INCORPORATING PHYSICAL ACTIVITY INTO THE ELEMENTARY CLASSROOM:
A STUDY OF TEACHERS’ BELIEFS AND PRACTICES

A Thesis

Presented to the faculty of the Department of Child Development
California State University, Sacramento

Submitted in partial satisfaction of
the requirements for the degree of

MASTER OF ARTS

in

Child Development

(Appplied Settings)

by

Lindsey Nicole George

SPRING
2013
INCORPORATING PHYSICAL ACTIVITY INTO THE ELEMENTARY CLASSROOM:  
A STUDY OF TEACHERS’ BELIEFS AND PRACTICES

A Thesis

by

Lindsey Nicole George

Approved by:

______________________________, Committee Chair
Dr. Susan Gomez

______________________________, Second Reader
Dr. Li-Ling Sun

__________________________________
Date
Student:  Lindsey Nicole George

I certify that this student has met the requirements for format contained in the University format manual, and that this thesis is suitable for shelving in the Library and credit is to be awarded for the thesis.

__________________________, Graduate Coordinator

Dr. Kristen Alexander  Date

Department of Child Development
Abstract

INCORPORATING PHYSICAL ACTIVITY INTO THE ELEMENTARY CLASSROOM: A STUDY OF TEACHERS’ BELIEFS AND PRACTICES

by

Lindsey Nicole George

Statement of Problem

Childhood obesity has increased over the last thirty years. Research has found that both poor nutrition and lack of physical activity are factors that contribute to childhood obesity. While many schools have implemented healthier eating standards for students, physical activity opportunities in schools are decreasing. The classroom has been overlooked as a possible context for providing children with additional opportunities to engage in physical activities. The research to date has not fully examined teachers’ beliefs and practices related to incorporating classroom based physical activity. Studies suggest that teachers play an important role in the success or failure of newly implemented programs in schools. Therefore, it is important for researchers to gain an in depth understanding of how teachers feel about incorporating physical activity in the classroom as well as a clearer picture of their related knowledge and training.

Sources of Data

The researcher conducted one on one interviews to examine elementary teachers’ knowledge, beliefs and classroom practices regarding physical activity in the classroom. A total of ten teachers, eight female and two male, participated in the study. All teachers taught in
California at a public elementary school. The interviews were analyzed using qualitative research methods to identify themes across the teachers’ responses.

**Conclusions Reached**

All of the participants (n=10) believed that physical activity was important for children, and all but two of the participants had their students do physical activity during classroom time on a regular basis. However, none of the teachers who had their students participate in physical activity in the classroom had any specific training on how to do so properly, which is an area that may need to be looked at further for future research. The majority of the teachers also believed that their schools offered students an appropriate amount of engagement in physical activity. This is in contrast with previous research on the subject. Two major barriers for teachers trying to implement classroom based physical activity were time and the testing pressures that teachers face. Future research should examine how testing pressures effect teachers’ attitudes and use of time related to physical activity.

__________________________
Committee Chair
Dr. Susan Gomez

__________________________
Date
ACKNOWLEDGEMENTS

I would like to thank the professors from Sacramento State that helped me get through this thesis process, specifically, Dr. Gomez my sponsor, who kept me focused and grounded during this process. In addition, thanks to Dr. Sun, my second reader, Dr. Hembree and Dr. Raskauskas. I would like to thank the participating teachers who took the time to help me with this project. I would also like to thank my fellow classmates Lauren Burner and Todd LaMarr.

I would like to thank my family for supporting me throughout this long process. Thank you to my Grandma Asta for letting me use your house (especially the gigantic dining room table) as a thesis den. Thank you to the Austerman family, especially Uncle Bob and Aunt Elaine, for forcing me to take the necessary study breaks. In addition, thanks to my Aunt Donna for always cheering me on and taking an interest in what I am doing academically. Finally, thank you to my Dad, Dave for listening to me complain about this process and encouraging me to carry on!
TABLE OF CONTENTS

Acknowledgements........................................................................................................ vii

Chapter

1. INTRODUCTION ........................................................................................................ 1
   Statement of the Problem ............................................................................................ 1
   Purpose of the Study .................................................................................................... 2
   Significance of the Study ............................................................................................ 3
   Methods ....................................................................................................................... 8
   Definition of Terms ..................................................................................................... 9
   Limitations .................................................................................................................. 10
   Organization of the Study .......................................................................................... 11

2. LITERATURE REVIEW ............................................................................................... 12
   Introduction ............................................................................................................... 12
   Childhood Obesity ..................................................................................................... 13
   Physiological Consequences of Childhood Obesity .................................................. 14
   Social and Psychological Consequences of Childhood Obesity ............................... 15
   The School Environment and Childhood Obesity .................................................... 18
   Physical Education Classes ......................................................................................... 19
   Recess ......................................................................................................................... 21
   Physical Activity in the Classroom ............................................................................ 23
   Programs to Increase Physical Activity in the Classroom ........................................ 24
Teachers’ Role in Incorporating Physical Activity in the Classroom

Theoretical Lens: Bronfenbrenner’s Bioecological Model

3. METHODS

Purpose of the Study
Design and Research Questions
Participants
Procedures
Data Collection and Interview Protocol
Data Analysis
Summary

4. RESULTS

Teacher Beliefs about Children’s Physical Activity
School Practices Related to Physical Activity
Teacher Knowledge Base and Efficacy
Incorporating Physical Activity in the Classroom
Supports and Barriers to Classroom Based Physical Activity
The Pressures of Mandated Curriculum and Assessment
Summary

5. DISCUSSION

Major Findings
Limitations
Recommendations for Practice ................................................................. 63

Future Research......................................................................................... 65

Appendix A. Informed Consent Letter ...................................................... 70

Appendix B. Interview Protocol .............................................................. 72

Appendix C Coding Scheme................................................................. 76

References.................................................................................................. 80
Chapter 1

INTRODUCTION

Statement of the Problem

Obesity is a chronic condition that can lead to serious medical conditions such as heart disease, diabetes, hypertension, and some cancers (DuBose et al., 2008). In addition to these physical health risks there are psychological and social ramifications that may arise as consequences of obesity (Pyle et al., 2006). Rates of obesity in the American population are rising, particularly among children. According to the Center for Disease Control approximately 20% of children aged 6-11 are obese (Kibbe et al., 2011), and obesity is occurring among children at earlier ages. Birch and Ventura (2009) found that 20% of 2 to 5 year olds are overweight or at risk for becoming overweight. Obese children have an increased risk of becoming obese adults (Anderson & Butcher, 2006). These trends argue for more aggressive action on the part of government, families and professionals to slow down the prevalence of childhood obesity.

Schools have the potential to play a key role in the fight against childhood obesity. With more than 95% of American children enrolled in school, the school environment can provide an ideal setting for children to develop healthy habits (Story, Kaphingst, & French, 2006). Schools can foster knowledge regarding healthy eating and physical fitness habits as well as provide a place where students can practice those healthy habits. But the number of opportunities children have to participate in physical
activity during the school day has decreased in recent years due to budget cuts as well as the strong emphasis on academic curriculum and standardized test scores. This trend has led to increased seat time at the expense of physical education classes and recess (Bartholomew & Jowers, 2011).

Because children spend so much time at school, classroom teachers could serve as positive agents in guiding children into healthy habits. Currently, few studies have examined teachers’ classroom practices in promoting healthy lifestyle choices. A few school-based programs have been implemented to incorporate physical activity into the classroom with mixed results (Parks, Solomon & Lee, 2007). What relevant literature is available has focused on classroom teachers being asked to teach physical education classes because schools do not have the resources to hire physical education specialists (DeCorby, Halas, Dixon, Wintrup, & Janzen, 2005). Missing from the research is an understanding of what, if anything, classroom teachers are doing within their classrooms to integrate physical activity, what factors make that integration possible or impossible, or even whether such activities are successful.

**Purpose of the Study**

The purpose of this study was to examine public elementary school teachers’ knowledge, attitudes and practices related to fostering physical fitness activities in their classrooms. In addition, the research examined what factors may be preventing or facilitating such activity from occurring. More specifically, if teachers are engaging their
students in physical activity lessons during classroom instruction how are the teachers able to do this? Does the teacher’s school support such lessons? Does the school provide teachers with examples or ideas of activities that incorporate physical activity? If teachers are not incorporating physical activity in their classroom activities, what constraints prevent them from doing so? In order to examine teachers’ knowledge, attitudes and practices regarding physical activity in the classroom, the researcher conducted a qualitative interview study of public elementary school teachers. The study focused on the following areas of interest:

1. Teachers’ self-reported beliefs about children’s health and physical activity.
2. Teachers’ reports of practices related to students’ physical activities in their school.
3. Teachers’ self-reported knowledge and efficacy related to implementing physical activities in the classroom.
4. Teachers’ self-reported classroom practices related to physical activities.
5. Teachers’ self-reported supports and barriers to their implementing physical activities in the classroom.

Significance of the Study

The rising numbers of obese children are cause for concern and action. According to the Centers for Disease Control and Prevention (CDC), in the early 1970s only 4% of
children between the ages of 6-11 in the United States were obese. By 2007-08, 20% of children in the same age group were obese (as cited by Kibbe et al., 2011). There is a significant amount of data on the long-term health effects of childhood obesity including the increased risks of developing cardiovascular disease and diabetes (Farhat, Iannotti, & Simons-Morton, 2010). However, the negative social and psychological effects associated with being obese can be more detrimental to children (Jansen, Craig, Boyce & Pickett, 2004; Strauss & Pollack, 2003).

One critical factor in combating obesity is insuring that children learn to incorporate healthy habits into their daily lifestyle from an early age in hopes that good habits will follow them into adulthood (Birch & Ventura, 2009). Preventative measures such as this can help decrease the number of children who suffer from obesity. Research must continue to investigate all potential environments that can serve as possible places to instill change in the growing number of children who are obese or have the potential to become obese.

Increasing children’s physical activity is another important factor in preventing children from experiencing obesity. There are many other holistic benefits to being physically active. Research has found that when children engage in physical activity during classroom time their on-task behavior increases (Mahar, 2011). In 2010, the Centers for Disease Control examined several physical activity programs that had been implemented in schools. In their results, physical activity lessons during class time were associated with positive changes in students’ “cognitive skills, attitudes, academic behavior, and academic achievement” (as cited in Kibbe et al., 2011, p.43).
Unfortunately, in recent years there has been a decrease in the physical activity opportunities available to children during the school day. In a study done by Bartholomew and Jowers (2011), only 3.8% of elementary students had the opportunity to engage in daily physical education. The emphasis on high academic achievement along with the budget crises that are affecting many school districts have led to a reduction or elimination of physical education classes and recess (DuBose et al., 2007).

