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The Effect of Recess on Fifth Grade Students' Time On-Task in an Elementary Classroom

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THE EFFECT OF RECESS ON FIFTH GRADE STUDENTS' TIME ON-TASK IN AN
ELEMENTARY CLASSROOM

by
Jenny Kate Smith

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College.

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ABSTRACT

JENNY KATE SMITH: The Effect of Recess on Fifth Grade Students' Time On-Task in an Elementary Classroom
(Under the direction of Dr. Alicia Stapp)

In recent years, elementary schools across the United States have reduced the amount of time allocated for recess or have eliminated it altogether (Jarrett, 2002; Ramstetter et al., 2010). However, recess has the potential to offer significant academic, physical, and social benefits. These benefits have led to a vigorous and ongoing debate about the importance of recess in elementary schools (Ramstetter et al., 2010). Therefore, this study examined the effect of recess on students' time on-task in a fifth grade classroom. There were 12 participants in the study, six male and six female students. All participants were in the same fifth grade classroom at the same elementary school. Twelve observations were completed from September 12, 2016 - October 19, 2016 on Mondays and Wednesdays. Two 30-minute observations were completed each day. One 30-minute observation was immediately before recess and the other 30-minute observation immediately followed recess. Participants' on-task and/or off-task behaviors were documented in 5-minute intervals throughout each 30-minute observation to determine if recess increased or decreased time on-task. The findings suggest that providing fifth grade students with at least a 25-minute period of recess could increase students' time on-task in the classroom.

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INTRODUCTION

Educational mandates across the United States have placed pressure on elementary schools to increase instructional time. As a result, school days are filled with academic instruction (Jarrett, 2002). Reallocating time during the school day to address academic concerns is not fading; if anything, the trend is increasing. In the *Pennsylvania State Education Association's (PSEA) 20/20 Vision for the Future* (2010), authors note that increasing instructional time is critical to improving student achievement.

Reallocation of time within the school day is perhaps one of the most effective policies to increase academic learning (PSEA, 2010). This reallocation of time has put recess at risk of being diminished or eliminated altogether among elementary schools that are expected to meet increasing academic standards (Ramstetter et al., 2010). As this trend continues, more than 20% of school districts across the United States have reported a reduction in recess time in order to allocate more time for English and math instruction (Brusseau & Hannon, 2015). The elimination of recess leaves students sedentary for a majority of time throughout the day, and the effects of such sedentary behavior can be detrimental to students' physical activity levels, social development, and academic achievement. Thus, it is important to note that recess is a crucial part of the school day for students as it serves as "a necessary break from the rigors of concentrated, academic challenges in the classroom" (Ramstetter, Murray, & Garner, 2010, p. 518).

While administrators in the United States are under pressure to decrease recess time, educators in other parts of the world, such as Shanghai, China, are challenging this conventional wisdom. Shanghai students are offered ample recess time throughout the school day, and are still among the highest achieving in the world. Allocated time for recess is almost 40% of an entire school day for elementary students in Shanghai, while American elementary students' recess time is only 22% (Chang & Coward, 2015, p. 16). Shanghai has received top honors in reading, mathematics, and science on the Program for International Student Assessment, which is the most-watched international comparison exam, providing evidence that time away from academics in the form of recess does not necessarily hinder academic achievement (Chang & Coward, 2015). Even though the educational system in China differs from the educational system in the United States, perhaps elementary schools in the United States can draw wisdom from the methods utilized by schools in Shanghai to reach higher levels of academic performance.

According to *Physical Education and Sport at School in Europe* (2013), a report detailing the physical education practices of European schools, activities such as gymnastics, swimming, dance, and outdoor and adventure are mandatory practices in many European schools as well as more traditional athletic activities and sports. In fact, several European countries are trying to make these physical activities part of the daily school routine. In primary education, the compulsory physical education curricula of many European countries includes activities that foster developmental motor skills such as walking, running, throwing, and jumping. In Slovenia, teachers are encouraged to occasionally take a break in lessons to have students engage in motor activities such as those previously mentioned (European Commission, 2013). These skills are built upon as

children advance in the curricula. Many European physical education programs seek to “compensate for the hours spent sitting” in classrooms and aim “to discourage a sedentary lifestyle” (European Commission, 2013, p. 17). All European countries in the report have compulsory physical education practices in schools, and the majority have students complete formal assessments in physical education practices (European Commission, 2013).

Meanwhile, time allotted for physical activity among elementary schools in the United States is decreasing rapidly, leaving elementary students less active during the school day than ever before. The Center on Education Policy (2008) studied the impact of the No Child Left Behind Act on recess and found that 20% of school districts decreased recess time, with an average decrease of 50 minutes per week (Center on Education Policy, 2008). A study by Burriss and Burriss (2011) examined the effect of policy and practice on outdoor play and learning through the completion of questionnaires by representatives from 173 randomly selected school districts in the United States. Results showed that 32.3% of respondents believed that there had been a decrease in time for outdoor play, while only 5.3% believed there had been an increase (Burriss & Burriss, 2011). Furthermore, *The New York Times* published an article entitled “Many Schools Putting an End to Child’s Play,” in which the former superintendent of schools in Atlanta stated, “We are intent on improving academic performance. You don’t do that by having kids hanging on the monkey bars” (Johnson, 1998). While time for physical activity is flourishing in other parts of the world, recess is decreasing for elementary school students in the United States. As recess time diminishes, so too do the benefits that come with participating in recess.

The Research Problem

A majority of current research focuses on how recess affects students' social (Barros et al., 2009; Jarrett, 2002; Ramstetter et al., 2010), physical (Erwin et al., 2014; Ling et al., 2014; Springer et al., 2013), and academic abilities (Brusseau, 2015; Chang & Coward, 2015; Pellegrini & Bohn, 2005). However, few studies examine the effect recess has on students' time on-task in the classroom, prior to and following a period of recess. According to Karweit and Slavin (1981), the amount of time that students spend on-task, or actually engaged in learning, is an important factor contributing to academic achievement. If students spend a limited amount of time on-task, a loss of instructional time occurs (Karweit & Slavin, 1981). On the contrary, if students spend ample time on-task, a greater amount of instructional time and engaged learning should occur, thus benefitting academic achievement.

After observing an increase in off-task behaviors among students as recess drew closer each day, the researcher chose to examine on-task behavior as it related to recess with the fifth grade class in which the researcher was student teaching. The researcher also noticed that students were generally calmer and more focused upon their return to the classroom following a period of recess. These anecdotal observations led the researcher to believe that studying the effects of recess on fifth grade students' time on-task in the classroom was necessary and relevant to educators, administrators, policymakers, parents, and elementary school students. Results of this study could potentially be a crucial factor to consider when considering the amount of recess time students are afforded on a daily basis in elementary schools.

Definition of Terms

For the purpose of this thesis, the following terms are defined.

