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The Effects of Recess on Kindergarten Student Behavior

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The Effects of Recess on Kindergarten Student Behavior

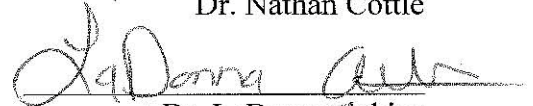
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APPROVED FOR THE DEPARTMENT OF HUMAN ENVIRONMENTAL SCIENCES

By



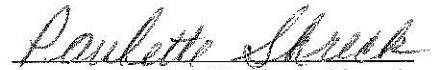
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DEDICATION

This thesis is dedicated to my parents who always supported me in every aspect of my life, especially my mother who displayed in every life situation a passion and commitment not only towards me and my brother but other children as well. Her selfless dedication to her family and God was a shining example that I will never forget and hope to pass on to my children and others.

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Lastly, I would like to thank my family for always being with me through all the countless hours I have spent over this past two years in pursuit of my educational goals.

ABSTRACT

The purpose of this study is to investigate whether children's behaviors are directly linked to the amount of recess time designated in schools. Research was conducted in an inner city school district where the amount of recess time varies for the students. An adaption of the Teacher's Rating of Classroom Behavior (TRCB) scale was used to evaluate the student's classroom behavior before and after recess (Barros et al., 2009). Thirty-three Kindergarten classroom teachers were asked to complete the surveys. Although no significant correlation existed between recess and overall behavior, a significant, positive relationship existed between physical education (PE) and general overall behavior. Another interesting finding from this study was the significant positive correlation and trend between the total number of students in a classroom and the total number of minutes of activity and recess, respectively. When class size gets larger, teachers are likely to offer more recess and PE time in an effort to improve student's overall classroom behavior. This study provides potential evidence for the case of recess and physical activity being an integral part of our schools curriculum.

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Chapter 1 - Introduction

Introduction/Statement of the Problem

The decline of recess in schools today is a prevalent issue that has a widespread affect on children. Studies show that the amount of time designated for recess is diminishing in our schools today (Barros, Silver, & Stein, 2009). The main reason for this decline is the fact that schools are being pressured to provide a head start on academic skills for their children, even at the youngest age (Almon, 2003). Forty percent of school districts throughout the United States are reducing or deleting recess as they focus additional time and resources on teaching and learning (Jarrett, Maxwell, Dickerson, Hoge, & Yetley, 1998).

Purpose of this Study

This study investigated whether children's behaviors are directly linked to the amount of recess times that are designated in school. Research shows that recess is essential to a child's growth and mental development (Isenberg & Quisenberry, 2002). Play is a crucial dynamic of healthy physical, intellectual, and social development at all age levels (Elkind, 2007). Through play, children learn to solve problems and feel good about their ability to learn and contribute to school success in many ways (Elkind, 2007). Recess is essential to self regulation in children as well as a means of managing stress and becoming resilient (Ginsburg, 2007).

Significance of the Study

The integration of play, love and work is important for children's social, emotional, and cognitive development (Elkind, 2007). Elkind states that to fully

appreciate the power of play one must see how it develops in relation to love and work.

When children play, they have opportunities to apply mental representations of the world to new objects, people, and situations. All types of learning are integrated--physical, social, emotional, as well as intellectual and linguistic development (Elkind, 2007).

Children who learn through play are engaged in hands-on, minds-on learning experiences which lead to a natural motivation to learn (Bredekamp & Copple, 1997). When positive approaches to learning are developed through a child's own knowledge, learning is enjoyable because it is based on their own curiosity furthering the development of concepts and skills. Children work independently as well as collaboratively with others to solve problems that integrate a variety of curricular areas. In these learning communities these skills are brought together and result in meaningful and playful experiences (Bredekamp & Copple, 1997).

Because play is intrinsically motivating, learners perceive it to be interesting and personally relevant, meaningful, and appropriate in terms of their abilities and their expectations of success. The intense play of school-age children influences them to consciously think about fairness and justice, rules, contracts and consequences, as well as their influence on the world around them (Frost, 2008). Children's interactions over *rules* build the groundwork for ethical thinking and behavior. Games and activities belong to children and are part of a deep child culture that links children together throughout the world. Children become self regulating human beings through the process of rule making which support children's growth and development (Devries & Zan). When children have a part in making their own rules, they are more likely to observe

them. Creative play is a central activity in the lives of healthy young children (Almon, 2003). Play is an independent culture that only children control (Ellis, 2008).

Recess and play hold an important part in improving a child's whole experience with school. The time assigned for free play at school is known as recess (Barros, et al.). Creative play is a natural part of the make-up of every healthy child (Almon, 2003). Children approach life with a playful spirit whether they are working on new physical skills, social relations, or cognitive content. Every child needs this time for free play, which fosters more exploration, building, discovering, and being healthy. Free spontaneous play gives children the opportunities for social-emotional and cognitive development that are rarely available in classroom work or even in structured physical education (Almon, 2003). It is a time when students can explore their own interests, and the less rigid setting enables them to collaborate and resolve conflicts on their own instead of following instructions as a teacher works out the problems. The creative spirit is one that flourishes in creative play. Research points to a number of important gains linked to a child's ability to engage in healthy, creative play (Almon, 2003). Unfortunately, in schools today the focus is so strongly on academic achievement that there is little or no time devoted to self-directed play (Almon, 2003). Schools can incorporate play-based learning activities that provide multiple ways for children to learn a variety of different skills and concepts, which lead children to feeling competent about their learning ability. Although these play based activities should be developmentally appropriate for the grade level of the students (Isenberg & Quisenberry, 2002).

Findings

The results of the findings of this study can be used to further the research in the area of recess in schools today. In the literature regarding the topic of recess and play, the issue of no recess policy schools is a growing concern of researchers and practitioners alike to the health and welfare of children today (Jarrett et. al, 1998). The physical, social and cognitive well being of the child depends upon the children having a means to engage in free spontaneous play (Elkind, 2009). By analyzing data from area schools, this study will provide potential evidence for the case of recess being an integral part of our schools curriculum. This information can be used as an informative tool for parents, educators, administrators, and legislators. Local advocacy groups have shown interest in this topic. This study will hopefully aid to advocacy information for recess.