In a similar trend, factors in the home environment (i.e. single parents, dual working parents, and access to technology) have meant that children are lacking the opportunity to engage in physical activity outside of school as well (Anderson & Butcher, 2006). If children do not have the opportunity to be physically active, the chances of decreasing the rates of childhood obesity are low.

The school classroom is an untapped environment that must be investigated further as a place for obesity prevention. While physical education classes and recess opportunities are important they are not the only means by which children can gain access to physical activity at school. The classroom environment can be a place for children to learn and participate in physical activity on a regular basis.

The reduction of traditional physical activity outlets for children (P.E. and recess) has led some schools to consider implementing physical activities into the classroom (Erwin, Abel, Beighle, & Beets, 2011). In general, a physical activity in the classroom is a teacher-implemented lesson that incorporates moderate to vigorous movement in the review or teaching of academic content (Bartholomew & Jowers, 2011). These activities
can be short five to ten minute exercise breaks or they can last for the duration of an entire academic lesson.

The incorporation of physical activities in the classroom is dependent on how knowledgeable the teacher is about supporting children’s physical health and preventing obesity, and whether this knowledge is reflected in the teacher’s classroom practices. Previous research has identified four possible barriers that might prevent classroom teachers’ integration of physical activity in the classroom. The first barrier is efficacy, or teachers’ beliefs about their ability to successfully teach a physical activity lesson (Martin, McCaughtry, Hodges-Kulinna, & Cothran, 2008; Morgan, 2008; Parks et al., 2007). Time is also a barrier, including time for the activity itself as well as time to plan a physical activity lesson (Faucette & Patterson, 1989; Morgan, 2008). Implementing physical activities may also be a barrier, as teachers try to determine whether a physical activity can be incorporated into existing academic lessons or if the activity must be an add-on to the already busy academic day (Bartholomew & Jowers, 2011; Cothran, Hodges-Kulinna, & Garn, 2010; DeCorby et al., 2005). Finally, the resources, training and support that teachers do or do not receive from the principal and school district will influence whether teachers implement physical activity in the classroom (Faucette & Patterson, 1989).

Current studies have not fully examined the costs/benefits of wellness programs embedded within the school environment, in particular, in the classroom specifically (Gittelsohn et al., 2003; Griew, Page, Thomas, Hillsdon, & Cooper, 2010). The research thus far has produced mixed results. For example, Texas I-CAN (Initiative for Children’s
Activity and Nutrition) was a three-year program that aimed to increase children’s healthy habits and lifestyle choices (Bartholomew & Jowers, 2011). TAKE 10 was another program designed to increase children’s physical activity levels during classroom instruction time (Kibbe et al., 2011). However, studies of these programs produced mixed results as to whether the programs produced any positive outcomes for children. Current research does not point to one cause for the low success of these programs and more research is needed on the topic (Birch & Ventura, 2009).

Regardless of the shortcomings of previous programs, it is clear that if teachers are not on board with implementing physical activity in their classrooms such programs are unlikely to be successful. Unfortunately, there is still little known about classroom teachers’ attitudes and beliefs regarding the incorporation of physical activity in the classroom. It is startling that one of the most cited articles on this topic is from a study done in 1989. That study (Faucette & Patterson) focused on classroom teachers’ beliefs about teaching physical education classes. The researchers found that teachers considered teaching physical education as the lowest priority and placed little value on the subject, citing time and energy as being challenges to their teaching physical education. While this study provided an initial understanding of teacher attitudes regarding teaching physical activity, the subsequent research has still not provided a clear understanding of the teachers’ attitudes and beliefs about incorporating physical activity into the classroom, or about whether they feel prepared and able to do so. The existing research suggests that most teachers are not incorporating movement into their everyday classroom practices (Parks, Solomon, & Lee, 2007).
If schools are to play an important role in preventing obesity and increasing children’s physical fitness it is important to gain a clearer understanding of teachers’ knowledge, attitudes, and practices related to classroom based physical activities. The present study was designed to expand understanding of teachers’ knowledge, attitudes, and practices related to classroom based physical activity. If researchers understand why teachers are (or are not) incorporating physical activity, we can better the chances of creating classroom based physical activity programs that teachers can successfully utilize. In the present study, the use of interviews was intended to generate a more comprehensive understanding of teachers’ beliefs about the need for physical activity, their sense of efficacy and knowledge base about incorporating physical activity, and the challenges they face in adding physical activity to their classrooms. Given the rising numbers of obese children and the falling number of hours those children are spending in physical activity, it is crucial to examine how the classroom teacher can be utilized as a means of combating obesity and instilling healthier physical fitness habits.

**Methods**

The researcher conducted a qualitative interview study of elementary school teachers to investigate their knowledge, beliefs and practices related to physical activities in their classrooms. Ten California public school teachers who were currently teaching (or had taught the previous school year) in grades kindergarten through fifth were invited to participate in the study. The selection of participants began by inviting elementary
school teachers known to the researcher (convenience sampling) to participate in the study. The researcher then asked those teachers to recommend other eligible teachers who would potentially be willing to participate in the study (snowball sampling). In the end, there were a total of ten teachers who participated in the study, two male and eight female.

The researcher conducted one on one interviews with each participant, with the interviews ranging in length from 25-55 minutes. All but one of the interviews was conducted over the phone. Participants were asked the same set of questions using an interview protocol that the researcher developed from existing themes found throughout the literature regarding physical activity in the classroom. All interviews were audio recorded and transcribed by the researcher. Analysis of the interview responses was conducted using qualitative coding methods and based on the themes identified in the research questions.

**Definition of Terms**

The World Health Organization (WHO) defines physical activity as “any bodily movement produced by skeletal muscles that requires energy expenditure” (World Health Organization, 2013). For the purpose of this study, the researcher modified this definition to include any purposeful activity that requires movement of the body. The researcher explained this definition of physical activity to each participant before the beginning of the interview.
According to the Centers for Disease Control (CDC), body mass index (BMI) is a more accurate figure to use in identifying obesity in children. The CDC has created age and sex-specific charts that factor in a child’s BMI, weight, height, age and sex. The CDC guidelines define childhood obesity as, “For children and adolescents (aged 2—19 years) overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile for children of the same age and sex. Obesity is defined as a BMI at or above the 95th percentile for children of the same age and sex,” (Barlow & the Expert Committee, 2007).

**Limitations**

There were several limitations that must be considered in interpreting the results of this study. Many of the participants knew the researcher personally or knew someone with whom the researcher was familiar. This could have led some participants to give answers that were meant to please the researcher. Because the primary method of data collection was through interviews, it must be noted that the researcher did not conduct observations to verify the accuracy of the narratives provided by the participants in the interviews. In addition, participants may have given biased answers because they were uncomfortable with the topic matter (physical activity and their practices in the classroom). Another limitation of the study was the small number of participants. While the participants did come from a wide range of geographic locations, the results cannot be
generalized to all teachers. Finally, the interview guide, although pilot tested on five teachers, may not have been the most reliable tool, as it had never been used before.

**Organization of the Study**

This chapter has presented a brief overview of a study examining teachers’ use of physical activity in the classroom. Chapter Two provides the reader an in depth understanding of the existing literature regarding childhood obesity, lack of physical education activity for children, the school’s role in promoting physical activity and teachers’ knowledge, beliefs and practices about physical activity in the classroom. Chapter Three will discuss the specific methods used to conduct the study. Chapter Four presents the results of the study, and Chapter Five provides a discussion of the study’s conclusions. Supporting materials are included in the appendices.
Chapter 2
LITERATURE REVIEW

Introduction

Childhood obesity is an epidemic that is seen worldwide especially in modern societies where there is an abundance of unhealthy and readily available food (Brown & Ogden, 2004). At the same time, children in those societies typically have access to a variety of technological entertainments such as televisions, video games and computers that encourage them to be less physically active (Anderson & Butcher, 2006). It is therefore not surprising that rates of childhood obesity are on the rise in the United States. The costs associated with childhood obesity to children and society are great, namely due to the health costs associated with treating obesity related health issues (Edmunds, 2008; Farhat et al., 2010). Because the rate of obesity among children is continuing to rise and it is occurring at earlier ages it is imperative that something be done to decrease the number of children who suffer from childhood obesity.

The rise in childhood obesity has been linked to two other disturbing trends: an increase in children’s consumption of unhealthy food and a decrease in children’s physical activity (Anderson & Butcher, 2006). These imbalances in diet and activity play a critical role in disposing a child to obesity since a healthy balance of energy intake and energy expenditure is what helps a person maintain a healthy weight (Anderson and Butcher). In this thesis, the research focused primarily on the factor of children’s physical
activity. Specifically, the researcher examined the types and frequency of physical activity experiences that elementary school children do (or do not) engage in during classroom time.

The following chapter summarizes the trends and consequences of childhood obesity. The chapter also presents an examination of the literature on the school as an environment for promoting physical activity opportunities (P.E., recess, and in-class physical activity). This discussion includes a review of research related to the teacher’s role in implementing physical activity in their classrooms. The final section comprises a brief discussion of the theoretical framework for the thesis, Bronfenbrenner’s bioecological model of development (Bronfenbrenner, 1979; Bronfenbrenner & Morris 2006).

**Childhood Obesity**

Over the past thirty years obesity rates in the United States have increased for all age groups. Today, however, obesity is increasing with age much more quickly than it did three decades ago (Anderson & Butcher, 2006). According to the Centers for Disease Control and Prevention, only 4% of American children aged 6 to 11 in the 1970s were obese, as compared to 19.6% in 2007-2008 (Kibbe et al., 2011). Not only are more children obese than in the past, the age of onset has gotten younger. In a study by Birch and Ventura (2009), 25% of preschool children aged 2 to 5 were already overweight or at
risk for becoming so. This statistic is particularly alarming because research indicates that a significant number of obese children become obese adults (Anderson & Butcher).

There are many negative consequences that obese children may be subjected to, from physiological complications such as diabetes and heart issues, to psychological consequences such as low self-esteem and depression (Curtis, 2006; Edmunds, 2007). A lot of attention in the research has focused (for good reason) on the physical consequences of being obese but the negative psychological effects of childhood obesity are just as important (Janssen et al., 2004).

**Physiological Consequences of Childhood Obesity**

Ten years ago many people falsely believed that childhood obesity was merely a cosmetic issue (Reilly et al., 2003); however, this could not be further from the truth. Childhood obesity is much more than a cosmetic problem as obese children are increasingly showing internal signs of the bodily distress caused by their weight. Recent data demonstrates that a number of obesity-related health issues that once were thought to only affect adults are now appearing in children at an alarmingly high rate (Daniels, 2006). Some researchers are even suggesting that if children continue to be obese and suffer from obese related health issues as they get older there is a high likelihood that for the first time, life expectancies in the current generation may actually decrease (Daniels).