Kinesthetic. The sensory perception of movement through the use of muscles and ligaments when moving the body (Merriam-Webster, 2017).

Moderate physical activity. Physical activity that noticeably accelerates the heart rate and calls for a moderate amount of effort (World Health Organization, 2017).

Off-task. Engaging in actions other than concentrating or focusing on the task or assignment to be performed or completed.

On-task. Concentrating or focusing on the task or assignment to be performed or completed.

Pedometer. An instrument worn to record the distance a person covers on foot (Merriam-Webster, 2017).

Physical activity. Any bodily movement that increases energy expenditure above a resting level (CDC, 2010).

Physical education. A curricular area offered in schools in which students receive instruction on physical activity and fitness (CDC, 2010).

Reallocation. The act of distributing in a way different than originally assigned (Dictionary.com, 2017).

Recess. A time during the school day in which children have the opportunity to engage in active free play whether it be structured or unstructured (CDC, 2010).

Unstructured environment. Surroundings are lacking structure, organization, or clear expectations (Dictionary.com, 2017).

Vigorous physical activity. Physical activity that causes a substantial increase in heart rate and calls for a large amount of effort (World Health Organization, 2017).

Purpose of the Study

The purpose of this study was to examine the effect of recess on the time on-task of students in a fifth grade classroom. This study provides insight into the importance of recess as it relates to a student's ability to remain on-task following a period of recess. Twelve observations of twelve fifth grade students in a single fifth grade class were completed on Mondays and Wednesdays from September 12, 2016 - October 19, 2016. Data was collected on the amount of time each student spent on-task or off-task during each observation period. Data was collected by recording participants' on-task or off-task behaviors at 5-minute intervals in a task frequency chart prior to and following a 25-minute period of recess.

The following research questions guided this thesis research project:

Question 1: Do on-task behaviors in the classroom increase or decrease after a 25-minute period of recess?

Question 2: Are the average minutes of on-task behaviors higher before or after recess?

Question 3: Are the average minutes of off-task behaviors higher before or after recess?

CHAPTER I: LITERATURE REVIEW

Allocation of instructional time has increased in elementary schools across the United States, while recess has experienced a decrease in allocated time. This reallocation of time has occurred due to educational mandates of the Every Student Succeeds Act (ESSA) of 2015, formerly the No Child Left Behind Act (2002) (United States Department of Education, 2016). The ESSA aims to ensure that all students and schools are successful through the implementation of high academic standards. As students progress towards those standards, they are measured through annual statewide assessments (United States Department of Education, 2016). Despite the fact that the ESSA mandates schools maintain a focus on academics through increased instructional time and ongoing assessments, research indicates that time allotted for recess is critical to elementary school students' health, social development, and academic achievement (Jarrett, 2002; Ramstetter et al., 2010). Research also shows that children spend more than half their time at recess engaging in moderate to vigorous physical activity. These positive effects of recess help to promote all components of a child's wellness during their elementary years (Springer et al., 2013).

Furthermore, recess is one of the only times during the school day when students are able to socially interact in an unstructured environment with peers. This opportunity for students to make social choices, resolve conflict, and collaborate with others enables them to develop essential social skills (Jarrett, 2002). Another significant benefit of

physical activity for elementary school students is that students' academic performance increases when additional time to engage in physical activity during the school day is provided (Brusseau, 2015). A period of physical activity followed by a period of concentrated instruction leads to optimal cognitive processing, and typically the aforementioned physical activity period is structured as recess (Ramstetter et al., 2010).

While most research focuses on how recess affects students socially, physically, and academically, few studies have examined the effect of recess as it relates to increased time on-task in the classroom prior to and following a period of recess. Therefore, this study focused on the direct effect that students' participation in recess had on students' time on-task in the elementary classroom before and after a recess period. This data could be a critical factor to increasing the amount of recess time students are afforded on a daily basis in elementary schools, in addition to possibly increasing academic achievement.

Current State of Recess

The United States Department of Health and Human Services issued *Physical Activity Guidelines for Americans* in 2008, which included a section focused on physical activity guidelines for youth in the United States. According to this document, children and adolescents should participate in 60 minutes or more of physical activity daily (U.S. Department of Health and Human Services, 2008). Grade school students in the United States spend approximately eight hours in school each day, which is nearly 50% of their active hours spent in the school setting. For this reason and to help children meet the 60 minute guideline, schools should allocate time for recess, as “even minor movement during recess counterbalances the sedentary life at school and often, at home” (Ramstetter et al., 2010, p. 522).

Even though research supports daily physical activity for youth, “scheduled time for daily recess in the United States has been on the decline” (Springer et al., 2012, p. 318). The School Health Policies and Programs Study indicated that, “one in four elementary schools in the United States do not provide daily recess for elementary school students across all grade levels” (Springer et al., 2010, p. 318). Furthermore, many school districts have “reduced or entirely eliminated recess in order to devote more time to core academic subjects” (Erwin et al., 2014, p. 165).

The only states that have current legislation requiring recess are Connecticut, Indiana, Missouri, and Virginia, as opposed to other states that just have physical activity requirements for elementary school children (Railey, 2016). Missouri legislation requires schools to provide at least one 20-minute recess period to elementary school students, and Virginia legislation requires elementary schools to provide daily recess. Eight other states have general physical activity requirements that can be satisfied through recess, extracurricular sports, or physical education class (Railey, 2016). The limited number of states that require recess, demonstrates the lack of importance placed on providing daily recess to elementary students. However, it is important that educators, policymakers, and parents are aware of the invaluable opportunity physical activity provides during the academic school day.

Effect of Recess on Physical Activity Levels

Many children do not have the opportunity to engage in physical activity outside of school, and “the majority of American children do not meet the recommendations for physical activity” (Ling et al., 2014, p. 248). Ling, King, Speck, Kim, and Wu (2014), assessed the physical activity levels of 1,508 children from four rural elementary schools

in Kentucky via pedometers. Results of the study indicated that 1.6% of females and 1.1% of males involved in the study met physical activity recommendations at baseline. A similar study by Robinson, Wadsworth, Webster, and Bassett (2014) examined the physical activity behaviors of elementary school children during the school day in the Black Belt region of Alabama. The Black Belt is a 25-30 mile region of prairies and dark soil that stretches approximately 300 miles across northeastern Mississippi and central Alabama. In this study, students wore pedometers to assist researchers in collecting data on the step count of students. "Data examining step counts throughout the school day" showed that students acquired 8% to 11% of their total steps for the day during recess (Robinson et al., 2014, p. S74). Ridgers, Stratton, and Fairclough (2006) reported that recess can contribute between 5% and 40% of children's recommended daily physical activity levels.

