assembled.

The quantitative findings suggested that DIBELS ORF scores were not influenced by the timing of recess, as there were no significant differences in gain scores between the two groups. The qualitative findings showed that recess had a multitude of purposes as stated by the children and teachers: to provide a break, expend energy, participate in a

variety of games and activities, play, get outside, get some exercise, socialize with friends, and to add some joy to the school day. Additional qualitative findings discussed the effects of recess on behavior and the effects of recess on learning. Children stated that they needed recess, but in this study it did not appear that the timing of recess was as important as the assurance of having a recess time.

The timing of recess did not have an influence on oral reading fluency scores, but recess did have a positive influence on learning. Based on the qualitative results I concluded that recess not only offers opportunities to learn in the psychomotor, the affective, and the cognitive learning domains, it can also add joy to the school day, which supports the NASPE (2001, 2006) recommendation to provide recess for every child every day. Educators must allow children the freedom to play, explore, express, enjoy life, and yes, learn. However, we also need to learn from children that children can learn even if they are not sitting behind a desk, even if they are not sitting “criss-cross apple sauce.”

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APPENDIX A: INTERVIEW QUESTIONS FOR TEACHERS

1. You supervise your students for 30 minutes a day at recess. Tell me a little about that.

2. Tell me your thoughts on recess and:

a. children's behavior

b. academics

c. standardized testing?

3. How about recess and reading?

4. From your perspective, what would you say is the purpose of recess?

5. You have had an altered schedule for the past several weeks. Your class has had:

a. 90 minutes of instruction, a 30-minute recess break, and another 90 minutes of instruction before lunch.

b. 180 minutes of uninterrupted instructional time in the morning before recess and lunch.

Tell me a little about that. Is it working for you? Is it working for your students? Have you noticed anything different? When do you think is the ideal time for recess? Why? Has your opinion on this changed over the past several weeks?

6. Is there anything you would like to add to what you have already shared about recess? Are there any issues you can think of concerning recess and learning that I did not mention yet—anything else you think is important?

APPENDIX B: INDIVIDUAL INTERVIEW QUESTIONS FOR STUDENTS

1. We are here to talk about recess. Tell me what you think about recess.

2. Why do you have recess?

3. Some schools do not have recess. At this school second graders get 30 minutes of recess a day. Do you think we need recess? Why?

4. Do you think recess has something to do with learning in the classroom?

Why do you say that?

5. a. For the past weeks your recess time has been different. Tell me about your new recess time.

5. b. Tell me about the time you have recess.

6. Do you have something to ask me about recess? Do you have more you would like to say about recess and learning?

APPENDIX C: FOCUS GROUP INTERVIEW QUESTIONS FOR STUDENTS

1. We are here to talk about recess. We will go around the circle and say something about recess. When it is your turn you do not have to say something.

2. At this school second graders get 30 minutes of recess every day. Some schools do not have recess. Think what it would be like to not have recess. What would that be like? How would that make you feel? Would it change how you learn?

3. Why do you think you have recess at this school?

4. You come to school to learn. Does recess have something to do with learning to read?

5. a. For the past weeks your recess time has been different. Tell me about your new recess time. Do you like it? Why or why not?

5. b. Tell me about the time you have recess. Do you like it? Why or why not?

6. Do any of you have more you would like to say about recess and learning?

APPENDIX D: STUDENT ASSENT FORM

Dear Second Grader,

I have something that I would like you to help me with. I have read about recess and reading and I want to learn more. I want to find out when is the best time for recess. I also want to know what second graders think about recess and reading. I picked you because you have recess every day. You are learning to read, and you can tell me what you think.

I want to talk to some second graders. If you are picked, it will take 20 minutes before school one day. I will tape record our talk. It will be fun. You do not have to talk to me if you do not want to, and you can stop when you want.

You will not get something for helping me. You can say what you want to about recess and reading. I will not use your name.

