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## THE EFFECT OF A PHYSICAL EDUCATION GAMES UNIT ON CHILDREN'S PARTICIPATION IN NEIGHBORHOOD PHYSICAL ACTIVITY

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## ABSTRACT OF THESIS

### THE EFFECT OF A PHYSICAL EDUCATION GAMES UNIT ON CHILDREN'S PARTICIPATION IN NEIGHBORHOOD PHYSICAL ACTIVITY

Many strategies to increase children's physical activity have been studied, noted and implemented. It is important that physical educators realize their role in increasing physical activity both in school and outside of school. In order to promote physical activity outside of school it is important to understand what types of physical activities in which children enjoy participating. This study manipulated specific games taught in physical education classes and then explored how many and what types of these activities were continued in out-of-school free play at home in the children's neighborhood. The students' activities increased after the intervention, especially the activities taught in the Physical Education class. Activities tended to take place closer to their homes and required little to no equipment. A majority of students enjoyed playing outside for at least one hour per day. A pre and post 7-day activity survey showed activity frequency increased after a games unit was taught in physical education class.

KEY WORDS: Physical Education, games outdoors, neighborhood, children, home

Beth Erin Eddy

April 15, 2011

THE EFFECT OF A PHYSICAL EDUCATION GAMES UNIT ON CHILDREN'S  
PARTICIPATION IN NEIGHBORHOOD PHYSICAL ACTIVITY

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THESIS

Beth Erin Eddy

The Graduate School  
University of Kentucky

2011

THE EFFECT OF A PHYSICAL EDUCATION GAMES UNIT ON CHILDREN'S  
PARTICIPATION IN NEIGHBORHOOD PHYSICAL ACTIVITY

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THESIS

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A thesis submitted in partial fulfillment of the  
requirements for the degree of Master of Sciences  
College of Education  
at the University of Kentucky

By

Beth Erin Eddy

Lexington, Kentucky

Director: Dr. Heather Erwin, Professor of Kinesiology and Health Promotion

Lexington, Kentucky

2011

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To my family:

my children, Brynn, Brylee, and Brennan

and my husband, Brian.

All wondered if I would ever step out from behind the computer.

## ACKNOWLEDGEMENTS

The following thesis, while an individual work, benefited from the insights and direction of several people. First, Dr. Heather Erwin, who patiently guided me through the many steps of thesis writing and researching. Her insights and guidance allowed me to complete this project on schedule. In addition, Dr. Mark Abel for his expertise in analyzing data. He greatly reduced my stress-level at a key moment in my thesis writing. Next, I wish to thank the complete Thesis Committee: Dr. Mark Abel, Dr. Aaron Beighle, and Dr. Heather Erwin. Each individual provided insights that guided and challenged my thinking, substantially improving the finished product.

In addition to the technical and instrumental assistance above, I received equally important assistance from family and friends. My husband, Brian Eddy, provided on-going support throughout the thesis process, as well as technical assistance critical for completing the project in a timely manner. My parents, Jeanne and Jerry Garchek, instilled in me, from an early age, the desire and skills to obtain the Master's. Finally, I wish to thank the parents, 5<sup>th</sup> graders, and teachers involved in my study (who remain anonymous for confidentiality purposes). Their comments and insights created an informative and interesting project with opportunities for future work.



## TABLE OF CONTENTS

Acknowledgements.....	iii
List of Tables.....	vi
Chapter I: Introduction.....	1
Chapter II: Background Literature Review.....	4
Play.....	4
Physical Activity Influences.....	7
Environmental.....	8
Social.....	10
Physical.....	12
Chapter III: Methodology.....	15
Participants.....	15
Instruments.....	16
Procedures.....	16
Statistical Analysis.....	20
Chapter IV: Results.....	21
Introduction.....	21
Participant Information.....	21
Types of Physical Activities.....	21
Activity Location.....	23
Time Spent in Outdoor Physical Activity.....	23
Equipment Used.....	23
Parental Involvement.....	24
Comparison of Outdoors Play from the Previous Year.....	24
Pre and Post Outdoor Neighborhood Activities Survey Cumulative.....	24
Pre and Post Comparison of Boxball Activities.....	25
Pre and Post Comparison of Palm Boxing Activities.....	25
Pre and Post Comparison of Trigon, Mimsy, and Hit the Penny.....	26
Summary.....	26
Chapter V: Discussion.....	27
Home.....	27
Play.....	28
Equipment.....	29
Parental Support.....	29
Enjoyment.....	30
Limitations.....	30
Conclusion.....	31
Future Studies.....	32
Implications.....	32
Summary.....	33
Appendices	
Appendix A: Questionnaire Examples.....	35
Children’s After-School Play Outdoors Questionnaire- Child.....	35
Children’s After-School Play Outdoors Questionnaire-Parent.....	41

Appendix B: Outdoor Neighborhood Activities Log (ONAS).....	47
Appendix C: Games Taught.....	48
References .....	53
Vita .....	64

## LIST OF TABLES

Table 3.1, Description of Parent-Reported Correlates of Outdoor Activity .....	17
Table 3.2, Description of Child-Reported Correlates of Outdoor Activity.....	18
Table 4.1, Types of Physical Activities.....	22
Table 4.2, Activity Location.....	23

## **Chapter I: Introduction**

Beyond motivating physical education students and helping them to increase their perceived competence as movers, physical educators must set the tone and provide opportunities for activity outside of physical education programs (Centers for Disease Control and Prevention, 1997). Many strategies to increase children's physical activity have been studied, noted and implemented. They range from a Hierarchy of Independent Physical Activity (Hill, 2009) to intervention studies such as those discussed by Brunton et al. (2005) as well as teacher, school and community-based programs. Physical education can be an important means by which children's physical activity levels can be affected (Wallhead & Buckworth, 2004). It is important that physical educators realize their role in increasing physical activity both in school and outside of school. Providing children with a diverse range of physical activities from which to choose appears promising, as does emphasizing those aspects of participating in physical activity that children value (Brunton et al., 2005). The types of activities children engage in outside of school are of important significance especially since physical activity participation during discretionary periods has the potential to make a significant contribution to children's overall activity levels (Beighle, Morgan, Le Masurier, & Pangrazi, 2006).

Leisure time play outdoors has greatly diminished over the years (Clements, 2004; Hofferth, 2009). Children today do not know how to play outside as well as they did 20 years ago. This is due in part to the technological revolution (Stanford Report, 2007). The increase in home technology products has contributed to the decline of play outdoors (Committee on Physical Activity, 2005; Clements, 2004). Perhaps children need

a little push in the right direction to get them playing outdoor games again, using their imaginations, and playing with other children.

Games and activities during active free play are chosen by children because they enjoy the activity and the social environment surrounding the activity (Jago et al., 2009; Stanford Report, 2007; Sallis et al., 2002). In order to promote physical activity outside of school it is important to understand the types of physical activities in which children enjoy participating. Studies have shown a decline in children's physical activity as they progress into adolescence and toward the end of their school years (Butcher, 1983; Sallis et al., 2002; Zakarian et al., 1994). There is a concern that the nature of physical activities promoted in schools may be valued to a greater extent by boys (Barnett et al., 2009). In a study by Veitch et al. (2008) it was found girls had more independent mobility than boys. This leads one to believe girls are more active than boys at home in their neighborhood. Research says differently. Further examination into children's out-of-school physical activities may shed light on activities enjoyed by both boys and girls. This could benefit the curriculum teachers choose to follow when promoting physical activity.

Another factor for physical educators to consider is where the children are physically active outside of school. Previous studies point to the yard at home followed by the street (most notably cul-de sacs and courts) and finally public open spaces (Veitch et al., 2006). Parental safety concerns limit the opportunities for outdoor play of elementary-aged children. This impacts the child's level of independence, social aspects and attitudes to active free-play (Veitch, et al., 2006).