Springer, Tanguturi, Ranjit, Skala, and Kelder (2013) observed the physical activity levels during recess of third grade students from low-income, public elementary schools in central Texas. This study found that students engaged in more moderate to vigorous physical activity during recess than they did during a typical Physical Education (PE) class. Results of the study proved "the important contributions of recess to the overall school-day physical activity" by providing data that showed children spend more than half of their recess time engaging in moderate-to-vigorous physical activity (Springer et al., 2012, p. 321). Thus, providing evidence to support the fact that physical education classes cannot be the only means of daily physical activity for children.

A study by Chin and Ludwig (2013) examined the effect of the Recess Enhancement Program (REP) on the physical activity levels of children in 25 New York

City public elementary schools. Researchers observed students' physical activity levels as coaches guided them through age-appropriate games aimed at increasing their physical activity. Results of this study indicated that the rates of vigorous physical activity increased significantly ($p = .007$) and the rates of sedentary behavior and walking decreased with the REP intervention. At Non-REP schools, 35.15% of students were walking, while at a REP school with a coach, only 23.29% of students were walking. (Chin & Ludwig, 2013).

Even though these studies provide evidence to support how critical recess is to increasing physical activity levels for children, each of the studies has limitations. In Springer et al.'s study (2013), all data was derived from measuring the physical activity levels of low-income third-grade students from predominantly Hispanic schools in central Texas. Therefore, data from the study is not representative of the physical activity levels of the demographics of all elementary schools. Erwin et al.'s (2014) study examined "the effect of recess interventions on children's physical activity levels," by viewing numerous articles focused on promoting physical activity during recess that were published in the last 30 years. Though Erwin's review of the research is accurate and reliable, it is not a comprehensive review. Ling et al.'s (2014) study, exploring the effect of a healthy lifestyle intervention on the physical activity of students, was only implemented in four rural elementary schools in Kentucky. Additionally, the physical activity levels of children were assessed from the winter month of January to the spring month of May, which could have had a significant effect on the increased physical activity levels of children involved. As the weather improved, students may have had greater opportunity to engage in physical activity. Robinson et al.'s (2014) study, in

which the school-day physical activity behaviors of students were assessed using pedometers and observations, only gathered data from 683 students at five elementary schools in rural Alabama. Thus, limitations of this study were that only one school district was examined in the state of Alabama and only one demographic was measured. In Chin and Ludwig's (2013) study, only public elementary schools in one area were evaluated. This could have skewed the data collection and results. Additionally, the physical activity of students was ultimately dependent on how well the coach led students in games and activities during recess. This could be a major limitation, as each coach was different and most likely led students in various games and activities in different ways, which would have caused students to engage in different levels of physical activity.

All of the aforementioned studies investigated the relationship between physical activity levels of students and time allotted for recess at elementary schools. These studies had similar findings and conclusions that support recess as an essential part of the school day, wherein students were able to attain higher levels of physical activity through participation in recess.

Effect of Recess on Health

There are numerous proven health benefits that physical activity provides children. Some of those benefits include: "reduction in risk for metabolic syndrome, decreased incidences of asthma, and an increase in cardiovascular fitness levels" (Erwin et al., 2014, p. 160). Chin and Ludwig (2013) also noted that lower body fat percentages, improved mental health, and increased muscular and bone strength can be attributed to increased physical activity in children and adolescents (p. e1).

Barbeau et al. (2007) evaluated the impact of a 10-month physical activity program on body composition of 8-12 year old African American females. This study found that an intervention involving 80 minutes of physical activity every day after school for 10 months resulted in a significant reduction in body fat percentage (Barbeau et al., 2007). Another study examined the effects of a 9-week resistance training program on 13-year-old boys (Faigenbaum et al., 2007), and found that the program increased leg strength by 19% and increased upper body strength by 15% (Faigenbaum et al., 2007).

Another study examined the effects of a physical fitness program on participants' psychological well-being (Crews, Lochbaum & Landers, 2004). Participants were inclusive of 66 low-income Hispanic children in fourth grade, 50% male and 50% female. After participants were randomly assigned to an aerobic intensity or control intensity physical activity program that they participated in for six weeks, psychological well-being was measured through scores on anxiety, depression, and self-esteem inventories. Results indicated that the participants in the "aerobic group reported significantly ($p < .05$) less depression" (Crews et al., 2004).

As indicated by the aforementioned studies, recess can have an effect on students' physical and mental health at a young age. Research suggests that those benefits can be tracked from childhood through adolescence and into adulthood. Encouraging children to participate in physical activity at a young age is "important for these behaviors to continue into adulthood," which could lead to lifelong health benefits (Erwin et al., 2014, p. 159).

Effect of Recess on Childhood Obesity

Increasing children's physical activity levels while at school is an essential element to reducing childhood obesity rates (Chin et al., 2013). Obesity is an increasingly present issue among school age children. A national report, *Prevalence of Obesity Among Children and Adolescents: United States, Trends 1963-1965 Through 2007-2008*, indicated that the prevalence of childhood obesity has tripled since 1976, when only 6.5% of children ages 6-11 were classified as "obese" (Ogden & Carroll, 2010). The most recent statistics from the Centers for Disease Control and Prevention (CDC) indicate that approximately 12.7 million children and adolescents in the United States are affected by obesity, which is about 17% of all children and adolescents nationwide (CDC, 2016). Chin and Ludwig (2013) stated that this increase in childhood obesity calls for an increase in the physical activity levels of children to combat the childhood obesity epidemic (p. e1). More specifically, prior to Robinson et al.'s study of the physical activity levels of 683 elementary school children in Alabama, tests showed that 16% of the children were classified as "overweight," and 27% as "obese" (Robinson et al., 2014, p. S73).

When the CDC investigated childhood obesity in 2012, data suggested that since 1980, the percentage of children ages 6-11 in the United States who were obese had increased from 7% to nearly 18%. Over the same time period, the percentage of adolescents ages 12-19 who were obese increased from 5% to approximately 21% (CDC, 2015). In the state of Mississippi, 15.4% of adolescents are classified as obese and 13.2% of adolescents are classified as overweight. Additionally, 14.8% of children ages four and under are considered obese and 15.0% have an overweight classification (CDC, 2015).

One of the causes of obesity can be attributed to a child's lack of energy expenditure during the day. When a child's energy expenditure is not equal to energy intake, weight can be gained. The energy balance can only be recovered through increased physical activity and healthy eating behaviors (Ling et al., 2014, p. 248). Fernandes and Sturm (2011) examined the effect of physical activity at school on obesity prevention among 8,246 students in 970 schools across the country. Initially, body mass index (BMI) was calculated using each participant's height and weight. Each participant's teacher reported the frequency of physical education classes and recess. The amount of time each student participated in physical activity at school was then calculated. Data was collected periodically throughout the study, and results indicated that meeting the National Association of Sport and Physical Education's (NASPE) recommended time for recess "was associated with a decrease of 0.74 BMI percentile units" (Fernandes & Sturm, 2011, p. 178).