Methods

Research was conducted in an inner-city school district where the amount of recess time varies from none to more than an hour a day for their students. The Teacher's Rating of Classroom Behavior (TRCB) was used to evaluate student's behavior (Barros et al., 2009). Subjects included Kindergarten students attending all day kindergarten. The focus of this study was to find out the effects of *recess* policies in schools upon children's behavior.

Procedure

As per University of Central Oklahoma policy, the procedure for this study was submitted to the Institutional Review Board before any surveys or questionnaires were distributed. Once this process was complete, data collection began. Surveys were

delivered to a total of 13 schools in the Oklahoma City public school district where recess policies vary, including some schools with no recess policies. These surveys will be completed by the classroom teacher of the students. The main outcome of the study will be the group classroom behavior which will be assessed by using the teacher's rating of classroom behavior (TRBC) contained in the teacher's questionnaire and a measure of how many minutes of recess and physical activity students have at school.

Definition of Terms

Play – Vygotsky defines play as a symbolic cognitive process that is vital to assisting in the child's development (Vygotsky, 1933).

Characteristics of Play – (Sluss, 2005) Play is...

- Voluntary
- Requires active involvement
- Free of external rules
- Symbolic
- Pleasurable
- Focus on action rather than outcome

Recess – The time assigned for free play at school, a break during the school day that allows children the time for active free play (Barros et al., 2009).

Physical Education classes - Classes scheduled throughout the school day that children participate in as a teacher directed, structured group activity.

Chapter 2 – Literature Review

Play

Free play is an aspect of child development that is essential to a child's healthy growth. Free spontaneous play allows children to explore their world in their own way. This *free play* is essential to the healthy development of a child's physical and social as well as cognitive maturation (Isenberg & Quisenberry, 2002).

The long-term consequences of the loss of play in early childhood are not known, but because play is one of the vital signs of health in children, pediatricians and psychologists are concerned with the loss (Miller & Almon, 2009). The primary goal of education is student learning and making this learning accessible to all children is a responsibility that all educators, families, and policymakers bear. There is an additional responsibility for all adults, the role of play as a crucial component to a child's optimal growth, learning and development is being challenged. All adults, educators and parents, must advocate strongly in support of play for all children (Isenberg & Quisenberry, 2002).

Early childhood educators hold a diverse knowledge, belief and practice about what play actually is (McLane, 2003). When asked to define play and its qualities, teachers, had varying answers to the question. Researchers have not asked what is recess and how does it relate to free spontaneous play (McLane). Analyses showed the teachers' responses emphasize play as enjoyable, pleasurable, and freely chosen by the child. The teachers identified such important qualities of play as open-endedness, lack of structure, and the opportunity for discovery and exploration. There were varying types of

play identified, solitary or several children in a group. Play was also defined as games varying in competition with or without forced adherence to peer culture norms (McLane).

The need for free spontaneous play is critical for a child's current and future healthy development (American Alliance for Health, 2006). Children have a right to play (U.N. Convention on the Rights of the Child, 1989). An example of legislation to reinforce this right is evident in the state of Michigan where a mandate on recess has been implemented (Lamphere, 2000). Play is the means by which children learn what they need to know in order to take their place as creative, responsible adults in our complex society (IPPA, the Early Childhood Organisation). Parents, educators and other professionals should become advocates for quality recess programs in their school and community to allow children a greater opportunity for play.

Definition of *Recess*

An important element in studying recess is defining what the term *recess* means. Recess is the time assigned for free play at school, a break during the school day that allows children the time for active free play (Pellegrini and Smith, 1993). Recess should be unstructured playtime where children have choices; develop their own rules for play and release energy and stress (American Alliance for Health, 2006). Key components of recess are that it should be unstructured and undirected.

Recess refers to a break in whatever one is doing, "a period of time away from the task at hand: an interlude, a change of pace" (Jarrett, et al., 1998). Some believe that recess disrupts the work patterns of children, causing inattentiveness, but these beliefs are not grounded in any research (Jarrett et al.). Others define recess as usually serving as a

double purpose: students are allowed to take a break, either indoors or outdoors, from academic work and are also allowed some freedom in choosing and engaging in an activity on their own terms (Fagerstrom & Mahoney, 2006; Pellegrini & Bjorklund, 1997).

Children's recess or break periods are said to be acknowledged cross culturally as an important time of the school day when children have the opportunity to engage in physical activity, conversations and activities with their peers, relatively free from adult intervention (Holmes, Pellegrini, & Schmidt, 2006). The Council on Physical Education for children defines recess as unstructured playtime where children have choices, develop rules for play, and release energy and stress. Inclusion of a deliberate time for children to play freely, absent from adult directed activities, can be called *recess*. During this recess time, children will develop behaviors that allow for self regulation skills to emerge. These skills are needed through all stages of development.

Recess is defined by Pellegrini and Smith (1993) as school recess or playtime is a break period, typically outdoors, for children. Most schools from preschool through elementary, have recess as a scheduled part of their day. Although recess is present, the number and duration of periods per day and the supervisory policies typically vary from one school to another (Pellegrini et al.). The definition of recess in this study will be the time assigned for free play at school, a break during the school day that allows children the time for active free play (Barros et al., 2009).

Recess is a time when children have opportunities to play and explore their world in a safe environment and to be creative. This time allows children to engage in high

level thinking which fosters cognitive development. Adults should encourage interaction of children that guide children toward solutions, but refrain from providing all solutions for them. Free play can look like *just playing* to the casual observer, but to the child play is developmentally important. Young children who do not participate in recess may have difficulty concentrating on specific tasks in the classroom and are restless or easily distracted. Stress caused by a number of factors, including a lack of recess, can have a negative impact on children. Children need a developmentally appropriate strategy to reduce this stress. These stresses can be reduced by including recess as part of a child's school day (American Alliance for Health, 2006).