Although many debilitating conditions such as heart disease and stroke take time to develop, the earlier a person starts accruing the risk factors that lead to such diseases
the earlier the onset of such diseases is likely to occur (Daniels, 2006; Reilly et al., 2003). This means that a child who is obese is very likely to experience health issues in adolescence or adulthood. For example, Type II diabetes has historically been called “adult onset” diabetes, but children and adolescents are developing this disease at an increased rate (Daniels; Reilly). Other high-risk conditions that have been observed in children with obesity include: high blood pressure, high levels of bad cholesterol, low levels of good cholesterol, clogged arteries and liver disease (Reilly et al., 2006; Reilly & Kelly 2010). Beyond the dangerous physical effects, obese children often experience a host of social and psychological damages because of their weight.

Social and Psychological Consequences of Childhood Obesity

During childhood and adolescence children spend much of their time in the peer-driven social environment of the school. If for any reason a child is different, either physically or mentally, he or she is at an increased risk of being stigmatized. Being stigmatized for obesity has many social and emotional impacts on the mental health and wellbeing of the developing child (Edmunds, 2008; Strauss & Pollack, 2003). Most children probably are not aware of what arteries are or what insulin is, but they do understand being teased and feeling different from their peers. Children are most frequently bullied and stigmatized in the school environment because that is where they spend a large amount of time with their peers. Children who carry excess weight often find themselves victims of stereotypes and biases (Quinlan, Hoy, & Costanzo, 2009).
Obesity is a stigmatizing condition, meaning that people often make strong negative assumptions and hold strong negative opinions about obese people as a group. According to Wardle, Williamson, Johnson, and Edwards (2006), people hold negative attitudes towards obese individuals simply because they are obese.

It is easy to detect an obese individual and in certain situations, like the classroom, sometimes there is only one child who stands out as the largest in the class. An obese child might find himself in an environment where all eyes and fingers are pointed in his direction because of his size. School may not be a positive experience for obese children if they are faced with peers who stigmatize and ridicule them. Studies show that weight-based stigma is something that people feel very strongly about and it is very hard to alter the attitudes that individuals have towards obese people (Swami, Furnham, Amin, & Chaudhri, 2008). Obese individuals are not only stigmatized because of their weight, studies have found that people make additional negative inferences and assumptions about the reasons why they believe obese persons are overweight. For instance, people tend to use strong negative descriptors like lazy and dumb to describe obese individuals (Swami et al., 2008).

Research suggests that the stigmatization of obese children begins at an early age. In a 2001 study, Kraig and Keel found that by the start of kindergarten children were already turned off by their overweight peers. In this study, children between the ages of seven and ten were presented with photos of chubby, average and thin children of the same age and gender. In their descriptions of the children in the photos, the child participants showed an aversion to overweight children, labeling them as lazy, stupid and
mean, and saying they would not like to play with them. Even children who were overweight themselves did not have positive things to say about the overweight children in the pictures. These results are similar to those in an adult version of this study done by Swami et al. (2008), where adults, both male and female, labeled overweight individuals in pictures as being more likely to be lonely, lazy and more likely to be teased by others. These studies support the idea that obese individuals of all ages are likely to be stigmatized because of their weight.

As children grow up and the school environment becomes more socially complex, obese children become more aware of their weight and are more likely to find themselves socially marginalized (Curtis, 2008; Strauss & Pollack, 2003). They may start to avoid certain situations that relate to their weight, such as changing in the locker room. Curtis found that some obese children would not eat in front of other people or attend physical education classes at all. By removing themselves from these kinds of activities, obese children further distance themselves from their peers in the school environment. A self-fulfilling prophecy emerges as obese children are stigmatized, become aware that they are stigmatized, react by avoiding being in the spotlight and thus further alienate themselves and perpetuate the cycle.

Strauss and Pollack (2003) found that overweight children were more isolated and on the outskirts of social groups than normal weight children. In their study, children were asked to nominate class peers as possible friends. Overweight children received fewer, and in some cases, no nominations and the nominations they did receive came from peers who did not earn many friendship nominations themselves. In a second phase
of the study, the researchers examined friendship nominations in neighborhoods and found similar results. These studies highlight the fact that obese children are not as socially accepted as normal weight children. In addition, the few friends that obese children have tend to be other marginalized peers. Educators, parents and caregivers need to be aware of the marginalization that is occurring so that they may offer support to obese children.

The social stresses and stigma associated with obesity can lead to psychological damage for obese children both during childhood and later in their lifespan. Children who experience such situations are more likely to exhibit lower self-esteem and negative self-perceptions over a long period of time (McCullough, Muldoon, & Dempster, 2009). These lower levels of self-esteem and negative self-perceptions can lead to poorer school performance, lower levels of college attendance in early adulthood, and lower income earnings in adulthood (Reilly et al., 2006). Findings such as these confirm that the psychological consequences of childhood obesity will most likely carry into adulthood.

The School Environment and Childhood Obesity

With more than 95% of children in the U.S. enrolled in school, the school environment can provide an ideal setting for children to foster healthy habits (Story et al., 2006). In fact, “no other institution has as much continuous and intensive contact with children during their first two decades of life” (Story et al., 2006, p.110). Because children spend so much time at school, the school environment is an ideal setting for
preventative action such as teaching children proper eating and physical activity habits and for shaping healthy behavior (DuBose et al., 2008; Sallis & Glanz, 2006; Sloan, 2010). Besides such things as promoting good nutrition and teaching healthy habits, schools can also help to prevent obesity through physical education, fitness classes or other physical activities incorporated into the daily classroom curriculum.

**Physical Education Classes**

In recent years, schools have increasingly held children to higher academic standards (Bibik, Goodwin, & Omega-Smith, 2007) and teachers are being pressured to improve students’ standardized test scores. At the same time, budget shortfalls have forced districts to de-emphasize programs not directly related to academic learning. These factors have led many schools to reduce or eliminate physical education classes and recess (DuBose et al. 2007). Research by The International Council for Sports Science and Physical Education highlighted the deteriorating state of physical education worldwide; financial cuts, the lack of trained personnel and the decreased time in the curriculum are the primary factors which have led to this decline in physical education (DeCorby et al., 2005).

Exposure to physical education (PE) from an early age is important in order to increase the likelihood of establishing a lifelong positive attitude towards physical activity. Sloan (2010) found that the early school years are a crucial time period for establishing children’s interest in the subject. The sooner children learn about and engage
in PE the sooner the habit will form and hopefully stay with them as they mature. There is more to be gained from PE than simply increasing children’s physical activity levels. In addition to helping children attain their daily amount of physical activity, PE classes teach sportsmanship and help children learn both fine and gross motor skills (Sloan, 2010).

A knowledgeable teacher is a key factor in a successful PE program. Due to recent budget crises, many schools can no longer afford trained PE instructors and instead have resorted to using academic teachers. As a result, many schools have a difficult time providing safe, quality PE programs (DeCorby et al., 2005; Sloan, 2010). Classroom teachers usually do not know the correct and safe way to teach certain physical skills that can be very dangerous to children. Sloan reported that teachers found it challenging to provide students with appropriate activities and encourage children to retain interest in physical activity. After interviewing teachers in the elementary school system DeCorby et al. (2005) noted that almost all of the teachers interviewed acknowledged their lack of training as well as lack of personal knowledge of how to appropriately teach PE. If teachers are not teaching/presenting PE/physical activity lessons correctly students may not be motivated to continue engaging in physical activity and, at worst, are at risk of being injured.
Recess

Just as with PE, recess has many positive effects on children’s wellbeing (Ramsetter, Murray, & Garner, 2010). Unfortunately, recess during the school day has been severely curtailed or in some cases has disappeared from schools across the country. The National Association of Early Childhood Specialists in State Departments of Education has reported that “40 percent of elementary schools have reduced, deleted, or are considering deleting recess” (Anderson & Butcher, 2006, p 35). Similarly alarming is information from the School Health Policies and Practices Study which found that 29 percent of children between kindergarten and fifth grade have no recess at all (Story et al., 2006). Because recess occurs during the school day and is not an academically graded subject, funding for recess has seen large cuts in favor of more classroom time (Ramsetter et al., 2010). Schools must be made aware of the fact that when recess is a regularly occurring part of the school day children have the opportunity to enjoy physical activity and become motivated to be active and healthy individuals (Stellino, Sinclair, Partridge, & King, 2010). The more children practice good habits (such as physical activity) in a variety of places (PE, recess, etc.) the more stable those behaviors will likely be in the future.

The benefits of recess during the school day are similar to those of PE. A major difference is that recess is typically a free choice activity in which children can choose what to do during the allotted recess time. Recess is also a time for children to have a mental break from the cognitive demands of the classroom and to have unstructured time
to be physically active (Ramsetter et al., 2010). As with PE, teachers have reported that after active recess children tend to be better behaved in the classroom (Ramsetter et al., 2010; Stellino et al., 2010). On the playground children are free to socialize and let their imaginations run rampant. This is especially important for children who lack neighborhood areas that allow them to play outside or whose parents are not home to supervise a trip to the local park. School therefore must be the place that guarantees children a safe place to play freely.

Even when recess is a part of the everyday school schedule, children may choose not to be physically active. Unfortunately, in an era in which children have access to a number of technologically advanced games and devices children have become less interested in participating in physically active play. Stellino et al. (2010) found that many children do not voluntarily participate in physically vigorous activities during recess. Another factor preventing children from participating in physically active games during recess is the lack of equipment. Because of budget cuts many children do not have access to balls, jump ropes, hula-hoop’s, etc. This is unfortunate since studies show that providing children with game equipment increases their activity levels at recess time (Verstraete, Cardon, DeClercq, & DeBourdeaudhuij, 2005).

While both PE classes and recess may provide children with opportunities to engage in physical activity it is clear that there is a great deal of variation in the frequency and quality of PE and recess experiences children are receiving during such periods of the school day. Because children spend the majority of their school day in the classroom it would seem appropriate for children to be exposed to physical activity
during class time in order to reach the recommended amount of daily physical activity (sixty minutes). In addition, in schools that do not offer PE or recess, the classroom may be the only place where children can participate in physical activity.

**Physical Activity in the Classroom**

Almost fifty million children attend public schools in the United States (Story, Nanney, & Schwartz, 2009). The average American child spends almost two hundred days a year at school and is there for six or more hours a day, for approximately thirteen years (Peterson & Fox, 2007). Because children spend the majority of the school day in the classroom in sedentary behaviors (i.e. sitting at a desk), it makes sense that the classroom environment could be utilized for increasing children’s physical activity levels.