Recess during the school day provides an opportunity for students to participate in physical activity. As the concern for childhood obesity escalates, it is imperative that a shift is made to include daily recess for elementary students. These statistics give reason to increase time for recess in order to aid in changing the current trajectory of childhood obesity in the United States.

Effect of Recess on Social Development

While the physical benefits of recess are perhaps the most documented factors that can be used to advocate for increased recess time for children, recess has the multifaceted potential to affect the whole child in ways that exceed physical benefits alone (Ramstetter et al., 2010). In direct contrast to classroom activities in which children

cannot make the choice to withdraw from an activity, at recess, children are free to join in or leave play situations according to their own discretion. This “open setting” that children encounter at recess allows time for students to engage in diverse and abundant social interactions that they might not experience otherwise (Jarrett, 2002, p. 3). Additionally, this open and unstructured recess period provides time for children to “develop social skills that are not acquired in the more structured classroom environment” (Ramstetter et al., 2010, p. 519).

Developing social skills. During recess, children are involved in varying social interactions and situations. However, they share one commonality—these experiences foster the development of social skills. Peer interactions at recess “facilitate the development of social skills necessary to interact with others positively and productively” (Ramstetter et al., 2010, p. 522). The development of these social skills come in many different forms and produce various skills including negotiation, cooperation, sharing, problem solving, perseverance, self-control, and the ability to adapt to one’s environment (Ramstetter et al., 2010). When recess is excluded from the school day these social skills cannot be fostered.

Children’s play during recess often involves organizing their own games and deciding upon rules and teams (Jarrett, 2002). When students engage in this type of activity during recess, they are learning valuable communication skills. Children also have the opportunity to practice coping skills such as perseverance and self-control (Ramstetter et al., 2010). The development of these specific skills could arise when a student faces adversity during game play or becomes frustrated with other students

participating in the same game. In order to keep the game going, children must learn to resolve conflicts.

The development of social skills during recess is also present when students find themselves in situations where they are required to learn problem-solving skills, practice leadership, and make choices (Barros et al., 2009). Students are able to experiment with new social strategies due to the playful nature of recess. However, it is not uncommon for children to learn undesirable social strategies such as manipulation, exclusion, and presentation management while participating in recess (Pellegrini & Smith, 1993).

Effect of decreased recess on social development. During the school day, recess is one of the few times when children have the freedom to engage in peer interaction in a manner of their choosing. For some children, the opportunity for social interaction with peers may be limited specifically to this period of recess during the school day. Therefore, recess is an increasingly critical part of the school day for grade school students who have limited peer interaction outside of school (Jarrett, 2002).

Different groups of students are affected by this lack of social interaction beyond time spent in school. This includes “latchkey children,” as well as children who come from disadvantaged backgrounds. Jarrett (2002) described “latchkey children,” as children who leave school and return home only to “lock themselves inside with television and computer games as companions” (p. 3). Since they spend all of their non-school hours interacting only with technology, “latchkey children” do not have the opportunity to communicate with peers or engage in social interactions outside of the school day. This makes their time at school, and more specifically recess, that much more significant to the development of their social skills.

Barros, Silver, and Stein (2009) found that decreased recess time most notably affects children who come from disadvantaged backgrounds. These children are less likely to freely roam their neighborhoods without adult supervision, perhaps due to the safety concerns that are more prevalent in disadvantaged areas. Thus, recess could be their only opportunity to interact with peers and practice social skills with other children. It is vital that recess be provided as an unstructured period of time where all students can interact freely, especially for students who are only afforded social interaction with peers during school hours.

While social interactions can occur in the classroom, it is a more “closed” setting, which ultimately means that the opportunity to foster social development is not as great as when students are allowed to freely interact in an “open setting,” such as recess (Jarrett, 2002). Students experience a change in social interactions at recess. This change goes from sedentary interaction to the extent “that children can choose a peer with whom to interact on their own terms” (Pellegrini & Smith, 1993, p. 58). This opportunity for student choice and free play leads students to make choices, organize their own games, develop rules for play, and develop an invaluable set of social skills.

Academic Achievement

Research suggests that social interactions have important cognitive implications. However, the opportunity for communication with peers is not the only aspect of recess that benefits students’ academic achievement (Pellegrini & Smith, 1993). Elementary students in Shanghai, China receive daily recess time that amounts to almost 40% of an entire school day. Even though these students are afforded more time away from academic work every day, their ability to perform well on academic tasks has not

declined. In fact, these are some of the world's highest achieving students, and they repeatedly receive top honors in multiple areas on the Program for International Student Assessment, the "most-watched international comparison exam" (Chang & Coward, 2015, p. 15). Recess provides students a break from the rigorous academic schedule of a typical school day, which subsequently has the ability to affect students' focus, attention, and overall classroom behavior.

Donnelly and Lambourne (2011) examined the effect of providing "90 min/week of moderate to vigorous physically active academic lessons intermittently throughout the school day" (p. S38) on the academic achievement of students in 24 elementary schools in northeast Kansas. A third party of trained psychologists measured academic achievement by administering The Wechler Individual Achievement Test. This test assesses reading, writing, mathematics, spelling, and oral language skills. Performance on this standardized test indicated an improvement of 6% among students involved in physically active academic lessons compared to a 1% decrease for students in control classrooms. Thus, concluding that physical activity can have a positive impact on academic achievement (Donnelly & Lambourne, 2011).

Hollar et al. (2010) examined the effects of a physical activity intervention program on the academic performance of 4,588 low-income students, ages 6 -13, at six elementary schools in Osceola County, Florida. The physical activity component of the intervention program increased opportunities for physical activity during the school day, as well as desk-side physical activity breaks, and structured physical activity during recess. Academic achievement was measured using the Florida Comprehensive Achievement Test (FCAT) which was administered to all Florida public school students

beginning in third grade. Results showed that students receiving the intervention had significantly higher FCAT math scores and slightly higher FCAT reading scores than students in control schools. At baseline, students receiving the intervention had a mean score of 285.6 on the math portion of the FCAT, while students in control schools had a mean score of 279.2. Following the intervention, students who received the intervention had a mean score of 307.9 on the math portion of the FCAT, while students in control schools had a mean score of 276.2. At baseline, students who received the intervention had a mean score of 286.7 on the reading portion of the FCAT, while students in control schools had a mean score of 282.9. Following the intervention, students who received the intervention had a mean score of 292.4 on the reading portion of the FCAT, while students in control schools had a mean score of 281.7. When the intervention was controlled for ethnic groups, Hispanic, Black, and White, students in the intervention schools had significant gains in FCAT scores compared to students in control schools (Hollar et al., 2010).