The purpose of the study was investigate whether or not a games unit taught in physical education would impact the activities children participated in at home in the

neighborhood. It was hypothesized physical activities requiring little or no equipment, perceived as enjoyable by the children, and able to be performed in close proximity to the children's homes would be the most likely activities to take place during free play outside of school.

The study focused on activities taught in a physical education games unit to fifth grade students. Students and parents completed questionnaires documenting the activities. Comparisons were made with regards to teacher taught activities, student enjoyment of physical activity, where the activity took place, how long the children played outside, where the children played, equipment used, parent involvement, and if outdoor play was perceived as safe. It was speculated physical activities requiring little or no equipment, perceived as enjoyable by the children, and able to be performed in close proximity to the children's homes would be the most likely activities to take place during free play outside-of-school. It was hoped these types of activities would help children regain some independence with regards to physical activity choices. It was also hoped parents or caretakers would engage in physical activities with their children and possibly suggest physical activities from their childhoods.

Limitations of the study include after-school care, sample size, weather, class schedules, and team sport participation. The study does not intend to research activities at recess or after-school daycare programs. It is assumed both boys and girls will take part in the study and each class will follow the same lesson plan.

## **Chapter II: Review of the Literature**

Over the past 20 years researchers have demonstrated a shift in attitudes toward play and physical activity in youth. Participation of children ages 6-12 in activities such as visiting, sports, and time out of doors declined between 1997 and 2003 (Hofferth, 2009). Data from *America's Children: Key National Indicators of Well-Being, 2009* indicate an increase of overweight children ages 6-17. The percentage has increased from 6% in 1976 to 17% in 2006. This trend toward youth obesity and physical inactivity is very serious. It is imperative researchers explore what will be successful in motivating children to move. The environmental, social and physical aspects on children's physical activity continue to be explored. Further inquiries into children's physical activity during non-curricular time are also warranted since it is often a time of free play for youth. Successful interventions addressing children's preferences for physical activity will add an important component to the research already in place.

### **Play**

According to research it seems children today seldom use "play" in the same context as generations past. Unfortunately this shift in children's "play" has greatly contributed to today's obesity in youth (US Department of Health and Human Services, 1996). Children are choosing sedentary play activities because activities involving video games, computers and television are readily available and very appealing (Stanford Report, 2007; Clocksin, Watson, & Ransdell, 2002). Today, televisions and computers can be found in multiple areas of the home (Corporation for Public Broadcasting, 1993). Parents also identify fear of physical harm as a reason why children spend less time playing outdoors (Carver, Timperio, & Crawford, 2008; Clements, 2004 ). In many

communities, children cannot play safely outside of the home because of increased violence or other environmental dangers (Kenneth Ginsberg, and the Committee on Communications and the Committee on Psychosocial Aspects of Child and Family Health, 2007) Another study notes the increase in anxiety about safety and security since the World Trade Center attacks in 2001 (Hofferth, 2009). Neighborhoods today are not always built with play, socialization and access to schools and playgrounds in mind (Tucker et al., 2009; Veitch, Bagley, Ball & Salmon, 2006).

According to data from recent research it seems today's children have become comfortable coming home from school and plopping down in front of the television or computer screen (Anderson & Butcher, 2006; Corporation for Public Broadcasting, 1993; Roberts, Foehr, Rideout, & Brodie, 1999). According to William Dietz, the CDC's Director of Nutrition and Physical Activity, "given kids' ready access to technology (and harried lives of their parents), it's highly unlikely that they will, of their own accord, return to afternoons of free play". Parents or caretakers can more easily keep track of their children and know they are safe when they are indoors (Veitch, J. Salmon, J., and Ball, K., 2008). This "convenience" has become a habit. Unfortunately people do not realize they are doing children a disservice. As Sallis and colleagues (Sallis, Prochaska & Taylor, 2000) note, there is a much greater chance a child is going to be dangerously overweight from staying inside than he is going to be abducted. In an influential article, Clements (2004) discovered several findings pertaining to the status of outdoor play. They are as follows:

1. Children in the USA today spend less time playing outdoors than the previous generations.



2. Children engage in different outdoor activities from the previous generation.
3. Children take part in more indoor play activities than outdoor play activities.
4. Obstacles to playing outdoors focus on the child's increased use of television and computers in the home.
5. Mothers recognize the benefits of outdoor active play.

This leads to several questions about children's physical activity outdoors:

1. What activities do the youth of today participate in during leisure time?  
Why are these activities different than those of their parents?

According to Clements (2004) children today still like tag, jump rope, hopscotch, and a variety of street games using child-initiated rules. Perhaps researchers today can build upon this.

2. How can interventions be designed to thwart the "indoor" tendencies of children and accentuate the "outdoor"?
3. Do parents and older siblings still teach the neighborhood games they grew up with as children?

Little research has been done combining these factors as a whole. What is known according to the literature is that play, specifically outdoor play, is linked to increased physical activity (Sallis, Prochaska & Taylor, 2000). Outdoor play during children's discretionary time may be a low-cost, easily implemented strategy to promote physical activity (Cleland, V., Timperio, A., Salmon, J., Hume, C., Baur, L., & Crawford, D., 2009).

Increasingly research has shown how this physical inactivity has greatly affected our children's obesity levels and health risks (Freedman, D., Srinivasan, S., Valdez, R., Williamson, D. & Berenson, G., 1997; US Department of Health and Human Services, 1996). It is imperative for the word "play" to return to its former glory. It may require some modifications to accommodate the new technology of today, but in order to influence children's obesity levels, play should definitely involve increased physical activity.

Further research is needed in order to find what will work best with today's youth to promote physical activity. It is known from the literature that it is important to examine children's play activities, play times, and play environments and their influence on youth physical activity levels.

Play for the purpose of this paper is defined as: free time activity, which can be structured, is self-chosen, intrinsically motivated and self-directed (Gray, 2008; Xie, 2004).

### **Physical Activity Influences**

It is important to note physical activity influences are perceptions of environmental, social and physical factors. Much of the research that has been conducted involves questionnaires or surveys presented to children and adults. The data from these questionnaires is then compiled with regard to the answers given on the questionnaires. Some of the studies also measure physical activity objectively using instruments such as pedometer or accelerometers. There is a mix of self-report and objective physical activity measures, which may impact the validity of the data. Environmental, social and physical predictors of physical activity will be described.

## **Environmental**

Home and neighborhood environment and their correlation to youth physical activity have been the subject of much research. Built environment, in particular, has been a popular topic. Built environment refers to the design of the neighborhood (Tucker, Irwin, Gilliland, He, Larsen and Hess, 2009). This includes items such as sidewalks, walking paths, access to a playground, a recreational facility, connected street systems, and cul-de-sacs. Research has shown increases in physical activity in neighborhoods where these are readily accessible (Hume, Salmon & Ball, 2005; Motl, Dishman, Ward et al., 2005; Tucker, Irwin, Gilliland et al., 2009). One study identified children having a recreational facility in their neighborhood as being more active after school than children without facilities (Tucker, Irwin, Gilliland, He, Larsen and Hess, 2009). Other studies note neighborhoods which were aesthetically pleasing and providing places to go were most strongly associated with out-of-school physical activity (Evenson, K., Scott, M., Cohen, D., and Voorhees, C., 2007). Children have a variety of places to play. In two studies, the first noted the yard as the most frequently reported location for children's active free-play followed by street, then public open spaces (Veitch, Bagley, Ball, & Salmon, 2006). The second, more recent study again noted the yard as the most frequent place for play, however this was followed by the park/playground, and finally a friend's or relative's yard (Veitch, Salmon, & Ball, 2008). All of these venues are outdoors and have been consistently upheld in literature as a positive influence for physical activity levels in children (Sallis, Prochaska & Taylor, 2000).