Free play during recess has been recognized to be of importance for schoolchildren (Jarrett, et al.), and recess provides the opportunity for play. To be physically active, to talk with their peers, and to play freely is an important part of scheduling of recess periods (Jarrett). Unfortunately the vital importance of a child's play tends to be trivialized when it comes to the amount of recess times allocated in most schools today.

Problem of Diminishing Recess:

According to an unpublished survey conducted by the American Association of the Child's Right to Play, 40% of public schools have eliminated or are planning to eliminate one or more recess periods from the school day. Some schools are eliminating recess for more instructional time to meet curriculum goals. Another reason for decreasing recess is bullying and aggressive behavior which usually occurs during recess. These claims are not based on empirical findings or theory (Holmes et al., 2006).

Opponents of recess have raised concerns about aggressive play, playground bullies, and loss of time for academics. Proponents of recess express concern that many children do not have opportunities for free outdoor play outside of school hours due to scheduled activities or organized sports taking up the child's free outdoor play time (Frost, 2008).

Research literature documents that there is a positive role of recess on the on-task behaviors exhibited by primary grade children after recess breaks. The cognitive immaturity theory is one argument for the benefits of recess regimens. This theory predicts that young children will be more attentive after recess because they do not process information as effectively as older children. Young children benefit most from the breaks recess provides between focused classroom activities, which recess provides (Holmes et al., 2006). Another theory is the surplus energy theory, which refers to argument that as children sit for prolonged periods of time, they accumulate surplus energy. Physical activity in recess is necessary to use up their energy so that children can concentrate on more sedentary tasks of the classroom (Pellegrini et al., 1993). Both of these suggest that recess and play are essential for improving academic achievement, peer relations, and school adjustment.

One research study found in both of the classes studied children were less on task and more fidgety when they had not had a break (Jarrett et al., 1998). Children without recess think and work less efficiently when engaged in uninterrupted instructional time. This study was conducted in a school system whose policy did not allow the school children a normal recess break. The researchers were given permission to allow two classes to have 15-20 min. recess periods once a week. The children's behaviors on non-

recess and recess days were compared. As a result, children who had recess were better behaved than those who did not have recess (Jarrett et al., 1998). Others have explored varied recess times to determine the optimal timing and scheduling of recess for children to be effectively on-task (Fagerstorm & Mahoney, 2006). The results of their study showed that scheduling recess breaks directly before or after an academic lesson promotes more on task behaviors, such as children being more actively engaged in their work (Fagerstorm & Mahoney, 2006).

Literature by the National Association for Sport and Physical Education states that school recess should be provided at least once daily for > 20 minutes (American Alliance for Health, 2006). Recess provides children with time to self-regulate and opportunities to engage in physical activity (Barros et al., 2009). The effects of recess breaks on classroom behavior vary as to the length, frequency and type of activity the child participates in during recess. Recess should be a time for children to engage in free spontaneous play that is unstructured with little adult intervention (Pellegrini & Bjorklund, 1997).

Inactivity in childhood has proven to be a major risk factor for childhood health problems (Barros et al., 2009). Pediatricians should be advisors in their communities where they can advocate for free play in school and afterschool programs. They can also advise parents to learn about the amount of recess and physical activity provided by the school their child attends (Barros et al.). Because physical activity is important to a child's healthy development, parents should become aware of the issues associated with recess and play in their children's schools. Today many school children are given less

free time and fewer physical outlets at school. Brain-based research has found that children's brains are continually developing synaptic connections. Classrooms need to promote an environment that creates student expression and choice. This atmosphere allows for children to grow at an independent rate (Rushton & Juola-Rushton, 2008).

As a result of the testing policies No Child Left Behind Act of 2001, school districts have been reducing time committed to recess, the creative arts, and even physical education in an effort to focus on reading and mathematics (Barros et al., 2009).

Standardized testing is one of the narrowest measures of school success and one of the key elements of the No Child Left Behind movement. This focus of measurable school skills has been associated with high stakes testing (i.e. pass the test or repeat the grade) and is one of the reasons that play is eliminated from school activity (Frost, 2008). Since its passage in 2002 the NCLB and due to the 'high-stakes' riders attached to this legislation, educators at all levels have found themselves in a state of emotional and cognitive dissonance (Rushton & Juola-Rushton, 2008). One of the high stakes riders is that for voluntary Pre-K across the nation federal funding is being held back if young children do not score appropriately and know the correct ordering of numbers and sequence of letters (Stone, 2006). Therefore instead of using best practices as research shows, "teaching to the test" is prevalent in even the youngest of classrooms (Rushton & Juola-Rushton, 2008). Eliminating play and physical activity from school activity is directly in contrast to abundant research that demonstrates the many benefits associated with play (Frost).

A recent report from the American Academy of Pediatrics stated that every child deserves the opportunity to develop in a healthy way. Child advocates should consider all factors that interfere with optimal development and should advocate for circumstances that allow each child to gain the full advantages associated with play (Ginsburg, 2007). This same report states that free unstructured play is healthy and is essential for helping children reach important social, emotional, and cognitive developmental milestones, as well as helping them manage stress and become resilient. As children learn, they may develop anxiety, disappointment, or a lack of concentration. A vigorous outdoor play activity can help relieve the child's boredom or stress and satisfy their natural urge for adventure (Clements, 2004).

More research is needed on the long-term effects of recess on social development and academic achievement. As more evidence connects play and learning, school policies against recess may need to be reexamined. Researchers suggest that too little or too much outdoor playtime does not produce optimal and efficient learning environments that foster children's attention to classroom activities (Holmes et al., 2006). The continuation of this research may explore utilizing different tasks and observational time periods. Barros concludes that more research is needed to explore the appropriate balance between structured time and recess/physical activity for healthy child development (2009). An assessment of the effects of no-recess policies on students' behavior and academic achievements is needed to better understand the importance of free spontaneous play for children (Barros et al.).

Other research calls for additional investigation of strategic recess scheduling to better understand the importance of recess in elementary school curriculum (Fagerstrom & Mahoney, 2006). Instructional time without periodic breaks may be an inefficient use of instruction time. A break during the school day of more than 15 minutes was associated with better behavior as measured by scores of the TRCB (Barros et al., 2009).