Although these studies provide evidence to support that recess benefits students' academic achievement, they do have limitations. The behavior of each teacher in Donnelly and Lambourne's (2011) study could have influenced intervention outcomes by engaging students and reinforcing physical activity in the classroom at different levels. The enthusiasm of the teacher and the guided participation he or she provided when presenting the physically active academic lessons could have also had a significant effect on student responses. In Hollar et al.'s study (2010), the habits of participants outside of school could not be controlled by researchers, which could have affected the validity of the study. Geographic variability was limited, the participants in the study were not

chosen by random selection, and the control for this study was only a single school. Additionally, the validity of standardized tests, such as the FCAT used in this study, when measuring academic achievement has been highly debated (Hollar et al., 2010).

Recess as a Break

People of all ages and in all fields benefit from breaks in daily routine. In fact, breaks are “considered essential for satisfaction and alertness” (Jarrett, 2002, p. 2). Short, structured breaks throughout the school day have shown to improve physical activity levels, academic achievement, and concentration (Barr-Anderson et al., 2011). One of the most imperative aspects of recess is that it provides a break for students in the day’s routine. This break in routine could also be described as a “period of interruption” (Ramstetter et al., 2010, p. 522). Research suggests that a period of interruption followed by a period of concentrated instruction is necessary for optimal cognitive processing in a child (Ramstetter et al., 2010). When recess is provided as an unstructured break during the school day, the stresses and distractions that normally interfere with cognitive processes can be diminished. Recess is ultimately a break for students from challenging mental tasks, which causes it to act as a “means for relieving and managing stress” (p. 522).

When children are required to repeatedly perform highly focused tasks, a “continued buildup of interference” is likely (Pellegrini & Bohn, 2005, p. 14). Young children have immature nervous systems and can not complete high-level cognitive tasks as well as older children and adults. They are “especially susceptible to the effects of cognitive interference after sustained periods of structured work” (Pellegrini & Bohn, 2005, p. 14). The brain functions in such a way that it requires downtime in order to

recycle chemicals necessary for the formation of long-term memory (Jarrett, 2002).

Recess is a viable option for providing students with a break during the school day. This break can act as an interruption to long periods of learning, thus elevating students' energy levels and improving their concentration when returning to the classroom.

It is important to note that “a change in academic instruction or class topic does not offer a mental change or a physical release “ (Barros et al., 2009, p. 435). Only the unstructured free time that recess provides can afford students the opportunity for mental change and physical release. The benefits that students receive from this release of energy go beyond allowing a break from rigorous academic work and cognitive processing. The break students are provided during recess “may have other benefits for classroom behavior; students may be more attentive to academic tasks and less fidgety in the classroom afterward” (Barros et al., 2009, p. 431).

Improved academic behavior. It is common in East Asian primary schools for children to receive a 10-minute break every 40 minutes. After returning to the classroom from these breaks, students are ready to work and more attentive than before (Pellegrini & Bohn, 2005). This increased attention shows up predominantly in children's attention to classwork, which is maximized when breaks are incorporated more often (Pellegrini & Bohn, 2005). Recess provides students with unstructured time that can serve as a “reset button on children's emotional and cognitive timers,” and when children have this opportunity to “reset,” they typically return to the classroom more attentive and focused than before (Chang & Coward, 2015, p. 15).

A study by Jarrett et al. (1998) examined the effect of a recess break on the classroom behavior of 43 fourth grade students attending an elementary school in a

southern urban school district. Results indicated that “without recess, the students were on-task 85% of the time and fidgety 16% of the time. With recess, they were on-task 90% of the time and fidgety 7% of the time” (Jarrett et al., 1998, p. 124). The results of several experimental studies (Pellegrini & Smith, 1993; Pellegrini et al., 1995) indicated that children were more attentive after recess than they were before. Another study by Pellegrini and Davis (1993) suggested that when recess was delayed, elementary school students became progressively more inattentive (Jarrett, 2002).

Barros, Silver, and Stein (2009) examined the amount of recess that 15,305, eight and nine year old students in the United States received. They also compared the group classroom behavior of students who received daily recess and students who did not receive daily recess. Classroom teachers were asked to complete a questionnaire regarding how often and for what period of time students had recess, as well as questions requiring the teacher to rate the behavior of their class using a scale. Results indicated that the teacher’s rating of classroom behavior was better for groups of students who received some recess than for those students who received minimal to no recess. The researchers noted that, “evidence from Asian schools suggest that children’s attention to class work is maximized when structured time is relatively short and is followed by breaks” (Barros et al., 2009, p. 435). The findings from all of these studies support the importance of recess for elementary school students, especially in relation to students’ increased focus and improved classroom behavior.

Elementary schools should take into account the well-being of the whole child, which includes concern for each child’s health and physical wellness, social development, and academic achievement. The literature review for this study addressed

the effect that recess has on a child's overall wellness. Through review of the literature, the researcher found that recess has a positive impact on the well-being of the whole child. However, there is a gap in the literature comparing students' on-task behavior in the elementary classroom prior to a period of recess to students' on-task behavior in the elementary classroom following a period of recess. Thus, this study adds to the current literature, as it examined the effect of recess on the time on-task of fifth grade students in an elementary classroom.

CHAPTER II: METHODOLOGY

This study examined the effect of recess on fifth grade students' time on-task in an elementary classroom. During twelve observation periods, from September 12, 2016 - October 19, 2016, the researcher observed twelve fifth grade students for a 30-minute period prior to recess and for a 30-minute period following recess. At 5-minute intervals throughout each 30-minute period, the researcher documented the on-task or off-task behaviors of each participant. Data was then analyzed to determine if on-task and off-task behaviors increased or decreased, prior to and after a 25-minute period of recess. This study aimed to answer the following questions: Do on-task behaviors in the classroom increase or decrease after a 25-minute period of recess? Are the average minutes of on-task behaviors higher before or after recess? Are the average minutes of off-task behaviors higher before or after recess?

Participants and Setting

This study took place in one fifth grade general education classroom at an elementary school in north Mississippi. Participants were selected through non-probability purposive sampling and were inclusive of six female students and six male students. Selection was completed by the researcher, and was based on acquiring diversity among participants in order to accurately represent an average fifth grade classroom. This included students of various socioeconomic backgrounds, racial makeups, and academic achievement levels. Ages of the participants ranged from 10-12

years old. Seven participants were 10 years old, four participants were 11 years old, and one participant was 12 years old. The demographics of participants in the study were 66.7% Caucasian, 25% African American, and 8.3% biracial. Participants involved in this study exhibited a wide range of ability levels; several participants displayed a high level of academic achievement, while others displayed an average level of academic achievement, and still others are enrolled in resource classes to receive extra academic support. Academic achievement levels were determined by analyzing data on formal and informal assessments.

Observations occurred in a general fifth grade classroom setting and the school library while participants were involved in normal classroom activities and routines. Observations were consistent in days and times each week.