Next, the topic of neighborhood safety will be addressed in light of environmental influences. It is suggested neighborhoods perceived as unsafe for whether it is crime-

related or traffic related might hinder physical activity (Motl, Dishman, Ward, et al, 2005). Perceived neighborhood safety has been noted by parents and youth in several studies as a determining factor for physical activity outside (Crawford, Timperio, Campbell, et al., 2008; Hume, Salmon, & Ball, 2005; Motl, Dishman, Ward, et al, 2005). One could assume young children in a neighborhoods perceived as safe are better able to assert their independence since barriers such as busy traffic, crime, and threat of intimidation by older children are diminished (Brunton, Thomas, Harden, et al, 2005). The study by Veitch and colleagues (Veitch, Bagley, Ball & Salmon, 2006) indicated children in courts or cul-de-sacs were more likely to play independently and unsupervised by adults. This corresponds with the research about limited play outdoors due to lack of time by parents. Researchers need to be mindful of both the barriers and advantages when proposing interventions in neighborhoods. Providing a safe place to be physically active or activities which can take place in smaller areas might be strategies to utilize.

The final aspect of the home and neighborhood physical activity environment to be discussed is the availability of equipment and how it affects children's physical activity. Children possess creative minds, which foster imagination (Almon, 2009). For example, one may pick up a stick and magically it becomes a sword or a fairy wand. Of course not everyone is fortunate enough to have a tree which provides these branches. This is also true of equipment for physical activity. However, children can be very innovative with what they do have. Pieces of drywall can be used as chalk, a crushed aluminum can or coffee can serves as something to kick, pebbles as marbles, and any kind of rope can be used to jump over if it is long enough. Access to equipment has been found to promote both physical activity and increase self-efficacy (Motl, Dishman, Ward

et al., 2005; Tucker et al., 2009). Teaching children games to play using little or no equipment may help overcome this barrier for some children who lack resources. It may also be beneficial to show children how to make equipment using common household items (Manross, 1996; Moss, 2004). For example, a nylon stocking pulled over a bent hanger can serve as a racket to strike a ball.

## **Social**

Peer groups, parents, family and gender are all social factors influencing youth activity. A review of the literature indicated peer support of physical activity highly correlated with youth participation in physical activity ( Hohepa, Scragg, Shofield et al., 2007; Jago et al., 2009; Sallis, Taylor, Dowda et al., 2002; Thompson, Rehman, & Humbert, 2005; Van Der Horst, Paw, Twisk et al., 2007). Many studies found friendship groups affect both the initiation and maintenance of youth physical activity as well as exert considerable influence on youth physical activity behaviors (Jago et al., 2009; Sallis, Taylor, Dowda et al., 2002). Children tend to play outside more often if they have friends to play with (Veitch, Bagley, Ball & Salmon, 2006). This coincides with other recent research findings which link social support and peer acceptance to physical activity of children. Furthermore, the enjoyment of the activity has been consistently upheld in physical activity research. In team-based games, team members who lose together may feel some compensation in the experience of collective effort and camaraderie. Therefore, an emphasis on fun of playing the game, the exercise of improved skills in completing increasingly difficult games, and the celebration of completion might provide children with some balance when they lose a game (Xie, 2004). Play is self-chosen, it is the process that motivates, not the product (Gray, 2008).

Play can be structured or unstructured. An activity may start as an unstructured impromptu game and then evolve to something with a little more structure. Structured play can easily be modified by children to allow for continued enjoyment. Freedom to quit the activity is important (Gray, 2008). Children respond better when they are offered choices and participate in activities which are enjoyable (Building "Generation Play": Addressing the crisis of inactivity among America's children, 2007). Strategies to incorporate free-choice, independence and enjoyment should be emphasized (Clements, 2004).

Physical education classes play an important role in motivating children to be physically active. Several research studies have addressed strategies for increasing physical activity both in school and out of school. Results indicate introducing a variety of activities in physical education classes will give students the confidence to participate in a variety of activities outside of class (Faber, Kulinna, & Darst, 2007). A critique of variables targeted in several large-scale physical activity promotion programs involving physical education classes noted perceived physical competence and enjoyment of physical activity as the top-rated modifiable correlates for youth physical activity (Wallhead & Buckworth, 2004). If physical educators provide their students with a wide variety of choices especially for activities outside of physical education class, the students will be more likely to continue participating in these activities as an adult (Hill, 2009). These fun and enjoyable activities may even carry over to the student's role as a parent or caretaker later in life. The games and skills one enjoyed as a child could be taught to younger siblings initially and to one's own children in the future. This leads to the next social influence: family.

Family life and parental support have also been recognized as key factors influencing youth physical activity. Parent encouragement is a significant enabler (Brunton, Thomas, Harden et al., 2005; Thompson, Rehman, & Humbert, 2005). Parents are the ones enforcing rules such as the no television rule. Parents give permission for children to go out and play. Parents drive or accompany their children to sports practices and playgrounds. A recent study which interviewed children of varying ages noted the strongest influence on youth leisure activities in elementary school children were the parents (Thompson, A., Rehman, L., & Humbert, L., 2005), and most specifically, parental support for being active (Hohepa, Scragg, Shofield et al., 2007; Sallis, Prochaska & Taylor, 2000; Thompson, Rehman, & Humbert, 2005; Van Der Horst, Paw, Twisk, & Van Mechelen, 2007). Parents provide their children with the opportunity and the ability to play. Parents can be effective models for physical activity. Just as with peer influence, parents who are enjoying a physical activity are sure to affect their children's attitudes toward that physical activity. Further research is warranted using a multi-component approach regarding parental support and encouragement (Anderssen & Butcher, 1992; Brunton, Thomas, Harden et al., 2005; Van Der Horst, Paw, Twisk, & Van Mechelen, 2007).

### **Physical**

The final physical activity influences to discuss are physical. The physical competence of youth and their use of non-curricular and discretionary time will be addressed. A learner's past experience is extremely important in acquiring a new skill (Fischman, Christina, & Vercruyssen, 1982). What key factors influence the decision to continue working on a skill or taking part in an activity? Enjoyment, optimal challenge,

perceived competence and social support were the most likely contributors to the continuing practice of the skill (Mandigo, Holt, Anderson, & Sheppard, 2008). Perceived competence or eventual mastery of the skill probably provided the motivation to add it to a repertoire of skills. This is exactly why research links the factor of physical competence to youth physical activity. Children who perceive themselves as physically competent or coordinated in fundamental motor skills were more likely to stay engaged in physical activity (Jago, Brockman, & Fox et al., 2009; Sallis, Taylor, & Dowda et al., 2002; Salmon, Ball, & Crawford et al., 2005). In a systematic review of intervention studies those interventions targeting an increase in MVPA during school break periods were overall successful (Jago & Baronowski, 2004). The study showed an increase in habitual physical activity which may have been due to:

1. The exposure to new activities motivated them.
2. Interventions led to improvements in activity skills and self-efficacy.
3. Recording individual activity led to a focus on physical activity that motivated students to increase their participation in physical activity.

The results suggest the increased skill level (or perceived increase) may possibly influence activity outside of school during non-curricular free time. Children's discretionary time or free time according to several studies can be an important time for increasing physical activity (Beighle, Morgan, LeMasurier, & Pangrazi, 2006; Jago & Baronowski, 2004).