The Alliance for Childhood urges that child-initiated play be restored to kindergarten (2009). Some educators may believe that play is a waste of time in school, or time away from learning (Miller & Almon, 2009). Children who experience more child-initiated play are more likely to have longer bouts of focused learning (Almon, 2003). Didactic highly structured classrooms include little or no play with teacher-led instruction and are likely to result in less learning (Miller & Almon). Parents may also need to be educated as to the appropriate balance of play and learning in the classroom and the value of play. Play has been shown in study after study. Young children are better prepared for school and life by participating in self selected play where they can discover more about creativity and themselves (Almon, 2003). Learning for children should not be separated from play, but it should emerge from it (Elkind, 2007).

Therefore, the first hypothesis of this study is that the amount of time spent in recess will be positively related to overall classroom behavior. As students have more time in recess throughout their week, they will behave better in the classroom.

Physical Education:

The Council on Physical Education for children recommends that recess should not replace physical education (American Alliance for Health, 2006). In some schools

today recess is replaced with physical education or specials classes. Physical education classes are teacher led games or activities which are very structured and do not allow children the free spontaneous play that they require, but do provide physical activity that may be beneficial and help with learning. Physical education (PE) has been the traditional means for promoting physical activity in schools, but some question if PE is enough to provide sufficient activity for notable health benefits (Ridgers, Stratton, Fairclough & Twisk, 2007). To develop a healthy mind and body that is capable of learning, children need a variety of movement experiences. Daily physical activity during school hours is critical for a child's current and future health (American Alliance for Health, 2006).

Therefore, the second hypothesis of this study is that the amount of time spent in PE will be positively related to overall classroom behavior. As students have more time in PE throughout their week, they will behave better in the classroom.

Conclusions:

These conclusions from studies all have a common focus; children need a break from their daily routines at school that allows for physical activity in which students have freedom to self-select different play or other activity choices. Washington State PTA has supported legislation that requires districts to create policies with community input to safeguard recess for elementary school children that ensures breaks for free play and physical activity (PTA, 2007). Washington's state labor laws require at least 20 minute breaks every two hours for every 4 hours worked by 14 and 15 year olds, thus the PTA believes that younger children should receive comparable breaks from classroom work (PTA, 2007). Education research attempts to answer the question of the need for breaks

through the school day in two theories. The first theory maintains that cognitive performance is increased when breaks inserted between periods of intense work is preformed (Pelligrini & Blatchford, 2002). These breaks play a role in the distribution of effort. The second theory states that when children are exposed to a series of demanding cognitive tasks, cognitive interference occurs with a result of decline in performance. Young children respond well to non-structured breaks to allow for the release of cognitive interference, whereas older learners benefit from simply changing tasks (Pelligrini & Blatchford).

As stated in the study by Ridgers et al., there is concern that physical education classes do not provide enough physical activity for optimal benefits. This an important example for keeping recess in schools. Recess time can be implemented to enhance the physical activity that children receive during PE classes.

Based upon this research evidence recess or free time should be incorporated into elementary and preschool program to aid in learning. Parents, teachers, administrators and legislators have the responsibility to create the best learning environment possible, including opportunity to play. Adults including teachers, administrators, and parents should be taught the importance of play for children. In the studies presented in this paper, the best interest of the child is providing a designated time for free spontaneous play. Based upon findings of this study, appropriate policy recommendations will be made regarding the need for recess.

Chapter 3- Methodology

Introduction

Based on the evidence existing in the literature regarding the importance of recess, this study investigated varying amounts of recess and physical activity in Kindergarten classes. The focus of the study will be the relationship between recess time and children's behavior in school.

Sample

This research was conducted in a metropolitan school district where the amount of recess time is appointed by each individual principal of the school and could vary from none to more than an hour a day break for their students. The comparison will be made between the amount of recess time children have and their subsequent behavior. Subjects included teachers of Kindergarten students attending all day kindergarten in the Oklahoma City Public School District. The sample consisted of 33 kindergarten teachers from 13 schools in the district. Random selection of the schools from the districts was used to identify which teachers would be asked to participate. Only inner city schools in the Oklahoma City school district were potentially included in this study.

Procedure

The procedures for this study were reviewed by the Institutional Review Board at the University of Central Oklahoma before any surveys or questionnaires were distributed. Permission was also gained from the Oklahoma City Public School district Department of Research and Planning. A letter was written to the researcher by Dr.

Richard Weeter, Administrator of Planning Research and Evaluation Department, giving approval for collection of the data.

Upon completion of the IRB process data collection began in February 2010. Surveys were taken to a total of 13 schools in the Oklahoma City public school district where recess policies varied, including some schools with no recess policies. These surveys were completed by the classroom teacher of the kindergarten students. The teachers were given four days to complete the survey. Teachers were given instruction in the form of a letter written by the researcher on how to complete the survey and that their participation in the survey was voluntary. Contact information for the researcher was also given to the teachers participating.

Follow up phone calls were made by the researcher to verify completion of the surveys, then a pick up day was scheduled. The researcher prepared thank you gifts for the teachers that completed the survey. These gifts consisted of a "100 Grand" candy bar and a dry erase marker with a note attached thanking the teacher for completing the survey.

One of the schools declined to complete the survey because they stated that they did not have recess for their children. The researcher asked if this was a policy of the school. The principal stated that it was up to the classroom teacher if the students were given a recess time. All of these teachers chose to keep the students in the classroom with guided activities or worksheets rather than to let the students participate in a designated recess time. This school had five kindergarten classrooms. During data collection no other groups reported zero minutes of recess. Informed consent form

(Appendix A) was signed by the kindergarten classroom teacher prior to completion of the survey. Data entry of all survey results was performed by the principle investigator.

Measurement

The main focus of the study was the group classroom behavior which was assessed by using an adaptation of the teacher's rating of classroom behavior (TRBC) contained in the teacher's questionnaire and a measure of how many minutes of recess and physical education students have at their school.