Instrument

The instrument utilized in this research study was an on-task and off-task frequency chart that was created by the researcher to record observations of participants' on-task or off-task behaviors in the classroom prior to and following a 25-minute recess period (See Appendix A). The chart included space to document observations of twelve participants, six males and six females. The observations were divided into 5-minute intervals. Each 5-minute time interval included two codes that were representative of on-task or off-task behaviors. These behaviors were documented during the 5-minute time intervals for each participant. The behaviors were coded as follows:

ON (on-task) – On-task behaviors such as answering questions asked by the teacher or teacher's assistant, looking at or writing on the instructional materials being used during the time interval, receiving help from the teacher or teacher's assistant, raising a hand and

waiting to be called on, reading a book when all other work was complete, or looking at the speaker who was either instructing or speaking about something related to the class or lesson. The researcher was observing and documenting both passive and active on-task behaviors.

OFF (off-task) – Off-task behaviors such as tapping a pencil or playing with materials, staring into space, playing with hair, laying head down, scribbling on paper, talking to a classmate when group work was not assigned, talking to the teacher when not asked a question about the work assigned, singing or talking aloud to oneself, being out of one's seat or walking around the classroom when not instructed to do so, working on tasks not assigned, stretching, or looking around the classroom. The researcher was observing and documenting passive, active, and verbal off-task behaviors.

Procedures

Design. Before the researcher began the study, verbal permission was obtained from the clinical instructor, school librarian, and art teacher to conduct observations in their classroom. Per the University of Mississippi's Institutional Review Board, parental consent and assent of the participants was not required because the study was solely observational, wherein there was no interaction with participants, and no interventions were implemented. Non-probability purposive sampling was utilized to attain participants for the study and quantitative design methods were used throughout the implementation of the study.

Twelve observations of six female and six male fifth grade students' on-task and off-task behaviors were completed by the researcher in a fifth grade classroom prior to recess for 30 minutes and in the school library or with the art teacher in the regular

academic classroom after recess for 30 minutes on Mondays and Wednesdays from 10:10 a.m. to 10:40 a.m. and from 11:15 a.m. to 11:45 a.m. This occurred for six weeks from September 12, 2016 - October 19, 2016. Documentation occurred during two 30-minute time periods with six, five minute intervals. For each 5-minute interval the researcher documented whether the student was on-task or off-task a majority of the 5 minutes. Observations were documented in numerical format through an on-task and off-task frequency chart. The first 30-minute time period was prior to students' participation in recess and the second 30-minute time period followed students' participation in recess. From the observations, concrete numbers from the on and off-task frequency chart were utilized to interpret the data and create graphs to represent the findings of students' on-task or off-task behaviors prior to and after a 25-minute recess period.

Data analysis. A task frequency chart was utilized by the researcher during each observational period in which each of the twelve participants was noted as being on-task or off-task. The code that correlated with the participant's behavior during each 5-minute interval was circled. This was determined by analyzing the behavior that was exhibited a majority of the 5-minute time interval. For example, if a participant spent a majority of the 5-minute time interval (more than 2.5 minutes) whispering with another student and then got up to sharpen a pencil, the code for "off-task" was circled. If a participant spent the majority of the 5-minute time interval focused on completing assigned work, the code for "on-task" was circled.

Upon final data collection, the number of minutes each participant spent on-task and off-task, both before and after recess was averaged. Two double bar graphs were created to display the average number of minutes each participant spent on-task and off-

task both before and after recess. The average number of minutes each participant spent on-task before recess and after recess was also converted to percentages and used to create a table that identified each participant's average percentage of time on-task before recess, average percentage of time on-task after recess, and average increase in time on-task from before to after recess. The double bar graphs and the table were then compared to determine the overall effect that recess had on fifth grade students' time on-task in the classroom.

CHAPTER III: RESULTS

For each observation, the researcher documented the twelve participants' behaviors as on-task or off-task prior to and after a period of recess. Only one behavior code that best described the participant's overall behavior during the observation was circled on the task frequency chart for each 5-minute interval. Data indicated that on-task behaviors in the classroom increased after a 25-minute period of recess (See Table 1). Data also indicated that the average minutes of on-task behaviors increased after recess (See Figure 2), and the average minutes of off-task behaviors were higher before recess (See Figure 1). The increase in time on-task varied for each of the twelve participants. However, data revealed all participants' time on-task increased after a 25-minute period of recess.

Results for Research Question 1

Do on-task behaviors in the classroom increase or decrease after a 25-minute period of recess? Student 1 spent an average of 47.9% of the time prior to recess on-task, and time on-task increased to 85.4% following recess. Student 2 spent an average of 18.7% of the time prior to recess on-task, and time on-task increased to 56.2% following recess. Student 3 spent an average of 64.5% of the time prior to recess on-task, and time on-task increased to 75% following recess. Student 4 spent an average of 20.8% of the time prior to recess on-task, and time on-task increased to 60.4% following recess. Student 5 spent an average of 27% of the time prior to recess on-task, and time on-task

increased to 70.8% following recess. Student 6 spent an average of 25% of the time prior to recess on-task, and time on-task increased to 60.4% following recess. Student 7 spent an average of 37.5% of the time prior to recess on-task, and time on-task increased to 66.6% following recess. Student 8 spent an average of 33.3% of the time prior to recess on-task, and time on-task increased to 77% following recess. Student 9 spent an average of 52% of the time prior to recess on-task, and time on-task increased to 81.2% following recess. Student 10 spent an average of 45.8% of the time prior to recess on-task, and time on-task increased to 81.2% following recess. Student 11 spent an average of 35.4% of the time prior to recess on-task, and time on-task increased to 66.6% following recess. Student 12 spent an average of 31.2% of the time prior to recess on-task, and time on-task increased to 62.5% following recess (See Table 1). Results revealed that each participant's average time on-task increased from before recess to after recess (See Figure 3).

Student 5 had the greatest increase in time on-task from 20.8% before recess to 60.4% after recess. These results indicated an average increase of 43.8%. Student 5 had the lowest percentage of time on-task before recess and still had the lowest percentage of time on-task after recess, but showed great improvement following recess. Student 3 had the least increase in time on-task from 64.5% before recess to 75% after recess. These results indicated an average increase of 10.5%. Though there was not a large increase in time on-task, this participant had the highest percentage of time on-task before recess and still showed improvement by spending 75% of classroom time on-task immediately following a period of recess. Data revealed that nine of the twelve participants showed an average increase of time on-task between 30% - 45%.

Table 1

Participants' average time on-task before recess, average time on-task after recess, and average increase in time on-task.

	Before Recess Avg. time on-task	After Recess Avg. time on-task	Avg. Increase in time on-task
S1	47.9%	85.4%	37.5%
S2	18.7%	56.2%	37.5%
S3	64.5%	75%	10.5%
S4	20.8%	60.4%	39.6%
S5	27%	70.8%	43.8%
S6	25%	60.4%	35.4%
S7	37.5%	66.6%	29.1%
S8	33.3%	77%	43.7%
S9	52%	81.2%	29.2%
S10	45.8%	81.2%	35.4%
S11	35.4%	66.6%	31.2%
S12	31.2%	62.5%	31.3%

Results for Research Question 2

Are the average minutes of on-task behaviors higher before or after recess?