In conclusion, studies of youth correlates of youth physical activity are important because they can answer basic questions about likely influences on the behavior and can inform the design of intervention studies (Sallis, Taylor, & Dowda et al., 2002).. Future



research may want to examine different combinations of the factors influencing youth physical activity. Perhaps as Beighle et al. (2006) suggested, the physical education teacher can teach games that focus on inclusion, low organization, and maximal activity. However, instead of teaching these for a recess environment, they could be taught with the intent of children playing them at home in their neighborhood. In a study by MacPhail et al. (2003) it was noted the Sport Education experience in physical education class does, to some extent, complement and reproduce existing practices of sport outside of school. It is possible this same type of transfer of learning could occur using a Games Unit taught in physical education class. It would also be beneficial to note parent and peer influence on game-play in the neighborhood. . Therefore, the purpose of this study was to examine the effect of a physical education recreational games unit on children's neighborhood participation.

### **Chapter III: Methodology**

The study focused on activities taught in a physical education games unit to fifth grade students. Students and parents completed questionnaires documenting the activities. Comparisons were made with regards to teacher taught activities, student enjoyment of physical activity, where the activity took place, how long the children played outside, where the children played, equipment used, parent involvement, and if outdoor play was perceived as safe. It was hypothesized physical activities requiring little or no equipment, perceived as enjoyable by the children, and able to be performed in close proximity to the children's homes would be the most likely activities to take place during free play outside-of-school. It was hoped these types of activities would help children regain some independence with regards to physical activity choices. It was also hoped parents or caretakers would engage in physical activities with their children and possibly suggest physical activities from their childhoods.

#### **Participants**

There were 47 5<sup>th</sup> grade students (n=23 boys and 24 girls) from one elementary school located in Kentucky with an average age of 10.21 years (SD=0.46). This grade level was chosen because intermediate aged children on the verge of adolescence have a tendency to decrease in physical activity levels. This age group was also chosen because many previous questionnaires start at the age of 10, therefore reliability and validity has not been demonstrated in children younger than 10. The data used for this study were collected during the fall of 2010 in order to encourage outdoor play. Students returning their consent forms participated in the study. Approval of the Institutional Review Board and other appropriate ethics committees was sought prior to the study. Parents or

guardians were also provided written informed consent which was approved by the University of Kentucky Office Of Research Integrity. The child participants also provided their assent for participation prior to data collection.

### **Instruments**

Data collection instruments included questionnaires for children and parents/guardians, as well as a neighborhood activity scale for students. The questions were adapted from the Children's Physical Activity Questionnaire (C-PAQ), Youth Physical Activity Questionnaire (Y-PAQ), Health and Social Survey of Quebec Children and Youth (Barnett, O'Loughlin, & Gauvin et al., 2009), a survey administered by Clements (2004) and a 3-day physical activity recall (3DPAR) (Motl, Dishman, & Ward et al., 2005). These questionnaires were reported as valid and reliable in previous research (Booth et al, 2002; Hume, Ball & Salmon, 2006; Sallis, Buono & Roby, 1993; Treuth, Hou & Young, 2005; Veitch, Salmon & Ball, 2009; Weston, Petosa & Pate, 1997) See Appendix A for the questionnaires and activities scale.

### **Procedures**

Data were collected over a one month period of time. Free-play physical activity was defined as any physical activity taking place outside of the school day (at home or in the neighborhood). During initial visits, objectives of the study were explained to children by their physical education teacher in their physical education classes. The teaching of a recreational games unit was not mentioned prior to its introduction in physical education class. Children were given a packet including a letter describing the research, informed consent, a child questionnaire and a parent questionnaire. The

questionnaires addressed several variables. Percentage values were calculated. More than one activity could be checked. The percentage of all participants and parents indicating participation in an activity were reported. The percentage of all participants and parents indicating activity at each of the locations it also noted. Table 4.2 See Table 3.1 for parent-reported correlates of outdoor activity. See Table 3.2 for child-reported correlates of physical activity.

**Table 3.1**-Description of Parent-Reported Correlates of Outdoor Activity

Variable name	# Items (Question #)	Description, sample items
<i>Environmental</i>	5 (4,5,6,7, 8,)	Where play outside? Neighborhood safety Equipment available
<i>Social</i>	4 (11,12,13)	Preferences for play With individual? Group? Siblings?
<i>Parental Influence</i>	4 (9,14,15,16)	Encouragement Did parent like playing outdoors? Did parent teach child games?
<i>Physical</i>	4 (2,18,19,20)	Enjoyment Confidence/Self-efficacy Parent/Peer perceptions

**Table 3.1 continued**-Description of Parent-Reported Correlates of Outdoor Activity

Time	4	Time spent outdoors
	(1,3,10,17)	Increase/decrease
		Activities played outside

**Table 3.2** Description of Child-Reported Correlates of Outdoor Activity

Variable name	# Items (Question #)	Description, sample items
<i>Environmental</i>	5	Where play outside?
	(4,5,6,7,8)	Neighborhood safety
		Equipment available
<i>Parental Influence</i>	2	Encouragement
	(9,15)	Did parent like playing outdoors? Did parent teach child games?
<i>Physical</i>	4	Enjoyment
	(2,17,18,19)	Confidence/Self-efficacy
		Parent/Peer perceptions
<i>Time</i>	8	Time spent outdoors
	(1,3,10,11,12,13,14,16)	Increase/decrease
		Activities played outside

Students returning the parent and child questionnaires and informed consent were given the pre- Outdoor Neighborhood Activities Scale (ONAS). The physical education teacher explained how to complete the activity log on a daily basis. The students logged seven days of their outdoor neighborhood activities. A separate sheet was provided for each day in a stapled packet. The data collected during this instance served as baseline data for the study.

After the initial seven day recordings, a games unit intervention took place. The researcher worked with the physical educator prior to the commencement of a games unit. Lesson plans and games unit content were introduced and suggestions were made. The same physical educator then taught a recreational games unit to each of the classes during one class period. The unit consisted of basic playground and neighborhood games. See Appendix C for a list of games taught.

Activities taught by the physical educator were noted by the physical educator and collected by a researcher to note when analyzing the children's ONAS. The activities scale (ONAS) already notes several activities, however, there is an activity number labeled as "Other" for unlisted activities children participate in at home. ONAS also includes spaces to designate where the activity occurred and with whom the activity took place, if appropriate.

After the completion of the one day mini-unit, the children received a second packet of ONAS papers. These were completed over a 7-day period following the intervention. Interviews were scheduled with children post-intervention to clarify any findings.

## **Statistical Analysis**

A Wilcoxon test was conducted to evaluate whether there was a change in frequency of activity from pre intervention to post intervention. It calculated the difference between each set of pairs, and analyzed that list of differences (Green, S. & Salkind, N., 2008). Data was also expressed as percentages when noting parent and student answer selection on the questionnaires.

## **Chapter IV: Results**

### **Introduction**

The purpose of the present study was to compare physical activity and games children participate in at home in the neighborhood before and after a games unit taught in physical education class. Student enjoyment of physical activity, where the activity took place, how long the children played outside, where the children play, equipment used, parent involvement, and if outdoor play was perceived as safe were also researched. It was hypothesized physical activities requiring little or no equipment, perceived as enjoyable by the children, and able to be performed in close proximity to the children's homes would be the most likely activities to take place during free play outside-of-school.

### **Participant Information**

There were 47 5<sup>th</sup> grade participants with an average age of 10.21 years (SD=0.46). Five different 5<sup>th</sup> grade classes took part in the study. Participants include 48.9% boys and 51.1% girls.

### **Types of Physical Activities**

There were 19 types of physical activities listed on both the child and parent questionnaires, which were completed before the intervention. Jogging/running and bicycling had the highest response rate by both children and parents. The top five activities noted by parents and children are noted below. The questionnaires allowed for more than one selection of activities played outside in the neighborhood during the previous seven days.