An adaptation of the TRCB scale (Appendix B) was given to each Kindergarten classroom teacher. This survey was used to report the student's behavior (Barros et al., 2009). This scale was originally created to evaluate classroom behavior. Sample questions included: Between the starting bell and the dismissal bell, how many times a day do children have recess? On a typical day, rate the group classroom behavior of your children.

In addition to these questions, the survey will ask about recess time (amount and frequency), PE time (amount and frequency), boy to girl class ratio, and class size. The following demographics were obtained from the teachers; the student's racial demographics, class size, and boy to girl ratio.

The main outcome of the study was the group classroom behavior which was assessed by using the teacher's rating of classroom behavior (TRCB). (See appendix F). Using the direction of the thesis committee, some additional measures of behavior were included. Teachers were asked to rate the behavior in their class according to the following questions:

How do they generally behave?

- Attentive listening
- Demonstrates self-control
- Sustains interest in a task
- Cooperates in group play and work time

This scale was combined to form an overall measure of behavior in the classroom.

Using a rating scale of 1 to 5 for each question with the following 1, is disruptive very frequently and is almost always difficult to handle; 2, is disruptive frequently and is often difficult to handle; 3, is disruptive occasionally; 4, cooperates well; 5, cooperates exceptionally well.

Analyses

Upon completion of the gathering of data, variables were created and a statistical analysis was completed. The relationships among recess, physical activity and student behavior were assessed using the Statistical Package for the Social Sciences (SPSS). Pearson Correlation Coefficients were used to explore any relationships that existed among the variables and the hypotheses were considered.

Chapter 4- Results

Demographics

This study investigated the association between the amount of recess and its effect on classroom behavior. Data for this study were collected from various classes from the Oklahoma City Public school district. Demographic data on race and ethnicity from the district indicate that students in this district are racially diverse with 30.2% African American, Asian 3.2%, Hispanic 40.2% Native American 5.3%, and White 21.8%. There are a total number of 57 elementary schools in this district. Of those 57 schools, 13 were randomly selected for this study. Of the schools selected the kindergarten classroom teachers reported the ethnic breakdown is as follows: African American 28.9%, Asian 3.5%, Hispanic 46.2%, Native American 4.9%, and White 16.5%. In comparison to the ethnic breakdown of the district, the sample collected for this project appears to be a fairly representative sample of the ethnic breakdown of the district, with slightly more Hispanic students and fewer White students.

Data were collected from a total of $N = 33$ kindergarten teachers regarding their students behavior. Each kindergarten class had an average of $M = 21.4$ ($SD = 3.2$) students, with classes ranging from 13 to 26 students. The average ratio of boys to girls in the class was $n = 11.3$ boys ($SD = 2.2$) and $n = 9.8$ girls ($SD = 3.0$). The actual sex ratio of boys to girls was determined for each class, and there were more boys than girls in 18 classes and more girls than boys in 10 classes. This ratio was calculated to control for behavioral differences that could be caused do to the gender composition of the class; however, none were found.

Time Spent in Recess and PE

Teachers reported that most classes had recess at least 1 time per day with an average of 30 minutes per day ($SD = 9.8$), and 3 times per week for between 30 and 60 minutes. The minimum minutes of recess per day reported were 15 with the maximum reported of 60 minutes per day. The average total weekly minutes of recess was $M = 140$ (SD of 48.9).

Additionally, teachers reported that most classes had physical education (PE) for an average of 45 minutes per day ($SD = 7.8$) and an average of $M = 121$ ($SD = 30.8$) total minutes per week. The minimum number of minutes of physical education per week was 45 with a maximum of 180 minutes.

By combining the total minutes spent each week in recess and PE, a measure of total weekly minutes of activity was created. The average total activity minutes per week was $M = 261.3$ (SD of 53.4), with a minimum of 150 minutes per week and the maximum of 390 minutes per week. This range offers great variability from 2½ hours a week to as many as 6½ hours a week of total activity. It is unclear why classrooms within the same school district would have such variability in the total time that students have for physical activities.

Overall General Behavior

To measure overall general behavior of the class, a variable was computed combining the responses to the question regarding attentive listening, demonstrates self-control, sustains interest in a task and cooperates in group play & work time. Teachers responded to each of these items on a Likert scale ranging from 1 to 5. The total was then

divided by the number of items to maintain similarity to the original scale of the instrument. The average overall general behavior for the classes was $M = 3.2$ ($SD = 0.8$). A response of 3 on the behavioral scale indicated that students were “disruptive occasionally” on average. Thus, students were reported as having slightly better than average behavior. The items for general behavior formed a reliable measure of behavior ($\alpha = 0.62$).

Additionally, teachers were asked to report their students behavior prior to and after recess. Although these variables were not used for this study, means for these were consistent with the literature that children are generally less well behaved before and right after recess, but can then sustain their attention longer as a result of physical activity once they calm down.

Associations among Recess, PE, and Overall Behavior

The first hypothesis of this study posited a positive relationship between minutes of recess and general classroom behavior; this relationship was not supported by the findings in this study ($r = -.09$, $p > .05$; see Table 1). The second hypothesis of the study, however, was supported, as a significant positive relationship was found between the total minutes of physical education and general classroom behavior ($r = .34$, $p < .05$), suggesting the positive influence of physical activity on children’s classroom behavior.

Additionally, a significant positive correlation existed between the total number of students in a class and the total weekly minutes of activity ($r = .30$, $p < .05$) and a trend between total number of students and total weekly minutes of recess ($r = .25$, $p < .10$). In other words, when class size was larger, students received more time for physical activity

(and potentially recess) compared to the amount of time smaller classes received.

Because total weekly minutes of activity was created by combining the total weekly minutes of recess and PE, it was correlated with both of them respectively ($r = .82, p < .01$) and ($r = .43, p < .01$)

Table 1

Intercorrelations among Independent and Dependent Variables

Variable	1	2	3	4	5
1. Total number of students	–	.25†	.11	.30*	.04
2. Total weekly minutes of recess		–	-.16	.82**	-.09
3. Total weekly minutes of PE			–	.43**	.34*
4. Total weekly minutes of activity				–	.11
5. Overall classroom behavior					–

** $p > .01$ * $p > .05$ † $p > .10$

Chapter 5 - Conclusions

Discussion

This study examined the possibility of a positive relationship between the amount of recess and PE time designated for students and kindergarten students' behavior.