During the 30 minute period following recess, 100% of the participants spent more time on-task than off-task (See Figure 1). Eleven of the twelve participants observed spent more time on-task than off-task, and only one participant (Student 3) had a less difference between the average amount of time spent on-task and off-task during the period of time immediately following recess.

On average, Student 1 spent 21.25 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 85.4% of time on-task following recess which was a 37.5% increase in time on-task from before recess. On average, Student 1 spent 14.375 minutes on-task before recess and 25.625 minutes on-task following recess which is an 11.25 minute increase in time on-task from before recess to after recess.

Student 2 spent 3.75 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 56.2% of time on-task following recess which was a 37.5% increase in time on-task from before recess. On average, Student 2 spent 5.625 minutes on-task before recess and 16.875 minutes on-task following recess which is an 11.25 minute increase in time on-task from before recess to after recess.

Student 3 spent 15 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 75% of time on-task following recess, but this was only a 10.5% increase in time on-task from before recess. On average, Student 3 spent 19.375 minutes on-task before recess and 22.5 minutes on-task following recess which is a 3.125 minute increase in time on-task from before recess to after recess.

Student 4 spent 6.25 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 60.4% of time on-task following recess which was a 39.6% increase in time on-task from before recess. On average, Student 4 spent 6.25 minutes on-task before recess and 18.125 minutes on-task

following recess which is an 11.875 minute increase in time on-task from before recess to after recess.

Student 5 spent 12.5 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 70.8% of time on-task following recess which was a 43.8% increase in time on-task from before recess. On average, Student 5 spent 8.125 minutes on-task before recess and 21.25 minutes on-task following recess which is a 13.125 minute increase in time on-task from before recess to after recess.

Student 6 spent 6.25 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 60.4% of time on-task following recess which was a 35.4% increase in time on-task from before recess. On average, Student 6 spent 7.5 minutes on-task before recess and 18.125 minutes on-task following recess which is a 10.625 minute increase in time on-task from before recess to after recess.

Student 7 spent 10 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 66.6% of time on-task following recess which was a 29.1% increase in time on-task from before recess. On average, Student 7 spent 11.25 minutes on-task before recess and 20 minutes on-task following recess which is a 8.75 minute increase in time on-task from before recess to after recess.

Student 8 spent 16.25 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 77% of time on-task following recess which was a 43.7% increase in time on-task from before recess. On average,

Student 8 spent 10 minutes on-task before recess and 23.125 minutes on-task following recess which is a 13.125 minute increase in time on-task from before recess to after recess.

Student 9 spent 18.75 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 81.2% of time on-task following recess which was a 29.2% increase in time on-task from before recess. On average, Student 9 spent 15.625 minutes on-task before recess and 24.375 minutes on-task following recess which is a 8.75 minute increase in time on-task from before recess to after recess.

Student 10 spent 18.75 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 81.2% of time on-task following recess which was a 35.4% increase in time on-task from before recess. On average, Student 10 spent 13.75 minutes on-task before recess and 24.375 minutes on-task following recess which is a 10.625 minute increase in time on-task from before recess to after recess.

Student 11 spent 10 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 66.6% of time on-task following recess which was a 31.2% increase in time on-task from before recess. On average, Student 11 spent 10.625 minutes on-task before recess and 20 minutes on-task following recess which is a 9.375 minute increase in time on-task from before recess to after recess.

Student 12 spent 7.5 more minutes on-task than off-task in the 30-minute observation period following recess. This participant spent 62.5% of time on-task

following recess which was a 31.3% increase in time on-task from before recess. On average, Student 12 spent 9.375 minutes on-task before recess and 18.75 minutes on-task following recess which is a 9.375 minute increase in time on-task from before recess to after recess.

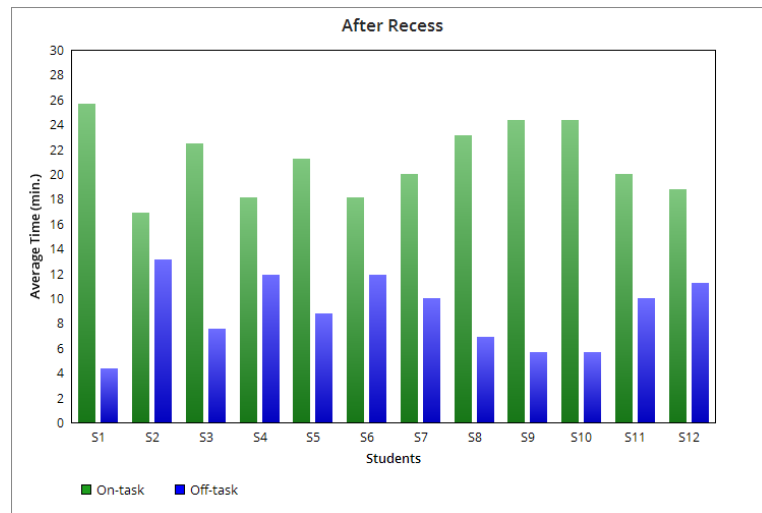


Figure 1. Participants' average time on-task and average time off-task after a period of recess.

Results for Research Question 3

Are the average minutes of off-task behaviors higher before or after recess?

Results from the study indicated that only two of the twelve participants observed, Student 3 and Student 9, spent more time on-task than off-task during the period of observation before recess (See Figure 2). Only two more of the twelve participants observed, Student 1 and Student 10, spent near equal amounts of time on-task and off-task, with Student 1 having spent 47.9% of time on-task and 52.1% of time off-task and Student 10 having spent 45.8% of time on-task and 54.2% of time off-task. Though the amounts of time these two participants spent on-task and off-task were similar, Student 1 spent 1.25 more minutes off-task than on-task, and Student 10 spent 2.5 more minutes off-task than on-task. The remainder of the twelve participants (Student 2, Student 4,

Student 5, Student 6, Student 7, Student 8, Student 11, and Student 12) spent more time off-task than on-task on average during the period of observation before recess. Student 2 spent 18.75 more minutes off-task than on-task and spent 81.3% of the total time before recess off-task. Student 4 spent 17.5 more minutes off-task than on-task and spent 79.2% of total time before recess off-task. Student 5 spent 13.75 more minutes off-task than on-task and spent 73% of total time before recess off-task. Student 6 spent 15 more minutes off-task than on-task and spent 75% of total time before recess off-task. Student 7 spent 7.5 more minutes off-task than on-task and spent 62.5% of total time before recess off-task. Student 8 spent 10 more minutes off-task than on-task and spent 66.7% of total time before recess off-task. Student 11 spent 8.75 more minutes off-task than on-task and spent 64.6% of total time before recess off-task. Student 12 spent 11.25 more minutes off-task than on-task and spent 68.8% of total time before recess off-task. Overall, 83.3% of the participants observed in this fifth grade classroom spent more time off-task than on-task during the 30 minutes prior to recess.