Physical activity in the classroom can be anything that requires the body to move and requires more energy than resting. While this seems like a simple and basic concept, it has received little attention from the majority of schools. Instead, recently schools are devoting more money and energy to programs that address children’s eating behaviors (Kibbe et al., 2011). Healthy nutrition is important since children consume much of their daily food intake at school. However, it should be possible for schools to promote both nutrition and physical activity simultaneously.

Historically, physical activity in the school environment has been limited to PE classes and recess but as noted in the above sections, those opportunities are becoming a thing of the past for many children. Nowadays children are spending even more of their
time in the classroom. However, it appears that the classroom has been overlooked and underutilized as a place for students to engage in physical activity (Erwin, Beighle, Morgan, & Noland, 2011). In addition to increasing children’s physical activity levels, research has found other benefits to incorporating physical activity breaks in the classroom including improvements in time on task, cognitive skills, and attitudes towards academic lessons (Erwin et al., 2011; Kibbe et al., 2011; Mahar, 2011).

Although some schools are developing programs that incorporate physical activity into the classroom, these programs are limited both in number and in quality. Many of these programs are still in the trial phase and there is currently little data on their impacts (Oliver, Schofield, & McEvoy, 2006).

**Programs to Increase Physical Activity in the Classroom**

A few schools have implemented programs that are designed to promote physical activity in the classroom. One such program is the International Life Sciences Institute for Health Promotion’s program called Take10! (Kibbe et al., 2011). This is an intervention program that provides teachers 10-minute physical activities that can be incorporated in the classroom to integrate movement and learning. The materials and training that teachers receive are grade specific and designed to be integrated into academic lessons as opposed to being a separate activity. This intervention has been through several revisions during its 10-year existence and researchers have established several positive outcomes. These include an increase in children’s physical activity levels
throughout the school day, a reduction in fidgeting behavior amongst younger children, increased student concentration and time on task behaviors, and higher achievement scores in several academic subjects (Kibbe et al., 2011).

The Take 10! Intervention has been so successful that other programs have begun to incorporate some of the Take 10! materials and activities. One such example is the Physical Activity across the Curriculum program (PAAC) (DuBose et al., 2008). The PAAC program was a three-year intervention study in twenty-one schools. Classroom teachers were asked to use Take10! materials in their second through fifth grade classrooms to give their students approximately twenty minutes of physical activity a day. Teachers were given training and materials to help them implement the program.

The PAAC lessons were designed to be integrated in to daily classroom curriculum (DuBose et al., 2008). For example, children could pretend to jump rope while repeating their multiplication tables. During geography, children were taught to run in place while facing a certain location in the classroom (i.e. north, south, east, and west). For spelling, children were asked to jump from letter to letter (located on the floor) to spell words. All of the physical activity lessons could be done in a small space (i.e. next to students’ desks) and required minimal resources to execute.

The Take 10! and PAAC programs illustrate the possibilities for incorporating short bouts of physical activity during classroom time, but that largely depends on the willingness and or ability of the classroom teacher to implement such lessons.
Teachers’ Role in Incorporating Physical Activity in the Classroom

Teachers are the main facilitators of many things for elementary school children. They see the children for an extended period of time each day and therefore have the power to influence children in profound ways. Teachers generally work long hours for little pay and are constantly being pressured into having the students in their classrooms perform well; this is especially true in recent years with the stakes being raised on schools to perform well on standardized tests. Even in the midst of all the test pressure some teachers (and schools) have made incorporating physical activity in their classrooms a priority. However, if teachers do not support or agree with such a program the chances of them having their students engage in physical activity during class will be unlikely (Martin et al., 2008).

Research has shown that teachers’ knowledge and beliefs about changes in curriculum and inclusion of new methods in the classroom influence the probability of their learning and implementing new programs and methods (Martin et al., 2008). If teachers are willing to learn and understand new techniques and have positive feelings about particular concepts there is a much higher chance teachers will be willing to carry out the new techniques in their classrooms. Therefore, teachers’ knowledge, beliefs and attitudes about incorporating physical activity into the classroom must be taken into consideration before any such programs are created and implemented in schools (Breslin, Morton, & Rudisill, 2008; Morgan, 2008).
Since the regular incorporation of physical activity in the classroom is still a rare occurrence, there is very little research examining teachers’ beliefs and attitudes about physical activity in the classroom and the few studies available are outdated. One of the most frequently cited articles is from 1989 (Faucette & Patterson). This study discussed classroom teachers’ attitudes regarding teaching physical education classes, not incorporating physical activities in the classroom. Even with recent efforts to incorporate physical activity in the classroom there is little known about teachers’ thoughts on the matter (Park et al., 2007). But understanding teachers’ beliefs and attitudes about physical activity in the classroom is crucial to the success of classroom based physical fitness programs. If teachers are not willing to implement physical activity lessons in the classroom such programs will not be successful. Furthermore, teachers who feel unprepared or lack the knowledge base to support physical activities are equally likely to forego participating in such programs in their classrooms.

A somewhat related avenue of research has examined how classroom teachers feel about having to teach PE classes. In an effort to maintain PE programs while saving money, some schools have begun to offer PE classes that are taught by classroom teachers rather than by a qualified physical education teacher (Breslin et al., 2008). However many teachers do not wish to teach PE and do not view the task favorably which could negatively affect children’s experiences with PE classes (Cothran et al., 2010; Morgan, 2008). In a study done by Faucette and Patterson (1989) the majority of teachers interviewed reported that PE was their lowest priority and they did not place much value in having to teach it effectively. Along with unfavorable attitudes about
having to teach PE classes, it is important to note that classroom teachers are not typically qualified to do so (Cothran et al., 2010). According to the existing literature some of the barriers that classroom teachers face in teaching PE classes include, time, energy, value, knowledge, training, resources and testing pressures (Cothran et al., 2010; Faucette & Patterson, 1989). The overall message is that classroom teachers are reluctant to teach children PE and do not feel that it is their responsibility.

Given the factors noted above, the classroom environment remains for the most part an untapped resource for promoting physical activity during the school day. In order for such opportunities to be made available to children, teachers must be willing to incorporate them during classroom time. Teacher efficacy, knowledge and beliefs about classroom-based physical activities are extremely important and must be understood if educational change is to occur (Martin et al., 2008). And while teachers in general seem to support the notion of children having physical activity breaks in the classroom the reality is that there are many factors that can make that task hard to accomplish (Breslin et al., 2008).

Some of the barriers teachers face in trying to integrate physical activity into the classroom are similar to those identified in studies of classroom teachers teaching PE namely, time, knowledge, resources, support and training (Erwin et al., 2011; Parks et al., 2007). Teachers are constantly being asked to add more to their daily required tasks. As the tasks increase, the time teachers have to get everything done does not change, so teachers must find ways to do increasingly more in the same amount of time. One of the biggest responsibilities that teachers must constantly fit into the school day is preparing
children for the standardized tests that have become extremely important to schools. If teachers find themselves falling behind on a lesson chances are that testing pressure will push them to continue working on the academic lesson as opposed to taking a physical activity break.

In addition to being stressed for time, many classroom teachers do not have the necessary knowledge to appropriately incorporate physical activity lessons in the classroom (Sloan, 2010). If teachers do not feel confident that they can successfully incorporate physical activity in the classroom chances are they will not do it at all. Along with lack of knowledge, another barrier teachers have cited is the absence of available resources to carry out physical activities. This would include resources such as equipment and space (Story et al., 2006). If teachers do not have the tools they need to engage children in physical activity it is unlikely that such opportunities will be offered to students.

Lack of support from school personnel has also been cited as a barrier to incorporating physical activity in the classroom (Story et al., 2006). If a teacher does not feel supported by the school administration there is not really any motivation for her to carry out such activities. Schools that do not offer the training necessary for implementing a classroom based physical activity program are not giving teachers the background knowledge and information they need to successfully incorporate the program. Teachers who feel they are not properly prepared for or equipped to handle such a program are unlikely to have positive feelings about it or to persist in using it in their classrooms.
It is therefore encouraging that when schools address these barriers, teachers can be successful in incorporating physical activity in their classrooms. In schools that offer teachers training, and provide teachers with resources (i.e. equipment or access to the gym), support and encouragement, teachers find incorporating physical activity into the classroom a more attainable goal (Martin et al., 2008).

Ultimately, incorporating physical activity in the classroom all comes down to the teacher. If we do not fully understand what teachers’ beliefs are about incorporating physical activity in the classroom we cannot expect them to carry out such a task effectively. Children are the ones who will suffer if something is not done to reverse the increasing rates of children who are obese or at risk for becoming so. Every environment that children are exposed to, especially the home and school, should provide children with regular opportunities to engage in physical activity. It is unfortunate that the environment where children spend the majority of their waking hours, the school classroom, has not been utilized successfully to increase children’s physical activity levels. Something must be done to remedy this situation. One important step in doing that is to gain an in depth understanding of classroom teachers’ beliefs about incorporating physical activity in the classroom environment, which was the primary focus of this thesis.
Theoretical Lens: Bronfenbrenner’s Bioecological Model

Urie Bronfenbrenner’s bioecological model of development provides a powerful theoretical lens for studying the complex issue of childhood obesity across a variety of contexts including the school. Bronfenbrenner was interested in how children’s different environments influenced the child’s development. Bronfenbrenner theorized that a child is part of a system of nested structures and what happens within and between these structures exerts a strong influence on the developing child (Miller, 2011). Bronfenbrenner was less concerned with the nature versus nurture debate and instead focused on how the two interacted with one another within the structures present in the child’s social contexts (Bronfenbrenner & Ceci, 1994).

There are four main systems that encompass the developing child, including the microsystem, mesosystem, exosystem and macrosystem (Bronfenbrenner & Morris, 2006). The microsystem is comprised of the everyday frequently occurring interactions between a child and the child’s closest specific environments and the people within such environments. The school (including peers and teachers) and home (including parents and siblings) are examples of structures and individuals within the microsystem. The mesosystem involves the interactions between the child’s different Microsystems, for example, peer pressure at school could influence how a child behaves in the home environment. The exosystem involves the interactions between two or more settings at least one of which does not contain the child on a regular basis. An example of this would be the media that children are exposed to. The macrosystem encompasses all of
the other systems and includes the belief systems and cultural norms of the society within which the child resides.

Bronfenbrenner argued that these systems can and often do change over time. Thus, it is important to look at a child in accordance with that child’s particular environments at a specific point in time (Miller, 2011). This perspective is directly applicable to the issue of childhood obesity. For instance, obesity among children has increased over the past three decades but other related changes have also occurred in the economy and the family system. Therefore, studying obesity in children today should be based on current circumstances and not based on children from thirty years ago.

Furthermore, since no two children are exposed to the same contexts, they should not be compared to one another without taking into account how differences within each child’s systems influence developmental outcomes.