Although a relationship between recess and classroom behavior has been found in other studies (Holmes, 2006; Jarrett et. al, 1998), it was not found in these data. The lack of correlation between classroom behavior and recess times could have been attributed to several causes.

The first of these is that the measure used in this study may have lacked the sensitivity and complexity needed to effectively measure classroom behavior. Teachers were asked for their overall, general impressions at one point in time. Perhaps daily logs, observational coding, or other methods of data collection may have more accurately represented the student's behavior. Norvell (2009) suggested additional questions could be asked when surveying classroom teachers about the influence of recess on behavior:

- How often should recess breaks occur?
- What is the optimal duration for recess break?
- At what times throughout the school day would recess breaks be most beneficial?
- Which activities provide the maximum benefit during recess break?
- Should recess break activities be free choice only, or should some type of structured and/or physical exercise be included?
- Do breaks need to be outdoors, or can indoor breaks be just as effective?

- Are breaks more advantageous for boys or girls, or do they benefit equally?
- What types of activities do children choose during recess breaks time?
- How do groups having recess breaks perform on standardized tests compared to those not having recess breaks?
- How do groups having recess breaks compare to those not having recess in regard to attention on task?
- How do groups having recess breaks compare to those not having recess breaks in regard to adjustment to school?

These questions need to be answered to convince administrators and politicians that recess breaks do, in fact, have a positive effect on children's behavior and ability to achieve at high levels (Norvell).

Second, it was anticipated that some of the teachers would report no recess time for their students, as teachers often set the policy regarding recess. Historically some have chosen to not have recess, and the school at which no recess was allowed the teachers refused to complete the surveys. The fact that there are classrooms in which no recess time is given to students is unfortunate, especially given the positive relationship between recess and behavior found elsewhere in the literature. This comparison group may have provided greater variability in the amount of recess and the potential relationship with overall classroom behavior.

Third, unfortunately, the weather during the time period in which data was collected was unusually cold and snowy for the area. As a result of the weather, recess

was often held indoors in the classroom and did not allow for much physical activity compared to recess on the playground. Previous studies on the relationship between recess and classroom behavior have posited the physical activity allowed during recess is likely the reason student's behavior is better (Holmes, 2006; Jarrett et. al, 1998).

Students in this study may not have had the opportunity for physical activity during the time of data collection as recess would have been held in the classroom rather than the playground when it was too cold (e.g., wind chill at or below 32 degrees Fahrenheit).

Fourth, the small size of the sample may have made it more difficult to determine the findings. Although 33 classrooms is not small number, this study may have lacked the sample size to determine effectively whether or not this relationship exists given the nature of the data and the timing of its collection.

Finally, another factor for the lack of correlation could have been the term *recess*. As documented in the literature, the terms *recess* and *play* are broadly defined. Thus, one teacher's perception of recess could be physical activity on the playground and another's may be free time reading or doing worksheets in the classroom. Without a distinction in behavior, teachers may have both indicated students as having participated in recess but the activity would have varied greatly.

Although no significant correlation existed between recess and overall behavior, the second hypothesis of the study was confirmed by a significant, positive relationship which existed between physical education (PE) and general overall behavior. This finding suggests that the more physical activity students engage in, the better their overall

classroom behavior. This finding may also offer some support to the first hypothesis of this study, where physical activity at recess could help with behavior.

Unlike recess, physical education is often held inside the building in a gym or other recreation room even when the weather is cold. Studies cited throughout this paper indicate that the addition of recess or physical activity to a child's daily classroom activity could promote more effective use of instruction time in the classroom (Jarrett, et al. 1998).

Another interesting finding from this study was the significant positive correlation and trend between the total number of students in a classroom and the total number of minutes of activity and recess, respectively. When class size gets larger, teachers are likely forced to offer more recess and PE time in an effort to improve student's overall classroom behavior. Given the current economic outlook within the state and a call for a 10% reduction in budgets and the number of teachers, class size will continue to grow. Teachers may need to effectively use recess to help the students overall behavior, given the larger class sizes on the horizon.

Finally, it is alarming that five classrooms refused to complete the survey because their children had no recess time. Even though policies exist to require some form of recess, some teachers find ways around the policy to keep children in the classroom. Although it may seem like their children would learn more if given more time in the classroom, the evidence is overwhelming that students need a break and physical activity to maximize their learning (Barros et al., 2009; Frost, 2008).

Previous Evidence in the Literature

Previous research has demonstrated a link between recess time and classroom behavior. In prior research, findings suggest that children think and work less efficiently when engaged in uninterrupted instructional time, meaning no recess break (Jarrett et. al, 1998). Others have suggested that too little or too much outdoor playtime does not produce optimal and efficient learning environments that foster children's attention to classroom activities (Holmes, 2006).

Norvell, Ratcliff, and Hunt (2009) suggested that early childhood professionals could use the information from their project to design their own investigations. A clarification of how recess breaks occur would be most beneficial to the education process, which could be gained from further investigations (Norvell, et al.).

Conclusion

Although the hypothesis of this study was not supported directly, a significant, positive association did exist between physical education and classroom behavior. More research with more sensitive or complex measures, larger samples, and multiple time-points of data collection would further provide more clear evidence of this finding. Additionally, more research is needed on recess practice, time and activity, and teacher's thoughts and beliefs about recess. These additional research methods and questions could demonstrate more effectively and precisely the association between physical activity and classroom behavior. The results of this study can be used to substantiate that physical education for kindergarten students has a positive effect on the overall general classroom behavior of the students.

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APPENDIX A

Lea May
6700 NW 220th Street
Edmond, OK 73025

November 16, 2009

Oklahoma City Public Schools
Research & Planning Department
George H. Kimball, Ph.D.
Planning, Research, & Evaluation
413 N. W. 12th St
Oklahoma City, OK 73103

Dear Dr. Kimball:

My name is Lea May. I am a graduate student in the Family Life Education program at the University of Central Oklahoma with an anticipated graduation date of May 2010. Enclosed is my research application for permission to conduct research in Oklahoma City Public Schools. I am requesting permission to administer a questionnaire to kindergarten teachers in approximately 10 metropolitan schools in the Oklahoma City area. This request is in line with my thesis proposal which I am currently working on in conjunction with my degree requirements.