**Table 4.1** Types of physical activities and percent of children and parents self-reporting participation in these activities within the prior seven days

Activity	Child	Activity	Parent
1 Jogging/running	11.2%	1 Bicycle	53.2%
2 Bicycle	10%	2 Jogging/running	44.7%
3 Playground	9.6%	3,4 Scooter and Tag Games (tie)	34%
4,5 Basketball and Scooter (tie)	8.46%	5 Playground	31.9%
6 Kickball	8.1%	6 Kickball	29.8%
7 Tag Games	7.7%	7 *Other	27.7%
8 *Other	7.3%	8,9 Basketball and Tree Climbing	25.5%
9 Soccer	5.8%	10 Soccer	21.3%
10 Tree Climbing	5.0%	11 Baseball/Softball	17.0%
11 Jumping Rope	4.6%	12 Frisbee	10.6%
12 Baseball/Softball	3.8%	13,14 Four-Square and Roller Skate/Roller Blade	8.5%
13 Four-Square	3.1%	15,16,17 Corn Hole, Golf, and Jumping Rope	4.3%
14,15 Frisbee and Roller Skate/Roller Blade	2.7%	18 Marbles	2.1%
16 Golf	0.8%	19 Chinese Jump Rope	0%
17,18 Corn Hole and Marbles	0.4%		
19 Chinese Jump Rope	0.0%		

\* Activities noted in other were volleyball, tennis, skateboard, trampoline, football, walking the dog, cheerleading, riding a pony, and raking leaves for fun.

### Activity Location

The yard was noted as the most common place to play by both parents and children. Parents and children differed on the next most common places they played outdoors. Cul-de-sac, sidewalk, neighbor/relative's yard, and other were the next most frequently chosen activity locations. Table 4.2 notes activity locations along with child and parent responses.

**Table 4.2** Location of activities as self-reported by child and parent.

Most Frequent Activity Location	Child		Parent	
1	Yard	44.7%	Yard	42.6%
2	Cul-de-sac/Court	17%	Sidewalk	14.9%
3	Other	10.6%	Cul-de-sac/Court	10.6%
4	Sidewalk	8.5%	Neighbor/Relative's Yard	8.5%

### Time Spent in Outdoor Physical Activity

Both child and parent questionnaires noted children spent on average about an hour playing outside each day.

### Equipment Used

Eleven specific types of equipment were noted on the parent and child questionnaires as well as a twelfth option for Other. Both children and parents agreed balls were the most used piece of equipment followed by bicycles, then scooters (non-motorized). Parents and children were instructed to check all that apply.

## **Parental Involvement**

Of the adults completing the questionnaire, 76.6% were mothers, 6.4% fathers, 4.2% guardians, and 12.8% other. 64% of adults noted they encouraged their children to play outside often and would check on them often while outside. Of those completing the questionnaire, 72.3% were often interested in what their children played outside, 78.7% would sometimes play with their children outside. On the child questionnaire, 57.4% of children noted their parents liked for them to play outside often, 83% noted their parents checked on them playing outside sometimes, and 57.4% noted their parents were sometimes interested in their activities outside and would sometimes play outside with them.

## **Comparison of Outdoors Play from the Previous Year**

Children and parents both agreed the children played outside last year about the same as they do this year. Of the children, 44.7% noted they play outside the same this year as compared to last year. Of the parents, 53.2% noted their children play outside the same this year as compared to last year.

## **Pre and Post ONAS Cumulative**

Twenty-six activities were listed on the Outdoor Neighborhood Activities Survey (see Appendix B). A Wilcoxon test, which evaluated difference between medians for pre-intervention outdoor neighborhood physical activities and post-intervention outdoor neighborhood physical activities, was significant ( $z = -2.510$ ,  $p = 0.012$ ). 28% of students decreased the frequency of activities from pre to post, 55% of students increased the frequency of activities from pre to post and 17% of students had no change. The mean of the ranks in favor of post-intervention was 21.83, while the mean of the ranks in favor of

pre-intervention was 16.35. The group with the lowest mean rank (pre-intervention ONAS) is the group with the greater number of lower scores in it. The pre-intervention ONAS frequency of activities was lower, whereas the post-intervention ONAS frequency of activities was higher. Median frequency of activity increased from 6.0 times (range: 1-14) over 7 days to 7.0 times (range: 1-17) over 7 days. The range for frequency of activities pre-intervention was 1.00-14.00. The range for frequency of activities post-intervention was 1.00-17.00.

### **Pre and Post Comparison of Boxball Activities**

A Wilcoxon test, which evaluated difference between medians for pre-intervention boxball game activity versus post-intervention boxball game activity, was significant ( $z = -3.507$ ,  $p < .01$ ). The mean of the ranks in favor of post-intervention was 12.93 (range = 0-5), while the mean of the ranks in favor of pre-intervention was 9.50 (range = 0-3) thus boxball was participated in more frequently post-intervention. 21 children participated in Boxball more frequently after the intervention, 3 participated in Boxball less frequently, and 23 had no change in frequency pre to post-intervention.

### **Pre and Post Comparison of Palm Boxing/Hand Slap Activities**

Once again, a Wilcoxon test, which evaluated difference between medians for pre-intervention palm boxing game activity and post-intervention palm boxing game activity, was significant ( $z = -3.788$ ,  $p < .01$ ). The mean of the ranks in favor of post-intervention was 10.76 (range = 0-6), while the mean of the ranks in favor of pre-intervention was 5.50 (range = 0-2). This indicates Palm Boxing took place more frequently post-intervention versus pre-intervention. 40% of the children participated in

Palm Boxing more often post-intervention, one child participated in Palm Boxing less often, and 57% of the children had no change from pre to post-intervention.

### **Pre and Post Comparison of Trigon, Mimsy, and Hit the Penny**

There was non-significant activity frequency in Trigon, Mimsy, and Hit the Penny pre-intervention as well as post-intervention.

### **Summary**

The data from this study show precision at 95% confidence levels in cumulative frequency of activities for the pre and post Outdoor Neighborhood Activity Scale completed by 5<sup>th</sup> grade students. The confidence levels are even higher (99%) when comparing pre and post intervention frequency of both Boxball and Palm Boxing. Activity frequency increased in all activities from pre to post intervention. Overall, data supports the hypothesis that teaching students physical activities during physical education will increase frequency of participation in those activities at home over a 7 day period. As indicated previously, activities requiring little or no equipment topped the lists of both parents and children. Data also suggested activities noted by parents and children took place in close proximity to the home.

## **Chapter V: Discussion**

This study manipulated specific games taught in physical education classes and then explored how many and what types of these activities were continued in out-of-school free play at home in the children's neighborhood. Underlying factors the researcher encountered were activities requiring extra equipment, limited play spaces, parental safety concerns, social environmental influences, weather, physical education schedule conflicts, and physical activities geared toward certain, but not all sub-groups of children. Amongst children living in courts or cul-de-sacs, parents reported a strong community-oriented network between neighbors whereby the children would often play together in the court or cul-de-sac (Veitch, et al, 2006).

This study set out to investigate whether or not a games unit taught in physical education would impact the activities children participated in at home in the neighborhood. According to previous studies there is a decline in physical activity toward adolescence (Butcher, 1983; Sallis et al., 2002; Zakarian et al., 1994). The results of this study indicate 36.2% of the participants play outside more this year than last year, and 44.7% play outside about the same amount of time as last year. It seems this group of children have not yet started the downward trend.

### **Home**

Parents and children of this research study indicated locations close to home as the most preferred areas of play. These results are similar to a previous finding where home followed by street is where children were most physically active (Veitch et al., 2006, 2008). This probably has to do with parents worrying about their children's safety. Over half of the parents (55.3%) in this study worried about their children being harmed.

Once again this has been noted in previous studies by Veitch (2006, 2008). In another study which investigated children's play outdoors, it was noted that outdoor venues positively influence physical activity levels in children (Sallis, Prochaska & Taylor, 2000).