Another important concept of Bronfenbrenner’s model is that children actively participate in their development by making choices. These choices affect how others respond to the child and ultimately can affect the developmental path (Miller, 2011). For example, some children are more outgoing and are more willing to make new friends and therefore may enjoy social situations more so than a shy child who avoids new people and becomes overwhelmed in new settings.

The bioecological theory of development can be applied to obesity as well as any number of other developmental issues because they are all interrelated. Children develop within and across environments, and each environment offers different opportunities and challenges for development. As children actively make choices every day across a
number of different environments, these choices affect the course of their development. Context is key to understanding development and children cannot be understood completely without examining their individual contexts. Childhood obesity for instance cannot be examined exclusively in the context of the family microsystem because other microsystems such as the school would not be taken into account. Limiting the study of child obesity to the microsystem level limits the possibilities for creating solutions to the obesity epidemic. Obesity is a multifaceted issue and is not likely to improve without changes being made at several different levels. It is important for parents, teachers, policy makers and researchers to understand that obesity is a complex issue and will not be solved if only one aspect (such as diet) is corrected in one place (such as the home). Multiple microsystems, namely the school and home, must be investigated and understood thoroughly if there is to be a solution to the growing obesity problem.

From a bioecological perspective, there are a number of different factors that could make it difficult for children to engage in physical activity during class time. Because the school, the classroom and the home environments don’t communicate and work together to promote physical activity there is no way to know what factors make it possible or impossible to successfully support physical activity in the classroom (Bronfenbrenner, 1979). Perhaps a teacher is not supported by her principal due to testing pressures. Perhaps the teacher feels that the students are already engaging in physical activity outside of school and therefore it is not necessary in the classroom. Perhaps the teacher looks at an overweight child and believes the parents are responsible for the health of that child. Teachers may not engage children in physical activity in the
classroom for any number of reasons. For example, if teachers feel school support is lacking for classroom based, then that particular environmental issue would need to be addressed. If teachers feel that parents need to be more involved in order to make physical activity in the classroom more successful then parental involvement can be incorporated into a program. The point is that there are a number of different reasons as to why teachers may not be engaging the children in their classrooms in physical activity and research must work on identifying these main reasons and then trying to reverse them.

The purpose of this thesis was to examine one context in the microsystem level, specifically the classroom, and ask one of the main facilitators of knowledge, teachers, what is being done (or not done) to encourage physical activity opportunities in the classroom for children. The findings in this study could be a starting point for further research on the topic.
Chapter 3

METHODS

Purpose of the Study

The purpose of this study was to examine public elementary school teachers’ knowledge, beliefs and practices related to incorporating physical activities into their classrooms. The following chapter describes the methods used to conduct the study.

Design and Research Questions

The study employed a qualitative research design to examine teachers’ knowledge, attitudes and practices. Individual interviews were conducted to collect data from participating teachers. Qualitative methods were used to analyze data and identify themes related to the following areas of research focus:

1. Teachers’ self-reported beliefs about children’s health and physical activity.
2. Teachers’ reports of school practices related to students’ physical activities.
3. Teachers’ self-reported knowledge and efficacy related to implementing physical activities in the classroom.
4. Teachers’ self-reported classroom practices related to physical activities.
5. Teachers’ self-reported supports and barriers to implementing physical activities in the classroom.

**Participants**

The population of potential participants for the study included public elementary school teachers in a wide geographic region of California. The sample of teachers included in the study was selected from public school teachers who were currently teaching (or taught last year) in grades kindergarten through fifth. The recruitment of participants began by inviting elementary school teachers known to the researcher (convenience sampling) to participate in the study. The researcher then asked the known teachers to recommend other eligible teachers who might be interested in participating (snowball sampling).

In the end, there were a total of ten teachers who participated in the study, two male and eight female. Five of the participants were acquaintances of the researcher and the remaining five had never spoken to the researcher prior to the study. Out of the ten teachers, four taught kindergarten, one taught 1st grade, one taught a 1st/2nd grade combination class, one taught 2nd grade, one taught 4th grade and two teachers taught 5th grade. The mean years of teaching experience among the participants was 12, with a range from 4 to 30 years. Seven of the ten teachers had taught from 4-10 years, with the remaining three having 20-30 years of experience. None of the participants had ever been a PE teacher.
The researcher contacted personal acquaintances who were elementary school teachers in California (convenience sampling) to ask them if they would be willing to participate in the study. The researcher then asked the known teachers if they knew of any other teachers that met the requirements of the study and if so they were asked to give the researcher contact information for the potential participant (snowball sampling).

The researcher hand delivered or mailed to each of the participants an informed consent form along with a self-addressed and stamped envelope (see Appendix A). The teachers were instructed to return the completed consent forms prior to scheduling the interview. Each participant decided the date and time of the interview and, for the in-person interview, the location. Participants were asked to select a private and quiet location for the phone interview. The sole in-person interview took place in a private location with only the participant and the researcher present. All participants were reminded prior to the recorder being turned on that the interview was being audio recorded and that they did not have to answer any of the questions if they did not wish to do so.

All participants were asked the same questions in the same order using a pre-established and pilot tested interview guide created by the researcher (see Appendix B). The length of the interviews ranged from approximately 25 to 55 minutes. An audio recorder was used to record each of the interviews. The completed interviews were
transcribed from the recorder to a computer database using the Transana software program.

Before any questions from the interview guide were asked, the researcher provided the participants with a common definition of physical activity as “any purposeful activity that requires movement of the body.” Participants were allowed to ask the researcher any questions before the start of the interview (none of the participants chose to do so). The researcher printed a blank guide for each interview. The researcher then crossed off the questions as the interview progressed, making sure all questions were covered. If the participant got off topic, the researcher politely returned to the interview guide.

At the conclusion of the interview, the researcher asked participants if they had any questions regarding the interview (no one did). The researcher also thanked participants and reminded them that their privacy would be maintained and no identifying information would be used in the report of the study.

Data Collection and Interview Protocol

Data in this study was collected through interviews with each participant using a qualitative interview protocol created by the researcher (see Appendix B). The content of the interview protocol was based on the research questions as well as knowledge gained during the extensive literature review conducted in the earlier stages of the study. The interview guide was pilot tested on five teachers (who taught middle and high school and
were not a part of this study) prior to its use with study participants. Feedback from the pilot test resulted in a few wording changes in the final version of the interview protocol.

The first section of the interview protocol was comprised of a series of demographic questions, including teachers’ gender, grade they were currently teaching, and total number of years teaching. In addition, participants were asked if they had ever been a PE teacher.

The second section of the protocol focused on teachers’ beliefs about children’s health and physical activity levels. In this section, teachers were asked to describe their beliefs about the role of physical activity in elementary children’s health and development. Other questions asked teachers their beliefs about the role of parents, schools and society in children’s physical health and activity.

The third section focused on practices related to physical activities at the teachers’ schools. These items asked teachers to describe the daily physical activity opportunities available for the children at school. Teachers were also asked to describe ways in which they believed physical activity could be incorporated into the environment at their school on a more regular basis.

The fourth section of the interview included questions related to teacher efficacy. These questions asked teachers whether they had received training in how to incorporate physical activity into the classroom, as well as whether they felt adequately prepared to incorporate physical activity if asked to do so.

The fifth section of the interview protocol focused on teacher practices related to implementing physical activities in the classroom. First, teachers were asked if they were
currently incorporating physical activity into their classroom activities. Eight teachers responded “yes” to this question. These teachers were asked a series of questions related to their use of physical activity, such as: How often do you incorporate physical activity? How do your students respond? The two teachers who were not currently incorporating physical activities were asked to describe ways in which they might incorporate physical activities into their current practices.

Both groups of teachers were also asked whether they were receiving any support or training from their schools to promote their use of physical activity in the classroom. Teachers were also asked to describe the kinds of supports they felt they would need as well as any challenges or barriers to their implementing classroom based physical activities. At the end of the interview, participants had an opportunity to add any further comments or information they wished to share.

**Data Analysis**

After all interviews were completed, the researcher created a verbatim transcript for each interview. Next, the researcher created an Excel spreadsheet to organize and summarize the interview data. The interview responses were transferred verbatim from the transcripts into the spreadsheet by question and participant. This allowed the researcher to analyze the full set of participant responses for each question.

Once the data was organized by question, the researcher conducted an initial review and coding of the responses for each question. For some items, the structure of
the question was used to establish categorical codes. For example, the question, “Have you ever been a PE teacher?” was coded as either Yes or No. For more open-ended questions, (for example, “What are your beliefs about the role of parents in promoting children’s physical activity?”), the researcher used content analysis methods to identify relevant words or phrases in the responses (Crabtree & Miller, 1992). These words or phrases were used to establish initial patterns or categories of responses, which were then identified by a numerical code. For some questions, (for example, “What do you believe would be the biggest barriers for you in having to incorporate physical activity into your classroom?”), initial codes were based in part on themes identified in the literature review. In this manner, the researcher created an initial set of categorical themes with corresponding numerical codes.

In the second phase of analysis, an independent rater reviewed and separately coded the data set. Reliability correlations were computed comparing the two sets of codes for each set of questions (teacher beliefs = 0.63 to 1.0; school practices = 0.65 to 0.95; teacher efficacy = 0.71 to 1.0; teacher practices = 0.71 to 1.0).

Next, the two raters reviewed the coding and categories together a third time to refine and finalize the coding scheme. Cases of discrepancies between the two coders were reviewed and discussed until 100% inter-rater agreement was reached. Finally, the researcher determined by count the frequency of each category of response. Important patterns and categories in the data as well as frequency of responses were used to formulate and summarize the study’s findings.
Summary

This chapter has described the methods used to conduct this study of teachers’ beliefs and classroom practices related to children’s physical activity. The following chapter reports the results of the analysis.
In order to examine teachers’ beliefs and practices related to classroom based physical activity, the researcher conducted an interview study of ten elementary school teachers. The interview questions focused on: a) teachers’ beliefs about the importance of physical activities, b) the current practices at their school, c) teachers’ knowledge and sense of efficacy in incorporating physical activities, d) teachers’ actual classroom practices, and e) supports and barriers that either assist or hinder teachers’ implementation of classroom based physical activity. The following sections report the results for these questions.

**Teacher Beliefs about Children’s Physical Activity**

This set of interview questions focused on teachers’ beliefs about the role of physical activity in young children’s lives. The teachers were asked to describe their views about the role that the school, parents, teachers and society should play in promoting a child’s engagement in physical activity.

**Role of Physical Activity**

Eight of the ten teachers described physical activity for elementary aged children as “very important” for their health. Two teachers noted the additional value of physical
activity for children’s learning, as described by teacher B, who said physical activity “is vital for a child, especially for kinesthetic learners who do better when they move their bodies while they are learning.”