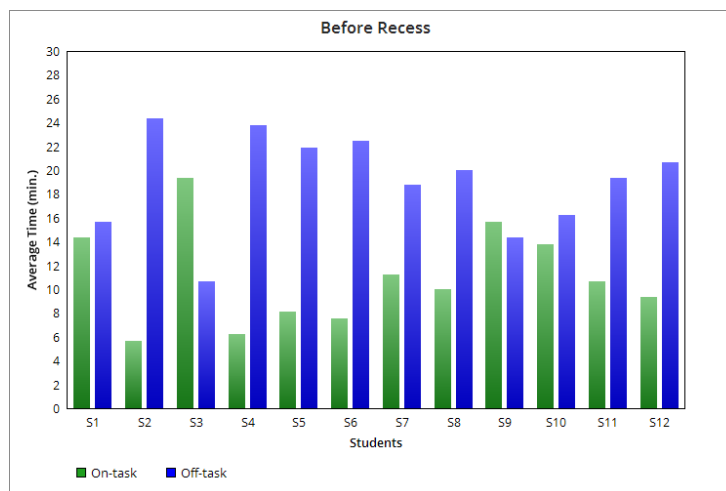


Figure 2. Participants’ average time on-task and average time off-task before a period of recess.

When the behaviors of participants were observed prior to a period of recess and following a period of recess, 100% of the fifth grade students involved in the study displayed increased time on-task following a period of recess. Following a period of recess, participants spent, on average, between 3.125 minutes and 13.125 minutes more on-task in the classroom. Therefore, the findings from this study indicate that a 25-minute period of recess increased fifth-grade students' time on-task in the classroom.

CHAPTER IV: DISCUSSION

This chapter examines the results of each participant's time on-task both before and after participation in a period of recess, and notes the similarities and differences among participants involved in the study. Furthermore, this chapter includes a discussion of the limitations involved with this research study as well as ideas for future research that would be useful for validating the results of this study.

Significance

The results of this study indicated that fifth grade students spend an increased amount of time on-task in the classroom after participating in a period of recess. The effect of recess on each individual participant's time on-task varied. This could be due to a number of factors, such as participant ability and academic achievement. The group of participants involved in this study exhibited a wide range of ability levels. Several participants are at a high level of academic achievement, while others are at an average level of academic achievement, and still others are enrolled in resource classes to receive extra support in the classroom. During the observational period before recess, ten out of the twelve participants spent on average more time off-task than they spent on-task. Overall, the percentage of time that each participant spent on-task on average before recess ranged from 18.7% to 64.5%, with the average amount of time spent on-task before recess among all participants being 36.6%. The average amount of time that all participants spent on-task increased from 36.6% before recess to 70.3% following recess.

After recess, the percentage of time that each participant spent on-task ranged from 56.2% to 85.4%. On average, participants' time on-task increased 33.7% when observed immediately before and immediately after a period of recess. Each individual participant's increased time on-task ranged from 10.5% to 43.8%, with nine of the twelve participants showing an increase of between 30% to 45% in time on-task following recess.

Similar to results of previous research studies (Jarrett et al., 2002; Pellegrini & Bohn, 2005; Ramstetter et al., 2010), the results of this study support the theory that following a period of recess, students are able to remain on-task for a longer period of time. Contrary to many arguments used by schools to eliminate recess time, the findings of this study indicate that recess does positively affect fifth grade students' time on-task in the classroom. Thus, it is imperative that all elementary schools allocate time for a recess period during the school day.

Limitations

The findings of this study revealed a positive relationship between fifth grade students' participation in recess and increased time on-task in the classroom. However, there are several limitations to consider when interpreting the findings of this study. First, the location of the school at which participants were observed and the time of year when the research was conducted. The elementary school where the research was conducted is in the state of Mississippi, and the research was conducted during the months of September and October. In Mississippi, the months of September and October are fairly warm, which could have had an effect on the findings by altering participants' activity levels while at recess. Another limitation of this study is the subject matter participants

learned when being observed, both before and after recess. On Mondays, participants attended a library class following recess, and on Wednesdays, participants attended an art class following recess. The library class took place in the school's library, and the art class took place in the same classroom used for everyday instruction. Studying different subjects in different classroom environments could have caused participants to demonstrate more on-task or off-task behaviors depending on interest level of the subject or the environment. A third limitation of this study is the time of day in which students participated in a period of recess. If the recess period had been offered earlier or later in the school day, the findings of this study could have been different. Another limitation of this study is the number of participants. This study only examined the on-task and off-task behaviors of twelve fifth grade students, but the behaviors of other fifth grade students could differ depending on academic ability, classroom management, personal interests, or medical conditions.

The researcher collected data standing in the back of the classroom to provide the least amount of distractions possible. The purpose of being minimally distracting was to guarantee that participants' on-task or off-task behaviors were genuinely reflective of their typical classroom behavior and were not affected by the observations taking place. If the observations did produce distractions, they would be considered a limitation of the research study.

The amount of recess time participants were provided is another limitation of this research study. Participants' daily schedule allowed for 25 minutes of recess, but on occasion participants would receive less than or more than 25 minutes of recess

depending on when assignments were completed, weather conditions, and other varying circumstances.

Lastly, the variety of assignments that participants completed during each observation period before and after recess could be considered a limitation. Some tasks could be considered much more engaging and interactive, which could cause participants to demonstrate more on-task behaviors. These engaging or interactive tasks could include cooperative learning activities or timed multiplication tests. On the contrary, some tasks that participants were assigned could be considered more mundane and required more self-discipline from participants to complete, such as listening to the teacher read texts aloud or completing worksheets. This could have caused participants to demonstrate more off-task behaviors.

Future Research

The results of this research study indicate that participating in recess increased fifth grade students' time on-task in the classroom. Future research should be conducted with a similar design, but with a larger group of more varied participants in order to provide further validation of this study. Other opportunities for future research could examine the varying effects of recess when given to students at different points during the school day, the different effects of longer or shorter recess periods, how recess affects students of different ages, or how the effects of recess may differ between gender.

This study provides a significant contribution to the field of research focused on the effect recess has on students in elementary classrooms. It validates previous studies that suggest recess has a positive effect on the time on-task of elementary school students. This study also demonstrates the importance of providing a recess period for

elementary students in order to increase time on-task and thus increase the potential for student learning in the classroom.

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APPENDIX A

Student	On-Task and Off-Task Behaviors						
	On-Task (ON)						
	Off-Task (OFF)						
Minute 0	Minute 5	Minute 10	Minute 15	Minute 20	Minute 25	Minute 30	
S1	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S2	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S3	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S4	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S5	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S6	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S7	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S8	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S9	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S10	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S11	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF
S12	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF	ON OFF