You can say if you want to help. If you do not want to help it is okay. I will not like you any less. I will not give you a bad grade in PE. You can ask me something now or when you think of something. If you want to help me, write your name on both papers. Take one paper. Give one paper to your teacher.

Ms. Walker

✓ Yes, I want to help Ms. Walker with her project on recess and reading.

My name _____

(First name) (Last name)

APPENDIX E: TEACHER CONSENT FORM

You are invited to take part in a research study of recess and reading. You were chosen for the study because you are a second grade teacher who supervises recess and teaches reading. Please read this form and ask any questions you have before agreeing to be part of the study. This study is being conducted by a researcher named Joy Walker, who is a doctoral student at Walden University.

Background Information:

The purpose of this study is to determine if the time of recess has a possible effect on reading achievement.

Procedures:

If you agree to be in this study, you will be asked to:

- ✓ Commit to a specific recess time for a period of nine weeks.
- ✓ Record typical and unusual events or occurrences in a participant journal.
- ✓ Participate in one 20-minute interview about recess and reading with the researcher.
- ✓ Allow some your students to be interviewed before school.
- ✓ Administer the DIBELS before and after the nine-week altered recess schedule
- ✓ Teach reading for the majority of the morning instructional period.
- ✓ Take students outside for recess at the designated time.

Voluntary Nature of the Study:

Your participation in this study is voluntary. This means that everyone will respect your decision of whether or not you want to be in the study. No one at Adairsville Elementary or Bartow County Schools will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. If you feel stressed during the study you may stop at any time. You may skip any questions that you feel are too personal.

Risks and Benefits of Being in the Study:

There are no perceived risks of being in the study. The benefits include, but are not limited to, being a part of a doctoral study that may have an impact for social change, and having your voice in the scheduling of recess and the teaching of reading heard.

Compensation:

Participants will not be compensated for their part in the study.

Confidentiality:

Any information you provide will be kept confidential. The researcher will not use your information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in any reports of the study.

Contacts and Questions:

The researcher's name is Joy Walker. The researcher's faculty advisors are Mel Finkenberg, Ph.D. and Lorraine Cleeton, Ph.D. You may ask any questions you have now. Or if you have questions later, you may contact the researcher via joy.walker@waldenu.edu or the advisors at mfinkenberg@waldenu.edu or lorrain.cleeton@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Director of the Research Center at Walden University. Her phone number is 1-800-XXX-XXXX, extension XXXX.

The researcher will give you a copy of this form to keep.

Statement of Consent:

☐ I have read the above information. I have received answers to any questions I have at this time. I am 18 years of age or older, and I consent to participate in the study.

Printed name of Participant _____

Participant's Written or Electronic* Signature _____

Researcher's Written or Electronic* Signature Joy M. Walker

Electronic signatures are regulated by the Uniform Electronic Transactions Act. Legally, an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically.

APPENDIX F: PARENT CONSENT FORM

Hello, my name is Joy Walker and I am doing a research project to learn about whether the time children have recess has something to do with how well they learn to read. I am inviting your child to join my project. I picked him/her for this project because he/she is learning to read, he/she is old enough to understand time, and can also talk to me about recess and reading.

In addition to being your child's physical education teacher, I am a student at Walden University, working on a degree called a doctorate of education or Ed.D. This research project is my final step in completing the degree. It is not related to my position as a teacher because I do not teach reading or supervise recess. If your child participates he/she will be asked to be available for a 20-minute individual or group interview with me about recess and reading one morning before school starts. Not everyone will be selected for an interview.

You do not have to let your child join this project. Your child will not be treated any differently, by anyone at the school if you say no. If you decide now that you want your child to join the project, you can still change your mind later just by telling me. If you want him/her to skip a part of the project, just let me know. It is possible that your child may be nervous about being interviewed, but I will be doing all of the interviews and will make him/her as comfortable as possible. This project may help others by showing people the benefits of recess and it might help determine the best time for recess.