## **Play**

Previous research has suggested children spend less time playing outdoors than those from previous generations. Of the parents taking part in this study, 53.2% indicated their children spent about the same time outdoors as they did when they were children, and 36.2% noted their children played outside less often. With regard to playing outside as children, 82.2% of these parents enjoyed this activity, while only 2.1% did not enjoy playing outside, and 10.6% sometimes enjoyed playing outside. This leads the researchers to believe there is a decline in the number of children who play outdoors. It is important to note 76% of the parent/guardian respondents were mothers. Previous findings note it is mothers who most often recognize the benefit of outdoor physical activity (Clements, 2004). Further research might shed light as to why it is mothers who recognize this benefit and if this is, in fact, true.

Clements (2004) noted children today still participate in tag, jump rope, hopscotch, and street games. The current study agrees with this assertion. Both children and parents noted tag as one of their top ten choices with jump rope and street games also falling within the top twenty.

Parents in this study did teach games to their children. These games included: hopscotch, traditional family games (cultural), hide n seek, kick the can, basketball, tag,

golf, jump rope, soccer, baseball, kickball, badminton and croquet. It was interesting to note the variety and refreshing to see parent enthusiasm for neighborhood games.

Physical education teachers also play an important role in influencing our youth to stay physically active now and continue these activities into adulthood (Hill, 2009). The games unit utilized in the present study taught five different neighborhood games. The results of the study indicate an increase in activity frequency across the board. Not only did the children increase their frequency of two out the five activities taught in physical education class, they increased their overall frequency of activity from pre to post intervention. Once again this underlines the important role both parents and teachers can play in increasing children's physical activity levels.

### **Equipment**

Previous research has suggested access to equipment has been found to promote physical activity and self-efficacy (Motl, Dishman, Ward et al., 2005; Tucker et al., 2009). This research study found children chose balls, bikes, scooters, jump ropes, and Frisbees as their top choices for equipment. It is interesting to note jogging/running was their first choice in activities they participated in seven days prior to the intervention. Parents indicated balls, bikes, scooters, chalk, bats, and jump rope as equipment their children had played with seven days prior to the intervention. Parents noted jogging/running as the second most frequent activity. Activity requiring no equipment was highly ranked on both child and parent lists.

### **Parental Support**

Parental support is recognized as one of the key factors influencing youth physical activity (Hohepa, Scragg, Shofield et al., 2007; Jago et al., 2009; Thompson, Rehman, &



Humbert, 2005; Twisk et al., 2007; Van Der Horst, Paw; Sallis, Taylor, Dowda et al., 2002). In this research study 57.4% of the children indicated their parents were sometimes interested in their activities outside and would sometimes play outside with them. This same percentage noted their parents liked for them to play outside often. Parents answered a little differently than their children: 70.7% said they sometimes played outside with their children, 72.3% said they were often interested in their child's outdoor activities, and 63.8% encouraged their children to play outside often.

### **Enjoyment**

Most children who took part in this study liked to play outside (83%). This agrees with findings in previous research which points to enjoyment as a contributor to the continuing practice of a skill (Mandigo, Holt, Anderson, & Sheppard, 2008). It is possible there was a selection bias of subjects in this study. The children volunteered to take part in the study and those who enjoy playing outside might have been more likely to volunteer.

### **Limitations**

There are several limitations to this study, including sample size of the participants. Only 47 of a possible 120 students took part in the study. However, a good cross-section of all five 5<sup>th</sup> grade classes was compiled. Height and weight data was not collected thus BMI was not able to be calculated which may have influenced activity levels. Another limitation was the amount of time the physical education teacher had to teach five games. Not every student was able to spend equal time practicing each game in class. One of the classes did not have physical education for three weeks due to conflicts

with availability of gym space. This posed a problem when they completed their post-intervention Outdoor Neighborhood Survey. The weather at the time of completion of their surveys was not as warm and dry as it had been earlier in the school year. The weather may also have affected the other classes. There were many cold and rainy days when the study took place in the Fall of 2010. Additionally, many students take part in the after-school daycare program. This may also have affected the results, as these children may not have the opportunity to play outside at home in the neighborhood. This group of participants may go home and eat first immediately following the after-school program, which means it may not still be light enough outside for them to play after dinner. And finally, another after-school factor is team sport participation. Many students are members of an athletic team, which may practice for upwards of three hours per evening. It would seem that this can easily affect outdoor play in the neighborhood. Another large limitation was the lack of Trigon, Mimsy, and Hit the Penny being listed on the ONAS. And finally, because it was a convenience sample selection bias could have easily occurred.

## **Conclusion**

Based on the results from this study, a number of conclusions can be drawn. This study showed parents and children were fairly consistent when noting what activities were participated in at home, outdoors in the neighborhood. Parents continue to teach their children timeless neighborhood games. Many stick with the traditional team sport games such as baseball, basketball, football, and kickball. Ethnic games are taught and passed down to yet another generation. This research study attempted to peek into the lives of 47 5<sup>th</sup> grade students and see what types of activities they frequented at home in

the neighborhood. It was discovered a variety of activities continue to take place. We can infer when children are encouraged to play they will participate in activities outside in the neighborhood. The results of this study indicated games taught by physical education teacher did influence the children who participated in this study. Previous research indicated exposure to new activities and intervention were both motivating factors in children's habitual physical activity (Jago & Baronowski, 2004). The teaching of neighborhood games to physical education classes has great potential for contributing to children's habitual physical activity as well. Physical education teachers are the ambassadors of physical activity. It is imperative children leave physical education programs physically competent and coordinated in fundamental motors skills so they make the choice to pursue a variety of physical activities on their own.

### **Future Studies**

Future research might focus on the games historically played in that particular region of the country. What are the games typically played by children and will teaching them in physical education increase children's confidence levels so they are more willing to play these games at home in the neighborhood? This means more games added to the physical education teacher's repertoire. Questions might also be asked about games unable to be taught or played in physical education. Games such as "Kick the Can", "Ghost in the Graveyard", or "Flashlight Tag". Finally, another possible research question might ask if games played at school recess are played at home or vice versa.

### **Implications**

The current study focused on a small number of games taught during a limited amount of time, yet the results were significant. Two out of the five games taught were

beneficial to children's physical activity at home in the neighborhood. The researchers feel teaching an expanded neighborhood games unit would increase the physical activity of children. The children could spend time practicing the games in class during the Fall season and then re-visit the unit in the Spring. The students could also peer-teach any variations discovered on their own. An expanded unit will provide a higher selection of games which allows for more student choice. As noted in previous research, children respond better when they are offered choices and participate in activities which are enjoyable (Building "Generation Play": Addressing the crisis of inactivity among America's children, 2007).

### **Summary**

The purpose of this study was to examine the effect of a physical education recreational games unit on children's neighborhood participation. The researchers were also interested in where the children played, equipment used, parental involvement, and if outdoor play was perceived as safe. As hypothesized by the researchers children chose to be active in close proximity to their homes. There were a few parental concerns about safety, however most parents noted checking on their children while they played outside. Parents and caretakers did engage in physical activities with their children. Some surveyed parents played outside with their children. Several parents taught games from their youth to their children.

It was also hypothesized activities using little or no equipment would take place most frequently. Running/Jogging rated as the most frequent activity which supports the hypothesis. Students in the 5<sup>th</sup> grade took part in a Games Unit intervention. The unit was taught during physical education by a physical education teacher. The students noted

their previous seven days of activity prior to the intervention. The follow-up seven day activity survey indicated an increased frequency of activities. Two out of the five activities taught in the Games Unit also increased in frequency from pre to post-intervention. Therefore, the hypothesis was supported. Children in this study took part in physical activities requiring little or no equipment and able to be performed in close proximity to the children's homes. The physical education unit did positively impact the activities taking place during free play outside-of-school.