**Role of the School, Teacher, Parent and Society**

Teachers were next asked to describe their beliefs about the role of the school, parents, teachers and society in promoting children’s physical activity. Nearly all of the teachers (n=8) felt that the school plays “…a very important role in supporting physical activity for students.” Several teachers noted that, for some children, school is the only place where they are exposed to physical activities: “…a lot of kids don’t have the resources outside of school to practice and learn about such things, school is a huge place to expose them...” Two teachers reported that some amount of mandated physical activity is required for most schools.

Eight of the participating teachers described parents as “…playing an important role” in promoting their children’s physical activity and 90% of the participants believed that parents were the most responsible for promoting physical activity in their children. For example, participant H said “it all starts at home if parents are lazy their kids will be too, if they have bad eating habits the kids will too.” Furthermore, several teachers noted that parents “…must be involved” in promoting physical health because schools are limited in their ability to provide adequate physical activities. However, half of the teachers expressed concerns about how effective parents are in supporting their child’s physical health, noting that “…modeling is one of the best things to do, shows the kids its
important, if parents are sitting around kids will do that too” (participant I). Despite noting the important role that parents should play in promoting children’s physical health, six of the teachers acknowledged that schools and others must also be involved and supportive.

**Role of the Teacher**

All of the teachers expressed a belief that they themselves play a significant role in promoting physical activity for their students. As with parents, many of the teachers (50%) described themselves as role models, according to participant I, “Teachers should do the same things they are asking the kids to do. We are such a positive role model for the kids.” Three teachers went so far as to describe promoting physical activity as a teacher’s duty, with participant B explaining that, “…it’s a teacher’s job to be aware of their students and physical activity is connected to learning so it should be a huge part of a teacher’s role.”

**Role of Society**

Teachers expressed a range of beliefs about the role of society in supporting children’s physical activity practices. Several teachers (n=4) described society’s role as “important” because children are influenced by everything in their environment: “everything they see influences them” (participant A). However, other teachers noted that societal involvement in promoting children’s physical activity may be influenced by neighborhood and cultural values, for example, “it depends on the neighborhoods and
community beliefs about physical activity,” as noted by participant H. In addition, a few teachers (n=3) expressed concern over the mixed messages about health and nutrition children receive in the media noting that “…they show fast food commercials with apples…but models in magazines that are too skinny” (participant J). At the same time, one teacher (participant D) indicated that recent technology may make promoting physical activity easier and more appealing to children: “I like the new video games that require movement like all the dancing games, I think society is starting to realize what kids gravitate towards.”

School Practices Related to Physical Activity

The purpose of this group of questions was to investigate what the teachers’ schools were actually doing to engage children in physical activity. The participants had the opportunity to explain in what ways their school encouraged physical activity amongst students. Ninety percent of the participants stated that their schools placed an emphasis on physical activity, and all but two of the participants believed this to be a sufficient amount of physical activity for the children. All ten of the participants stated that their students had a morning and lunch recess, and five reported their students had an additional afternoon recess. The teachers’ reports about physical education classes available to students varied. Three of the teachers reported that their students only participated in PE classes part of the year, six of the participants stated that their students
had PE weekly, and one of the participants stated that their students went to PE every day.

Surprisingly, sixty percent of the teachers reported that their school was offering physical health and activity opportunities beyond PE, recess or teacher-led classroom activities. For example, Participant A’s school offers, “…things in the classroom, they have PE with a PE teacher and we offer activities after school….” At Participant D’s school, there is an “all school run once a week and…we started a soccer team as well.” Two schools (Participant G and I) had brought in outside speakers to discuss healthy nutrition.

When asked what things would need to happen to incorporate more physical activity during the school day, two of the teachers reported that nothing else needed to be done since their schools provided ample physical opportunities for the children. The eight remaining participants all had different suggestions ranging from purchasing a swing set, to suggesting that college kids come and physically engage the kids during recess periods, to changing the academic content standards that require so much seat time.

**Teacher Knowledge Base and Efficacy**

If children are to be exposed to more physical activity in classrooms, teachers must possess the knowledge and competence necessary to incorporating physical activities and lessons into their curriculum. This section of the interview asked teachers to
describe their knowledge base and sense of efficacy related to teaching physical activities.

When asked about their specific training or personal knowledge of how to incorporate physical activity in the classroom, 90% of the teachers said they had minimal to no training. Five of the teachers said that during their student training there was a small section on how to teach physical education classes but nothing on incorporating physical activity in their classroom. Two of the participants had received a little training through conferences or in-service days. Despite this reported lack of training, nine of the participants said they felt “prepared” to incorporate physical activities in the classroom, though there were a variety of reasons teachers cited for that level of comfort. For example, two of the participants stated that they were “…active themselves” so incorporating physical activity was not a problem. Two other participants added that they did have some doubts, for example, participant H responded that “yes but not very well (prepared).”

The final question in this section asked participants if they believed teachers’ personal beliefs about physical activity could influence their willingness to incorporate physical activity in the classroom, 90% of the participants said that yes it would. Participant A stated that “yes definitely, kids can read how adults feel about things.” Several teachers noted that besides teachers’ beliefs, their own physical fitness could be an important factor, as described by Participant E: “… and if a teacher isn’t physically fit the kids see that too and may not care if that teacher is promoting physical activity.”
Incorporating Physical Activity in the Classroom

Of the ten teachers in the study, eight reported that they regularly incorporate physical activity into their classroom curriculum, and almost all of these participants (7 out of the 8) did so on a daily basis. One of the eight incorporated it on a weekly basis. The participants provided examples of the different ways in which they use physical activity. Participant F said that “I read that kids need to move after 17-27 minutes so I try to do that, I turn on the music and we dance, daily.” And participant B said that the students would, “…hop during math lessons, find a friend to spell a word by walking around the room.”

When asked how the students responded to having short bouts of physical activity in the classroom seven of the eight teachers said that their students “…absolutely love it.” In addition, five of the eight participants said having physical activity helped the children focus and learn the material being taught. For example, participant D said that, “…they don’t enjoy all classroom tasks so the physical activity gets them to focus and wakes their brains up.”

Only two of the teachers in the sample reported that they do not incorporate physical activity into their curriculum. When asked how comfortable they would feel if they were told that they must start implementing physical activity in their classroom, the participants reported a “…medium” (Participant J) and an “okay” (Participant G) level of comfort with the idea. Both of these teachers noted they would be more comfortable teaching classroom based physical activity if they had some training.
Supports and Barriers to Classroom Based Physical Activity

The final questions of the interview asked participants to identify what supports they would need to incorporate physical activity in the classroom as well as what barriers made it challenging for them to implement physical activity. Across the full sample of ten teachers, 60% cited the need for training in how to incorporate physical activities and 40% noted that more time would be necessary. Although two of the ten teachers were not currently using classroom based physical activities, there were some common themes across the responses of these two teachers and the responses of the eight teachers who were integrating physical activity into their classroom practices.

Teachers Already Incorporating Physical Activity

Among the eight participants who were already incorporating physical activity in their classroom, five teachers reported that they did have enough time in their daily schedule to incorporate physical activity, while the remaining three felt that they did not. When asked if their school offered training on how to incorporate physical activity in the classroom all of the eight teachers in this group responded “no.” When asked what other types of support they received in order to incorporate physical activity in the classroom, 50% (n=4) of the teachers said they received no support and the other 50% (n=4) said fellow teachers offered the majority of support. When asked where they would like to receive support, three of the eight teachers said from their principal, one said from parents and four of the participants did not respond.
When asked what challenges or barriers made it difficult to incorporate physical activity in the classroom six of these eight teachers stated that time was the biggest challenge. The remaining two participants noted other challenges. According to participant A, the primary challenge is “…the kids I deal with, low income, so their home environments might not make physical activity important so they don’t really care.” Participant F mentioned curricular and assessment pressures, indicating that the biggest barrier was “the pacing we have to follow for the testing.”

**Teachers Not Incorporating Physical Activity**

Two of the ten teachers were not currently including physical activity in their classroom activities. Both of these participants stated that they would feel more comfortable incorporating physical activity if they were given some type of training. And both participants believed that lack of time would be the biggest barrier to incorporating physical activity in their classrooms. When asked what factors might facilitate the successful incorporation of physical activity in the classroom participant G said, “…more time and equipment” and participant J said, “Brainstorming with other teachers.”

When these two participants were asked to provide examples of how they might incorporate physical activity in the classroom, participant G could not think of anything and participant J said that “pushups and jumping jacks could be done all the time in the class without much thought.” Finally when asked what possible benefits physical activity might offer to their students, participant G said, “I think it helps their brain by stimulating
it” and participant J said, “I think it would really help with their attention, and it would make the school day more fun for them.”

The Pressures of Mandated Curriculum and Assessment

Although there were no specific questions in the interview protocol regarding the influence, either positive or negative, of state mandates for curriculum and assessment, many teachers noted the negative impacts of these pressures in their responses. It appears from these comments that testing pressures not only influence the content and nature of daily classroom activities but they also impact how and where a teacher spends her classroom time.

A strong majority of the participants (70%) mentioned the pressures of standardized testing and emphasized the stress and discomfort associated with the testing at their schools. Several teachers, including participant C, noted how the extra attention to testing tended to displace time allotted to physical activity, “…what it comes down to is testing and physical activity isn’t tested so…” Other teachers, like participant D, lamented the difficulty of making time for any activity beyond that needed to address state curriculum standards: “The hardest thing is trying to accomplish everything I have to state standards wise and still feel like I can fit that (physical activity) in and it’s hard because I see a huge importance in it but not everyone else does…”

Half of the teachers (n=5) noted the personal and professional stresses of trying to meet the demands of mandated curriculum and assessment, and how that stress
contributed to the marginalization of “extras” such as physical activity. Participant E explained how these pressures lead teachers and schools to simply ignore the importance of physical activity:

I just think everything is so based on standardized testing now that you never hear anything about physical activity… I am glad that I teach kindergarten right now because I don’t want to be in a testing grade…there’s been teachers at my school site who have had to go speak with a psychologist about it because they are under so much pressure.

Five of the participants made specific mention of the challenges created by the No Child Left Behind legislation. These teachers emphasized the “unrealistic” nature of the plan, in particular its lack of recognition that children are different and those differences must be taken into account with regards to their academic achievement. Participant G stated that, “…there will always be kids who do well and exceed the states expectations, there will always be kids who fall below and many of the kids will be in the middle.” Participant C noted that while teachers themselves remember having all sorts of activities in elementary school (i.e. music, P.E., sports, art, etc.) “That’s not the way now because of No Child Left Behind…and you know it’s kind of sad because it’s like maybe this kid isn’t that good at math but who knows they could have been good at music and they’ll never know.” Participant E described the pressure this way:

…there’s benchmarks that schools have to meet every single year…and if you don’t then you’re given a certain classification and that is not a good thing. And there’s consequences if it happens year after year so there’s all this pressure
placed on the school to make students’ perform…Every year the benchmark
raises, they think all children can be proficient and we know not every child can
do that because they learn at different paces…. These comments suggest that there are powerful curricular and assessment pressures that
present barriers to the addition of physical activity into teachers’ daily classroom
practices These pressures must be lessened or at the least be taken into account if schools
are to successfully implement physical activity into the classroom.