My IRB application has been submitted to the University of Central Oklahoma Institutional Review Board pending approval. The IRB at UCO is requesting that I have tentative approval by the OKCPS for this research to be conducted. Please consider this request in the form of a letter stating tentative approval for the research to be conducted that I may give to the IRB for their approval of this research.

Sincerely,

Lea May
Graduate Student
University of Central Oklahoma
405-831-4677
lmay0923@sbcglobal.net

Enclosures:
Research Application
Teacher Questionnaire
Informed Consent Form
Introductory Letter

APPENDIX B

University of Central Oklahoma

Informed Consent Form

Research Project Title: The Effects of Recess on Kindergarten Student's Behavior

Researcher (s) : Lea May

A. Purpose of this research: To study the effects of recess on kindergarten student's classroom behavior.

B. Procedures/treatments involved: Questionnaire concerning the classroom behavior of kindergarten students completed by kindergarten teachers.

C. Expected length of participation: 10-15 minutes.

D. Potential benefits: Although no direct benefits to completing, data will help understand the importance of recess.

E. Potential risks or discomforts: None.

F. Medical/mental health contact information (if required): None.

G. Contact information for researchers and UCO IRB: Lea May 405-831-4677, University of Central Oklahoma, Dr. Jill Devenport, 405-974-5479.

H. Explanation of confidentiality and privacy: No identifying data of participant on survey. After completion of study, questionnaires will be destroyed. Electronic data will be deleted from the PI's computer and any paper data will be shredded upon completion of the study.

I. Assurance of voluntary participation: See affirmation below.

AFFIRMATION BY RESEARCH SUBJECT

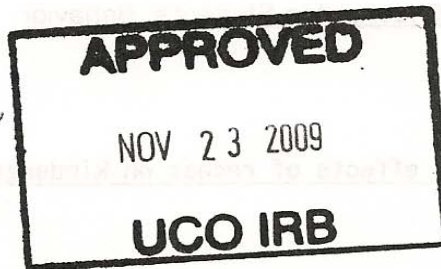
I hereby voluntarily agree to participate in the above listed research project and further understand the above listed explanations and descriptions of the research project. I also understand that there is no penalty for refusal to participate and I may refuse to answer any or all questions on the questionnaire. I am also free to withdraw my consent and participation in this project at any time without penalty. I acknowledge that I am at least 18 years old. I have read and fully understand this Informed Consent form. I sign it freely and voluntarily. I acknowledge that a copy of this Informed Consent Form has been given to me to keep.

Research Subject's

Name _____

Research Subject's Name: _____

Signature: _____ Date _____



APPENDIX C

Research Application to Oklahoma City Public Schools

Type or print neatly. Applications may be typed on a blank page with each question identified as numbered below. All statements and signatures must appear on the pages.

For assistance please call the Planning, Research, and Evaluation Department at (405)

297-6811. Applications for research are evaluated by a committee of district administrators selected on the basis of their relationship to the nature of the research. It is our intent to respond to research applications within four weeks, however, in some cases the actual response time may vary because of scheduling conflicts. Please note: research involving direct access to students is not scheduled after March 1.

(1) Project Title: The Effects of Recess on Kindergarten Student's Behavior

(2) Applicant's Name: Lea May

(3) Academic or Professional Affiliation (If Any) Graduate Student – University of Central Oklahoma

(4 a.) Applicant's Mailing Address: 6700 NW 220th Street

<u> Edmond </u>	<small>street</small> <u> Oklahoma </u>	<u> 73025 </u>
<small>city</small>	<small>state</small>	<small>zip</small>

(4 b.) Applicant's E-Mail Address: lmay0923@sbcglobal.net

(5) Home Phone Number: (405) 831-4677 (6) Work Phone Number: (405) 831-4677

Graduate students must complete questions 7 through 10, below.

(7) Dean of your College: James R. Machell, Ph.D., Dean

(8) Advisor's Name: Nathan Cottle, PhD.

(9) Advisor's Signature:

(10) Advisor's Phone Number: 405-974-5793

Involvement of Oklahoma City Public Schools

(11) Number of Subjects: Approximately 40 Kindergarten Teachers

(12) Subject Selection Criteria: Kindergarten Classroom Teachers in Metropolitan Oklahoma City Public Schools

(13) Total Instructional time per subject that will be required by this research: 10-15 minutes for questionnaire completion.

(14) OCPS Schools involved: Ten randomly selected metropolitan elementary schools in Oklahoma City

(15) When do you plan to conduct this research? December 2009

(16) What potential risks are there for participants in your research?
None

(17) What provisions have you made to reduce these risks and to provide services in the event participants are harmed in any way by your research?

n/a

(18) Are there any potential benefits to the participants?

Teachers will have a better understanding of the importance of recess as related to children's classroom behavior.

(19) Are there any potential benefits to the school system?

Administrators can use the information to make informed decisions about the inclusion of recess and

the benefits of recess for Kindergarten students.

(20) Research conducted in the Oklahoma City Public Schools shall be done under conditions of informed consent. State specifically how you intend to inform your participants of this condition.

An informed consent form will be included in the questionnaire to inform participants about the

participation in this study.

(21) State specifically how you intend to debrief the participants in this research:

A letter included with the survey will give information about the study as well as instructions on

completing the survey.

(22) State specifically how you will inform your participants they may withdraw at any time during the research:

The informed consent form states that the participant has the right to refuse participation and may

withdraw their consent and participation in this project at any time without penalty. The participants also have the right to refuse to answer any or all of the questions on the questionnaire.

Research Proposal

Please attach a formal, typed copy of your research proposal with these areas clearly identified and fully developed:

Purpose: Be concise but specific. Describe the problem you intend to study and your general research strategy.

Methodology: Describe exactly how you intend to conduct the research. Describe, in detail, the subjects, the materials, the experimental design, and the procedures.