## Appendix A

### Questionnaires

#### Children's After-School Play Outdoors Questionnaire

##### Child Questionnaire

Your name	_____		
Your age	_____	Your grade	_____
Your teacher	_____		
Date	_____		
Are you a:			
<input type="checkbox"/>	Boy		
<input type="checkbox"/>	Girl		

Please note:

-please **complete every line** in the questionnaire

For further information please contact: [beth.eddy@uky.edu](mailto:beth.eddy@uky.edu)

1. How much time do you spend every day playing outside after school in the neighborhood?

- None
- 30 minutes or less
- About an hour
- More than an hour

2. Do you enjoy playing outside after school?

- Yes
- No
- So So

3. In the past 7 days which of the following activities did you play **OUTSIDE in the neighborhood**? Please check **ALL** you played!

- Baseball/Softball
- Basketball
- Bicycling
- Chinese jump rope
- Corn hole
- Four-square
- Frisbee
- Golf
- Jogging/running
- Jumping rope
- Kickball
- Marbles
- Playing on the playground (slide, swings, playhouse)
- RollerSkate/Roller Blade
- Scooter (non-motorized)
- Soccer
- Tag games
- Tree climbing
- Other (please write it below)

4. Where do you play outdoors most often?

- Sidewalk
- Playground
- Park
- Cul-de-sac/Court
- Yard
- Neighbor's/Relative's Yard
- Walking/Bicycle Path
- Other

5. Where do you play outdoors **next** most often?

- Sidewalk
- Playground
- Park
- Cul-de-sac/Court
- Yard
- Neighbor's/Relative's Yard
- Walking/Bicycle Path
- Other

6. Are you afraid to play outside?

- Often
- Sometimes
- Never **go to question 8**

7. Are you afraid to play outside because?

- there are bullies?
- of a busy street and traffic?
- of something else?



8. Do you play with any of the following things while outside? Please check all that apply.

- |   |   |
|---|---|
| <input type="checkbox"/> Balls (1)                              | <input type="checkbox"/> Frisbee (7)                    |
| <input type="checkbox"/> Jump ropes (2)                         | <input type="checkbox"/> Bicycle (8)                    |
| <input type="checkbox"/> Hula hoops (3)                         | <input type="checkbox"/> Skateboard (9)                 |
| <input type="checkbox"/> Chalk (4)                              | <input type="checkbox"/> Rollerskates/Rollerblades (10) |
| <input type="checkbox"/> Racquets (5)                           | <input type="checkbox"/> Scooter (non-motorized) (11)   |
| <input type="checkbox"/> Bat (baseball/softball/wiffleball) (6) |   |
| <input type="checkbox"/> Other _____ (12) _____                 |   |

9. My parents or adults I live with

	Often	Sometimes	Never
a. Like for me to play outside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Check to see if I am playing outside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Are interested in the activities I play outside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Play outside with me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Compared to last year, do you play outside after-school:

- more often?
- the same?
- less often?

11. Do you like to play outdoors with:

- Boys (1)
- Girls (2)
- It doesn't matter (3)

12. Do you LIKE to play outdoors?

- By yourself?
- With friends?

13. Do you play outside with your brothers or sisters?

- Yes
- No

14. Do you like playing outside?

- Yes
- No
- So So

15. Have your parents or any adults you live with taught you games to play outside?

- Yes
- No

If you answered “yes” please list the games \_\_\_\_\_

16. Compared to other children your age, do you:

- Play outside more
- Play outside about the same
- Play outside less

17. Can you do play games outside without worrying if you will make a mistake? (Are you confident in your abilities?)

- Yes
- No
- So So

18. Are you GOOD at the activities you play outside? (Are you coordinated?)

- Yes
- No
- So So

19. Do your friends think you are good at the activities you play outside?

- Yes
- No

**Thanks for participating!**

If there is anything else you want to tell me, you may write it below!

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## Children's After-School Play Outdoors Questionnaire

### Parent Questionnaire

Your child's name _____	
Your child's age _____	Your child's grade _____
Your child's teacher _____	
Date _____	
Is your child a:	
<input type="checkbox"/> Boy	

Please note:

- this questionnaire will take approximately 10 minutes to complete
- please answer the questions in relation to the child named above
- please **complete every line** in the questionnaire

For further information please contact: [beth.eddy@uky.edu](mailto:beth.eddy@uky.edu)

1. How much time does your child spend every day playing outside after school in the neighborhood?

- None
- 30 minutes or less
- About an hour
- More than an hour
- 

2. Does your child enjoy playing outside after school?

- Yes
- No
- 

3. In the past 7 days which of the following activities did your child play **OUTSIDE in the neighborhood**?

- Baseball/Softball (1)
- Basketball (2)
- Bicycling (3)
- Chinese jump rope (4)
- Corn hole (5)
- Four-square (6)
- Frisbee (7)
- Golf (8)
- Jogging/running (9)
- Jumping rope (10)
- Kickball (11)
- Marbles (12)
- Playing on the playground (slide, swings, playhouse) (13)
- RollerSkate/Roller Blade (14)
- Scooter (non-motorized) (15)
- Soccer (16)
- Tag games (17)
- Tree climbing (18)
- Other (please write it below) (19)

4. Where does your child play outdoors most often?

- Sidewalk
- Playground
- Park
- Cul-de-sac/Court
- Yard
- Neighbor's/Relative's Yard
- Walking/Bicycle Path
- Other

5. Where does your child play outdoors next most often?

- Sidewalk
- Playground
- Park
- Cul-de-sac/Court
- Yard
- Neighbor's/Relative's Yard
- Walking/Bicycle Path
- Other

6. Do you worry about something harming your child while they play outside?

- Yes
- No (continue to question 8)

7. What do you worry will harm your child?

- Traffic (being hit by car or truck)?
- Bullies
- Another person
- Other Please List \_\_\_\_\_

8. Does your child play with any of the following things while outside? Please check all that apply.

- |   |   |
|---|---|
| <input type="checkbox"/> Balls (1)                              | <input type="checkbox"/> Frisbee (7)                    |
| <input type="checkbox"/> Jump ropes (2)                         | <input type="checkbox"/> Bicycle (8)                    |
| <input type="checkbox"/> Hula hoops (3)                         | <input type="checkbox"/> Skateboard (9)                 |
| <input type="checkbox"/> Chalk (4)                              | <input type="checkbox"/> Rollerskates/Rollerblades (10) |
| <input type="checkbox"/> Racquets (5)                           | <input type="checkbox"/> Scooter (non-motorized) (11)   |
| <input type="checkbox"/> Bat (baseball/softball/wiffleball) (6) |   |
| <input type="checkbox"/> Other _____ (12) _____                 |   |

9. For each sentence indicate how often you:

	Often	Sometimes	Never
a. Encourage your child to play outside	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>
b. Check to see if your child is playing outside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Are interested in the activities your child plays outside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Play outside with your child	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Compared to last year, would you say your child plays outside after school:

- more often
- the same as
- less often

11. Does your child prefer to play outdoors with:

- Boys
- Girls
- No preference

12. Does your child prefer to play outdoors:

- By himself or herself
- With friends

13. Does your child play outdoors with siblings?

- Yes
- No

14. Did you like playing outdoors as a child?

- Yes
- No
- So So

15. Does your child:

- Play outside more than you did?
- About the same as you did?
- Less than you did?

16. Have you taught your child neighborhood games you used to play as a child?

- Yes
- No

If you answered “yes” please list the games \_\_\_\_\_

17. Compared to other children your child’s age, would you say your child:

- Plays outside more
- Plays outside about the same
- Plays outside less

18. Is your child confident in his or her physical abilities? (running, jumping, throwing, catching etc)

- Yes
- No
- So So

19. Do YOU feel your child is GOOD at the activities he/she plays outside? (your child may perceive his/her abilities differently)

- Yes
- No
- So So



20. Do your child's friends feel his/her physical abilities are skillful?

- Yes
- No

**Thanks for participating!**

If you have any comments or suggestions about this questionnaire, please write them in the space below.