Summary

This chapter has reported the results of a study of teacher beliefs and practices
related to classroom based physical activity. The following chapter provides a discussion
of the study’s findings as well as recommendations for practice and directions for further
research.
Chapter 5

DISCUSSION

Studies of children’s physical activity in elementary schools indicate that practices such as PE and recess are decreasing (Anderson & Butcher, 2006; DuBose et al. 2007). Although the classroom represents a possible context for promoting physical activity, only a few studies have examined whether and how classroom teachers are incorporating physical activities (Parks, Solomon, & Lee, 2007). In the present study, the researcher sought to examine elementary teachers’ beliefs and practices related to classroom based physical activity. An additional purpose of the study was to examine whether teachers were incorporating such activities into daily classroom lessons, and to identify what factors support or hinder teachers in including such activities. This chapter provides a discussion of the major findings of the study as well as recommendations for future research and practice.

Major Findings

In order for physical activity to be incorporated on a regular basis into the classroom, teachers must believe in the importance of such activity, have the knowledge and ability to implement physical activity into their practice, and receive the support necessary to sustain these practices. The interview questions in this study focused on these themes.
School Practices

Previous research has reported a decrease of opportunities for physical activity available to children in schools today ((Sharkey, Yetter, Felix, & Furlong, 2006). Results in this study contradict these earlier findings, with nearly all of the teachers reporting that their schools offered a variety of physical activities for children, including P.E., recess, and in the classroom activities. More than half of the teachers reported that their schools also had extra-curricular physical activities and/or nutrition programs available for the children. Given this level of activity, it is not surprising that the teachers in the study considered the practices at their schools to be “sufficient” and that not much more needed to be done to increase students’ access to physical activity.

Although the state of California and local school districts set forth minimum requirements for school based physical activity, there was still a good deal of variation in the frequency of physical activity that children are exposed to across the ten schools in this sample. No two teachers reported the same amount of physical activity opportunities available to their students. This is consistent with findings in previous literature that indicate a wide range of frequency in available physical activity, from more than is mandated to almost none (Cothran et al., 2010). This suggests that while many public schools are making P.E. and other types of physical activity available for every child, the total number and types of physical opportunities available may differ considerably from school to school. In this sample, all of the schools were including what teachers considered an adequate amount of physical activity for children within and beyond the
school day, and some of the variation occurred in schools where students were provided opportunities for activity beyond the levels required by the state and district.

**Teacher Beliefs**

The results of this study confirm previous findings that teachers generally hold strong beliefs about the importance of physical activity for children at school (DeCorby et al., 2005; Faucette, & Patterson, 1989). The teachers in this sample framed those beliefs around three key points. First, children should be presented with physical activity opportunities regularly because being physically active is important to the overall health and wellbeing of young children. Second, many of the teachers noted that physical activity is not only valuable for its own sake but it also helps children focus and learn. This is significant since previous research supports the notion that children perform better academically when they are allowed to engage their bodies in physical activity throughout the school day (Chomits et al., 2009). Finally, participants believed that the teacher plays a significant role both in presenting physical activities and in serving as a role model. Nearly all participants felt that an individual teacher’s personal beliefs were a strong influence on whether or not they incorporated physical activity with their students.

**Teacher Knowledge and Efficacy**

Despite having little or no specific training or knowledge, most of the teachers in the study felt capable of incorporating physical activity and were in fact doing so, though there were a few that felt uncertain about their efficacy in this area of practice. This is in
contrast to previous research, in which results showed that many classroom teachers do not teach physical activities, especially PE, to their students, because they feel unprepared to do so (Faucetter & Patterson, 1989).

Since the researcher in this study did not conduct any classroom observations, it is impossible to determine anything about the quality of the physical activities or PE classes that the teachers in this study are offering. While the teachers’ sense of efficacy about their ability to offer physical activities to their students is admirable, their self-reported lack of knowledge and training raises the question of whether lack of training/knowledge is a hidden barrier. The mere fact that teachers are incorporating physical activity into their classrooms, and seem to feel capable in doing so, does not guarantee that the activities are appropriate, effective or high quality. Previous research has identified the possible dangers and consequences of teachers inappropriately teaching children physical activities without having been properly trained (Story et al., 2009). In schools where teachers are incorporating physical activities in the classroom or are teaching P.E., it is therefore important for those teachers to receive adequate training to insure student safety.

A number of previous studies confirm that teachers’ knowledge and beliefs about changes in curriculum and inclusion of new methods in the classroom influence the probability of their implementing new programs and methods (Parks et al., 2007). It is therefore interesting that nearly all of the teachers in this study are incorporating physical activity in their classrooms on a voluntary basis, even though they reported a lack of knowledge and training in how to do so. Perhaps for these teachers, their beliefs about
the importance of including physical activity are a strong enough influence to override any doubts they might have about their knowledge base and efficacy.

**Teacher Practices**

Although the existing literature describes classrooms as overlooked and underutilized as places to engage children in physical activity (Pyle et al., 2006), the data from this study paints a contradictory picture. All but two of the teachers use the classroom for physical activity on a regular basis. This is consistent with their strong stated beliefs about the importance of physical activity, and their understanding of its relationship to learning. Even the two teachers not currently using physical activity in the classroom said they would be comfortable doing so but are not doing it now because of time restraints.

**Supports and Barriers**

Perhaps the most surprising finding in this study is that most of the teachers are regularly incorporating physical activity in their classroom practice despite their lack of training, without much support from their school, and absent any additional time to do so. Many of the teachers were clearly comfortable having to teach PE or other types of physical activity themselves without much training or knowledge. This attitude echoes the kinds of reports from teachers seen in other studies (Parks et al., 2007). Furthermore, it appears that their primary motivations for including physical activity are their beliefs in
its value for children’s health as well as their understanding of its role in supporting children’s learning.

Although teachers do not appear to be receiving much support from their school or principle, it is encouraging to hear that teachers go to other teachers for support. At the same time, this is problematic, since other teachers are most likely just as untrained as they are. As noted previously, this lack of knowledge and training among the teachers raises questions about the quality of the activities they are presenting (Story et al., 2006).

Although some of the teachers expressed an interest in further training, this obviously does not present a major barrier. When asked where they would like to see more support the teachers in the study did not have many suggestions. Most of the teachers said they felt comfortable just knowing they could ask for help (from the school and parents) if they needed to. Perhaps the teachers did not feel like they needed support because they are already regularly implementing physical activities that they perceive as appropriate and successful.

Some of the barriers mentioned in the literature were reported by the teachers in this study, namely, time, knowledge/training, resources and testing pressures (Cothran et al., 2010). However, given the numbers of teachers who were regularly incorporating physical activity, it appears that none of these reported barriers pose a major challenge. The two teachers who were not currently offering physical activities regularly did note that they would be likely to add these in if they had more time.

Academic pressures related to curriculum and testing seemed to pose a much bigger problem for these teachers than the prior research suggests. Although the
interview protocol did not include specific questions relating to testing and academic pressures, many of the teachers noted the stresses and consequences of such pressure and the impact it has on the teacher, students and the classroom atmosphere throughout their responses. When teachers feel pressured, this pressure impacts how they spend classroom time as well as how they value and prioritize different classroom activities. For instance, physical activity is not tested or graded so it may not be as important to offer it as regularly as more academically tested subjects. Among the ten teachers in the study, about half of the teachers thought they had enough time to incorporate physical activity and the other half did not. Since eight of the ten teachers were incorporating physical activity regularly, it appears that several teachers are doing so despite feeling that they lack the time to do so. It would be interesting in future research to examine how they are accomplishing this and how they are negotiating the tension this must create.

Limitations

The findings in this study must be considered in light of the limitations inherent in the design and conduct of the research. One important limitation was related to the method of data collection. Use of an interview as the primary source of data meant that the data collected was self-reported. Participants could have said anything in response to the interview protocol and there would have been no way to verify their reports. This is particularly problematic in relation to the data regarding classroom practices. Without
observations, there was no method in this study to confirm the practices that the teachers reported.

The sample size and selection may also have proved to be a significant limitation in the study. With only ten participants the study results cannot be generalized to larger populations. Selection of participants could also have been problematic. The researcher used both convenience and snowball sampling, which means that five of the ten teachers were known to the interviewer. The remaining five teachers were acquaintances of the first five. This could have caused the participants to answer questions in a manner pleasing to the interviewer. In both cases the reports given by the teachers may have been biased and not completely objective.

The quality and veracity of the data may also have been influenced by the interview protocol itself. Since there was no applicable interview protocol available in the existing literature the researcher created the protocol used in the study. In order to enhance its validity and reliability the protocol was pilot tested on five teachers, none of whom participated in the actual study. However, it is still possible that the validity of the interview protocol was limited because it was created by and executed by the researcher. In addition, its reliability may not have been as strong as might have been found in a previously published and more rigorously tested instrument.

There are other limitations in the conclusions of the study related to the types of questions and topics included in the interview protocol. Although the participants were asked to describe whether they incorporated physical activity in the classroom, interview questions did not ask for details such as number of times per week, total amount of time
spent on physical activity, or for detailed descriptions of the types of activities the teachers were using. In addition, the protocol questions did not probe in detail any differences in the use of physical activity between the schools except in a general sense. These areas, which were not a focus of this research, are topics for further study in future research.

**Recommendations for Practice**

The classroom represents an important context for expanding opportunities for children to engage in physical activity. This study examined the classroom practices of a small sample of elementary school teachers as they incorporate physical activity into their daily or weekly practice. These findings provide some guidance for ways in which schools and teachers can increase the frequency of classroom based physical activity as well as the quality of these experiences.

In this study, all of the teachers held strong beliefs about the value of offering classroom or school based physical activity to children. And, they seemed to understand its role in promoting healthy development as well as in classroom learning. What is missing, however, is specific training for teachers in how best to promote children’s physical health. Although some teachers appeared to be comfortable in their ability to create classroom based physical activities, others expressed uncertainty. In addition, the teachers’ only means of support was other teachers, who may be equally less knowledgeable.
Schools must therefore make efforts to provide teachers with more specific training in how to incorporate appropriate physical activity in the classroom. Such training is also necessary to insure that teacher designed physical activities are safe for children. Schools can also provide teachers with literature on the topic of physical activity so that teachers have a better understanding of why it is important for children to have access to physical activity every day. If teachers understand the value of physical activity, they will be more likely to incorporate such activities on a regular basis.