Instruments: Your proposal should include a copy of any instrument that you intend to administer.

Your signature below indicates your agreement with the following statement: "I intend to conduct the proposed research in exactly the manner described. The data gathered will be used solely for the purposes of this research project."

(23) _____
applicant's signature

(24) _____
date

Please return four copies of this form and four copies of your research proposal to:

Oklahoma City Public Schools
Planning, Research, and Evaluation Dept.
413 N.W. 12th St
Oklahoma City, Ok 73103

APPENDIX D



Oklahoma City Public Schools
Planning Research and Evaluation Department
413 NW 12th Street, Oklahoma City, OK 73103
Phone: (405) 297-6776 Fax: (405) 297-6723

Dr. Richard Weeter, Administrator

email:rdweeter@okcps.org

Wednesday, January 13, 2010

Ms. Lee May
6700 NW 220th Street
Edmond, OK 73205

Dear Ms. May:

I am pleased to be able to notify you that the Oklahoma City Public Schools district has reviewed and approved your research proposal titled **"The Effects of Recess on Kindergarten Student's Behavior."**

On the basis of this district level approval, you may specify ten elementary schools to contact and arrange their participation. . If you know which schools you wish to contact, I can notify them that your research is approved and provide them with your research proposal. If you simply wish to contact schools at random, this letter should serve to indicate district approval. Please remember, school principals will determine whether or not their school will participate

All data collected must follow the guidelines, conditions, and timelines described in your proposal. Should you determine that you require any substantive changes in these procedures, please contact me at the number above. Good luck in collecting your data.

Sincerely,

A handwritten signature in black ink that reads "Richard Weeter".

Richard Weeter, Ph.D.

APPENDIX E

Dear Teacher:

I am a graduate student under the direction of Professor Nathan Cottle, Ph.D. in the Human Environmental Science Department at the University of Central Oklahoma. I am conducting a research study concerning the Effects of Recess on Kindergarten Student's Behavior. I am requesting your participation, which will involve completing a brief questionnaire which will take approximately 10-15 minutes to complete.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but no identifiable data will be used.

If you have any questions concerning the research study, please call me at (405) 831-4677 or by email at lmay0923@sbcglobal.net.

Sincerely,

Lea May
Graduate Student
University of Central Oklahoma

APPENDIX F

KINDERGARTEN TEACHER QUESTIONNAIRE

Date Completed: ____/____/____

Assurance of Confidentiality

Participation is voluntary. You may skip questions you do not wish to answer; however, we hope that you will answer as many questions as you can. No information collected under this authority may be used for any purpose other than the purpose for which it was supplied. Data will be combined to produce statistical reports. No individual data that links your name, address, telephone number, or identification number with your responses will be reported.

Dear Teacher,

This questionnaire asks about the characteristics of your class, and about the group behavior of the children in your class.

Please write your answers directly on the questionnaire, by circling the appropriate number or by writing your response in the space provided.

THANK YOU FOR YOUR HELP.

4. On a typical day, rate the overall group classroom behavior of your children **before** recess. CIRCLE ONE.

Group is disruptive very frequently and is almost always difficult to handle.....

1

Group is disruptive frequently and is often difficult to handle.....

2

Group is disruptive occasionally.....

3

Group cooperates well.....

4

Group cooperates exceptionally well.....

5

5. On a typical day, rate the overall group class room behavior of your children **after** recess. CIRCLE ONE.

Group is disruptive very frequently and is almost always difficult to handle.....

1

Group is disruptive frequently and is often difficult to handle.....

2

Group is disruptive occasionally.....

3

Group cooperates well.....

4

Group cooperates exceptionally well.....

5

6. Between the starting bell and the dismissal bell, how many times a day do children have recess? CIRCLE ONE NUMBER.

Once.....

1

Twice.....

2

Three.....

3

7. How many days a week do children have recess? WRITE NUMBER ON LINE.

8. In a typical day, how much time does your class spend in recess? CIRCLE ONE NUMBER.

- Do not participate in recess..... 1
- 1-15 minutes/day..... 2
- 16-30 minutes/day..... 3
- 31-60 minutes/day..... 4
- More than 60 minutes/day..... 5

9. How many times each week do children in your class usually have physical education. CIRCLE ONE NUMBER.

- Never..... 1
- Less than once a week..... 2
- Once or twice a week..... 3
- Three or four times a week..... 4
- Daily..... 5

10. How much time each day do children in your class usually spend when they participate in physical education? CIRCLE ONE NUMBER.

- Do not participate in recess..... 1
- 1-15 minutes/day..... 2
- 16-30 minutes/day..... 3
- 31-60 minutes/day..... 4
- More than 60 minutes/day..... 5

Although behaviors by student vary, please reply to these questions considering the overall general classroom behavior of your students.

11. Please rate your students' overall class-room behavior according to the following categories.

How do they generally behave?

- Attentive listening.....
- Demonstrates self-control.....
- Sustains interest in a task.....
- Cooperates in group play & work time.....

How do they generally behave *before* recess?

- Attentive listening.....
- Demonstrates self-control.....
- Sustains interest in a task.....
- Cooperates in group play & work time.....

How do they generally behave *after* recess?

- Attentive listening.....
- Demonstrates self-control.....
- Sustains interest in a task.....
- Cooperates in group play & work time.....

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Attentive listening.....	1	2	3	4	5
Demonstrates self-control.....	1	2	3	4	5
Sustains interest in a task.....	1	2	3	4	5
Cooperates in group play & work time.....	1	2	3	4	5
How do they generally behave <i>before</i> recess?					
Attentive listening.....	1	2	3	4	5
Demonstrates self-control.....	1	2	3	4	5
Sustains interest in a task.....	1	2	3	4	5
Cooperates in group play & work time.....	1	2	3	4	5
How do they generally behave <i>after</i> recess?					
Attentive listening.....	1	2	3	4	5
Demonstrates self-control.....	1	2	3	4	5
Sustains interest in a task.....	1	2	3	4	5
Cooperates in group play & work time.....	1	2	3	4	5