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## Appendix B

### Outdoor Neighborhood Activities Log

The purpose of this log is to find out games and types of activities that you take part in outside in your neighborhood. The name of each day (Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday) that you will describe is located at the top of each time sheet.

1. For **each** day, circle the activity numbers that correspond to the **activities** you actually performed that day.
2. You may circle more than one activity.
3. Write any activities not on the sheet in the Other column.

---

**DAY** \_\_\_\_\_

#### Activities

- |                           |                                  |
|---------------------------|----------------------------------|
| 1. Basketball             | 14. Play on playground equipment |
| 2. Boxball                | 15. Skateboarding                |
| 3. Chinese Jump Rope      | 16. Soccer                       |
| 4. Cornhole               | 17. Softball/Baseball            |
| 5. Frisbee                | 18. SPUD                         |
| 6. Frisbee Golf           | 19. Tag Games                    |
| 7. Golf                   | 20. Trampoline                   |
| 8. Hopscotch              | 21. Tree Climbing                |
| 9. Jogging/running        | 22. Two-Square/Four Square       |
| 10. Jump Rope             | 23. Ultimate Frisbee             |
| 11. Kickball              | 24. Walking                      |
| 12. Marbles               | 25. Wallball                     |
| 13. Palm Boxing/Hand Slap | 26. Other _____                  |

#### Where?

- |  |                                 |
|--|---------------------------------|
| 1. My yard   | 5. Driveway                     |
| 2. Other yard (please specify-friend, neighbor, relative?) | 6. Empty Lot                    |
| 3. Playground/Park   | 7. Sidewalk                     |
| 4. Street  | 8. Schoolyard                   |
|  | 9. Other _____ (please specify) |

## Appendix C

### Games Taught

#### Mimsy (or Around the World)

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##### What You Will Need:

- Pinky Ball or tennis ball
- 1 or more players
- Hard, solid wall without windows
- Hard playing surface (such as a driveway)

##### What You Do:

- If playing with two or more players, each player takes turns bouncing and throwing a Pinky Ball while performing a series of various tricks (called Stumpers or Mimsies). We have a list below of some tricks you can try.
- Create at least ten different sets of tricks to play (the more tricks you have, the more challenging and fun the game is). Player 1 must complete the first trick once, then the second trick two times in a row, the third trick three times in a row, and so on. If a player misses, the ball is passed to the next player. Play always starts at the first trick. The first player to complete all the tricks is the winner.

##### Tricks (Stumpers or Mimsies):

1. Throw the ball in the air and catch it. Do this once.
2. Bounce the ball on the ground and catch it. Do this two times in a row.
3. Throw the ball in the air, clap three times, and catch it. Do this three times in a row.
4. Bounce the ball once with one hand and catch it with the other hand. Do this four times in a row.
5. Throw the ball against a wall and catch it (do not let it bounce). Do this five times in a row.
6. Throw the ball in the air, touch your toe, then catch the ball. Do this six times in a row.
7. Bounce the ball seven times in a row by hitting the ball with an open hand (like dribbling a basketball).
8. Bounce the ball under your leg. Do this eight times in a row.
9. Throw the ball against a wall, let the ball bounce once, then catch it. Do this nine times in a row.
10. Bounce the ball once, turn around, then catch the ball. Do this ten times in a row.

##### Variations:

Part of the fun for this game is coming up with new tricks to try! Invent your own!

Here are some more action suggestions:

1. Clap once, or twice, or five times
2. Count to one, three, ten, or as high as you can.
3. Touch the ground.
4. Turn around.
5. Sit
6. Jump once, twice, or five times.
7. Touch the ground, turn around, and clap, all on the same bounce.
8. Touch your nose, touch your toes, and scratch your head, all on the same bounce.
9. Say "He sells seashells at the seashore".
10. Snap and whistle at the same time.

While you complete your action, let the ball bounce once on the ground, then catch it with one or both hands. Hold it as long as you like. Then throw the ball again and perform the action again or perform a different action.

Keep throwing the ball until you do not catch it or fail to complete an action before the ball returns to you.

As you get better at this game, try making the actions more difficult or building up the number of actions you do as a series or even during one bounce.

Variation: Super Mimsy

Throw the ball overhand and do not allow the ball to bounce on the ground before you catch it. This is more difficult, as you will have less time to do your tricks.

## Trigon

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### What You Will Need:

- Pinky Ball or tennis ball
- 3 players
- Hard playing surface (such as a driveway or basement floor)
- Chalk

### What You Do:

- Draw a large triangle on the driveway using chalk. Each side should be approximately 20 feet long.
- One player stands at each point of the triangle to begin the game.
- Choose a player to start the game. That player then throws the Pinky Ball with his or her left hand to the player on the right. The next player does the same, and so on. The ball must always be thrown with the left hand (unless a player is left-handed, then they must throw with their right hand).
- Throwers can change direction at any time by throwing the Pinky to a player on their left.
- Try to fool the other players by throwing the ball unpredictably, first to the left, then to the right, again to the right, and so on. Whenever you switch directions, the other players are tricked and will most likely miss or drop the ball.
- If the ball is dropped, the thrower gets a point. Play continues until someone reaches 21 points.

### Variations:

- This game was played in Ancient Egypt and later passed on to the Romans (where it got its name). This is a fast-paced game (physically and mentally) and is a game of trickery! Think of new ways you can play this game.

## Hit the Penny

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### Two Players

**Object:** To win by hitting a penny with a ball and causing the penny to flip over.

**To Play:** Place a penny on the line between two squares. Each player throws the ball at the penny in turn and tries to hit it so that it flips over. If you hit the penny, you get one point. If you flip it over, you get two points. The first player to 11 wins.

**Variation:** Hit the Stick

Try placing different objects, like a stick, a jack, or a trading card, on the line. See if you can hit the object so that it flips completely out of the square.

## Boxball

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**Players:** Two

**Object:** To slap the ball over the line in such a way that your opponent fails to return it.

**Setup:** Using chalk, draw a rectangle measuring 8' x 12' on concrete (or the playground). Draw a line across the middle of the court where the net would be.

**To Play:** Players stand on opposite sides of the court, behind back lines. The first player slaps the ball into the opposing player's side of the court. The other player then slaps it back. Play continues until someone misses the ball or it goes out of bounds. Only the server can score. Each time the other player misses or hits the ball out of bounds or fails to return the ball, the other player becomes the server. The first player to get 11 points wins.

## Hand Slap

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**Set-up:** Players can draw a wide chalk line or find a wood board or log (2' x 4') on the ground. The players should stand on top facing each other, with their feet parallel to the log with one foot in front of the other.

**Object:** To knock the other player off of the board (or line).

**To Play:** While on the board (line), players extend their hands and touch palms. As soon as the palms touch, the game begins. The players try to knock each other off by slapping or pushing on the other player's hands without grabbing until one loses his or her balance and falls off the board or log. Players must keep both palms facing the other player. No part of the body can be struck except the hand. The last one standing on the board is the winner. If both players fall off at the same time, it is a draw.

### Variation: Palm Boxing

**Object:** to knock the other player off balance causing them to move one or both feet.

**To Play:** When in position, the opponents reach out and put their palms together. As soon as their palms touch, the round begins. Keeping their palms against their opponents palms, the boxers try to push each other off balance by pushing with one or both hands. Players can move their bodies around, leaning side to side, and so on, but they **MAY NOT** move their feet. The first player to move one or both feet loses the contest.

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