You will not be given anything special for allowing your child to participate in this study, but you will have the satisfaction of knowing your child was a part of a doctoral study about recess and reading. You may ask me any questions you want. If you have a question you can reach me at Joy.Walker@Waldenu.edu or you may contact my professor at Walden University at Mel.Finkenberg@Waldenu.edu . If you would like to ask my university a question, you can call Dr. Leilani Endicott. Her phone number is 1-800-XXX-XXXX, extension XXXX.

Interviews will be audio-taped, but everything children tell me during this project will be kept private. That means that no one else will know their names or what answers they gave. Everything will be placed on a password protected flash drive. The only time I have to report anything is if I learn about something that could hurt your child or someone else.

Please sign both copies if you agree to have your child join this project. Keep one for yourself and return the other to his/her homeroom teacher as soon as possible.

Thank you,

Joy M. Walker

Name of Child _____

Parent/Guardian Name _____

Parent/Guardian Signature _____

Researcher Signature Joy M. Walker

APPENDIX G: INTERVIEW NOTICE

Interview Notice

Date_____

Dear _____,

I would like to talk to you about reading and recess. I will pick you up from your room at 7:40 on_____.

I will talk to you:

_____ by yourself

_____ in a small group.

If this day is not okay, just tell me.

Thank you,

Ms. Walker

APPENDIX H: INTERVIEW SCRIPT

Script to be read to student-participants before interviews

I want to tell you what we are doing. I told you that I had something I wanted you to help me with. I have read about recess and reading and I want to learn more.

I want to hear what you think about recess and reading. I picked you because you have recess every day. You are learning to read, and you can tell me what you think.

I am going to ask you some things. You do not have to answer if you do not want to, and you can stop when you want. There is no right or wrong answer. Just tell me what you think.

I am going to tape our talk so that I can listen to it later and write down what you said. I will not use your name.

I will make sure we finish before school starts so that you do not miss any class time. Do you have anything to say before we start?

CURRICULUM VITAE

Joy M. Walker

joy.walker@waldenu.edu

Education:

2009	Doctor of Education in Teacher Leadership Walden University, Minneapolis, MN
1988	Master of Science in Physical Education, Adapted Physical Education Indiana University, Bloomington, IN
1987	Bachelor of Science in Health and Physical Education, Coaching, K-12 Taylor University, Upland, IN

Certification: Georgia Educator, PBT-7, Health and Physical Education, P-12

Dissertation: Perceptions of Recess and the Effects of a Morning Recess Break on the Oral Reading Fluency of Second Grade Students

Advisor: Mel Finkenberg, Ph.D.

Research Interests: Recess, Physical Activity, Physical Fitness, Learning, Student Behavior

Professional Experience:

1988-Present	Physical Education Teacher, Battle Creek Elementary School, Battle Creek, GA
1988-2004	Reading, Writing, and Math Tutor

Related Experience:

Lead Physical Education Teacher, Wayne County Schools

Candidate Teacher Supervisor, Berry College, Rome, GA; Reinhart College, Waleska, GA; Kennesaw State University, Kennesaw, GA

Georgia Assessments for the Certification of Educators (GACE), Marker Response Selection Committee Member

Student Assistance Program Assistant

Student Support Team Coordinator

Recreational League Coach: Soccer, Softball, Basketball

Coordinator of American Heart Association, Jump Rope for Heart Events

Coordinator of March of Dimes, WalkMania Events

Coordinator of National Football League, Punt, Pass, and Kick Events

Grant:

2005 Recipient of E. Foundation Grant, Physical Fitness Journals

Presentations:

2006 Presenter, Recess Games and Physical Fitness Journals, Share the Wealth Physical Education Conference, Jekyll Island, GA

2002-2009 Presenter, Activities that Work, Northwest Georgia Physical Education Consortium, Rome, GA

Honors:

1993 Teacher of the Year, Battle Creek Elementary School

1994 Teacher of the Year, Wayne County School System

1994 Optimist Club, Friend of Friends Award

Professional Associations: American Alliance of Health, Physical Education, Recreation and Dance (AAHPERD)

Professional Association of Georgia Educators (PAGE)