If schools do encourage teachers to incorporate physical activity into the classroom, standards must be set and monitored to ensure that such practices are being done safely and correctly. Schools may also want to consider providing teachers with some additional preparation and planning time to decide what physical activities to do and where in the classroom schedule such activities can be added in.

Another important factor in promoting physical activity that emerged in this study is the importance of time and space in the curriculum. In order for teachers to incorporate anything beyond the required curriculum content, teachers must be given adequate classroom time to prepare and present these activities. Furthermore, as noted by many of the teachers in the study, physical education must be elevated to a more valued place in the curriculum such that the pressures of academic learning and testing do not completely push it out.

Finally, teachers and schools can partner together to get parents involved in supporting children’s physical activities both in and outside of school. In the first place, as the teachers in this study noted, parents are the primary role models who can influence
children to be more physically active. Second, for young children, the school and the home are the two most influential contexts for their development and learning. As Bronfenbrenner noted (Bronfenbrenner, 1979), the more that a child’s environments work together to support a child’s development, the more likely certain behaviors will be acquired and practiced by the child. In this case, if the school and home place an importance on physical activity children will be more likely to adopt and maintain healthy levels of physical activity.

**Future Research**

Childhood obesity has been rising at an alarming rate over the past three decades, while at the same time children’s levels of physical activity are declining. With children spending the majority of their waking hours at school, research efforts must continue to identify ways in which the school can be utilized to promote healthier behaviors in children. Past research on obesity prevention has largely focused on parents and the home environment (Story et al., 2006). But changing patterns in family life over the last decade have created a need for the school to become involved in more than just academic and social learning. Schools and teachers must encourage children to be healthy both in their eating habits and by being physically active. Research can play a key role in identifying what schools can do to create more opportunities for children’s physical activity. In addition, studies must be conducted to evaluate existing school-based physical education and activity programs to insure they are safe and high quality.
Findings in this study provide a small glimpse into the practices of a few teachers. Future research must examine larger numbers of teachers across a variety of classrooms in a range of different schools and communities in order to create a clearer understanding of what schools and teachers are actually doing with physical education and activity on a daily basis. These studies must include observations of such activities to complement reports of teachers in order to understand the types, quality and frequency of physical activities in the classroom.

It is encouraging that nearly all of the teachers in this study were implementing physical activity in their classrooms, despite their admitted lack of specific training on how to do so. This seeming contradiction points to a need for further training for teachers specific to the promotion of physical health and activity. However, such training programs and supplemental materials must be informed by a thorough understanding of children’s physical health and development as well as a working knowledge of how to implement safe and effective classroom based physical activities. In schools where such training is implemented, it would also be important to conduct studies on the effectiveness of the teachers in implementing the physical activities as well as on the outcomes for the children.

Studies of school based physical activity should also include examination of how factors such as time and budget constraints as well as academic pressures influence or impede the implementation of physical activities for children. The results in this study highlighted the stress that standardized testing and academic standards create for teachers. These pressures seemed to be much more serious than previous literature has
suggested and therefore should be investigated thoroughly to better understand the dynamics between testing pressure and teacher practices in the classroom.

Future research on children’s physical activity in the classroom might also include investigation of the role of parents. As many of the teachers mentioned in this study, parents are the most responsible for promoting children’s physical activity. At the same time, teachers believed that many parents were not doing much to provide their children with opportunities for physical activity. Future studies might focus on how teachers and parents can establish similar goals regarding physical activity in children, and ways to communicate with each other effectively and efficiently. The more children are exposed to adults encouraging and modeling appropriate behavior in both environments, the more likely they are to do it themselves.

As with all areas of development, children’s physical health and wellbeing is fostered within the interactions and activities they encounter in their daily contexts. For young children, these contexts include the home and the school. Changing patterns in family life have made the school’s role in promoting healthy development more important than ever. The alarming rise in childhood obesity and the declining levels of children’s physical activity have converged to create a crisis in young children’s physical health. With the pressures of testing and the losses of budget support squeezing out traditional forms of physical activity, the classroom provides an important context for expanding children’s opportunities for physical activity. Results in this study confirm teachers’ strong beliefs in the value of physical activity for children as well as their commitment to finding ways, even on their own, to provide these in their classrooms. It is
up to schools and communities now to give teachers the additional tools in training, support and time to expand these classroom-based activities and to insure their quality.
Appendices
APPENDIX A

INFORMED CONSENT LETTER
You are being asked to participate in research which will be conducted by Lindsey George, a graduate student in Child Development at California State University, Sacramento. The study is investigating factors related to physical activity in the classroom and teacher attitudes about physical activity in the classroom.

If you choose to participate, the study consists of a one-on-one interview. The interview can be done in person or over the telephone, whichever is most convenient for you. The location and timing of the interview will be set by you in negotiation with the researcher. For your privacy the location should be a room in which no other persons are present. The interview will be a onetime event and will last an hour or more. The interview will be AUDIO RECORDED. If at any time during the interview you do not wish to answer a question you may let the researcher know and the interview will go on. You may also stop the interview at any time with no consequences. Your participation in this research is entirely voluntary.

Your confidentiality is of the utmost importance to the researcher. Any and all materials that may be used to identify you (name, phone number, email, etc.) will be destroyed after the completion of the project. And during the study materials that have identification on them will be kept separately from the interview data. Interviews will be assigned ID numbers by the researcher and will not be associated with your name at any time.

Your participation in this study may help you gain additional insight into factors that affect childhood obesity and how physical activity opportunities in the classroom can be beneficial to children, or you may not personally benefit from participating in this research. It is hoped that the results of the study will be beneficial for programs or in-service trainings designed to encourage teachers to bring physical activity into the classroom.

You will not receive any compensation for participating in this study. However if you would like to receive a one page summary of the findings at the conclusion of the study you may let the researcher know and you will be sent a findings page. Your signature below indicates that you have read this page and agree to participate in the research.

__________________________________________
Signature of Participant                                                        Date

If you have any questions about this research, you may contact Lindsey George at (xxx) xxx-xxxx or by e-mail at lindsey_george3@yahoo.com
APPENDIX B

INTERVIEW PROTOCOL
I. Introduction to Interview
   - Thank the participant
   - Review procedures for the interview including taping
   - Review confidentiality and get permission form signed if necessary
   - Provide a brief description of the purpose of the study including my definition of physical activity

II. Demographic Questions
1. Teacher Gender (circle one): MALE FEMALE
2. Total number of years teaching at the elementary school level: __________________
3. Current (or last year’s) grade you are teaching (taught): __________________
4. Are you currently or have you ever been a physical education teacher (circle one):
   YES NO

III. Teachers’ Beliefs About Child Health and Physical Activity
5. What are your beliefs about the role of physical activity in elementary children’s health and development?
6. What are your beliefs about the role of the school in promoting children’s physical activity?
   - What about parents?
   - What about teachers?
   - What about society?
7. Who do you feel is the most responsible for promoting kids physical activity?

IV. Practices Related to Physical Activities at Your School
8. Does your school place an emphasis on students’ physical wellbeing? Please explain your answer and give some specific examples.

9. What opportunities (daily or weekly) are available for the children at your school to engage in physical activities? Please specify.
   - Do you believe this is an appropriate amount?
   - Why or why not?
10. In what ways could physical activities be incorporated into the environment at your school on a regular basis (if they aren’t already)?
● Can you give specific examples?

V. Teacher Efficacy Related to Physical Activities in Your Classroom
11. Do you have any training, personal knowledge or ideas of how to incorporate physical activity into your classroom? YES or NO
   ● If yes, please explain
12. If your school asked you to incorporate physical activities into your classroom, would you feel adequately prepared to do so?
13. What would you need to be able to incorporate physical activities in your classroom (i.e. time, materials, training, other)?
14. Do you believe that a teacher’s own personal attitudes regarding physical activity would influence that teacher’s willingness/ability to successfully incorporate physical activity into their classroom? Please explain.

VI. Teacher Practices Related to Implementing Physical Activities in Your Classroom
15. Do you currently incorporate physical activities into your regular classroom activities? If YES, proceed with the following questions. If NO, go to section VII
16. How often? In what ways? Can you describe an example?
17. How do your students respond to having physical activity in the classroom? Please explain/give an example.
18. Does your school offer training to help you implement physical activities in your classroom?
   ● If yes please describe what the training involved and whether or not you have participated in the program.
19. What if any kind of support do you receive from fellow teachers, other school personnel, parents and the district to help you implement these physical activities?
   ● If you don’t receive any support where would you like to see such support come from?
20. What challenges or barriers make it difficult for you to implement these physical activities in the classroom?
21. Do you feel there is enough time in your current daily schedule to have physical activity during class time? YES or NO.
   ● If no, what could change that would make such physical activities easier to carry out?
   ● Proceed to Section VIII
VII. Implementing Physical Activities into Your Classroom (for teachers who are NOT currently implementing physical activities in their classrooms):

22. How comfortable would you feel implementing physical activity in your classroom on a regular basis?
   - Would you feel more comfortable if you were given instruction on how to implement such lessons?

23. What do you believe would be the biggest barrier for you in having to incorporate physical activity into your classroom (i.e. time, materials, lack of training, other)?

24. If your school implemented a new physical activity program within classrooms what are some factors that would facilitate the program and make you more likely to follow through with such a program in your classroom?

25. Can you describe a way in which you could incorporate physical activity in your classroom?

26. What do you believe would be some of the benefits for the children of incorporating physical activity in the classroom?

VIII. Wrap Up:

- Is there anything else you would like to add to your previous comments or anything else you would like to add to the interview?
APPENDIX C

CODING SCHEME
CODING KEY

Demographic Data

Q1: Gender
Male 1
Female 2

Q2: Years of teaching experience
1-5 years (beginner) 1
6-10 years (intermediate) 2
11+ years (advanced) 3

Q3: Current grade teaching
Kindergarten 10
1st grade 1
2nd grade 2
3rd grade 3
4th grade 4
5th grade 5

Q4: Ever been a PE teacher?
Yes 1
No 2

Teacher Beliefs

Q5: Role of physical activity
Very important 1
Provides kinesthetic learning 2
Other 3

Q6A: Role of school
Really important/necessary 1
Include as a different mode of learning 2
Meet state mandated number of hours 3
Provide PA resources/experiences not available to children elsewhere 4
School does not promote enough 5
Hard for school to provide PA 6

Q6B: Role of parents
Important 1
Parents’ responsibility/schools can only do so much 2
Children will imitate/model parents 3

Hard for some parents to promote due to lack of resources or knowledge 4
Parents don’t care/put forth effort 5

Q6C: Role of teachers
Important 1
Children will model teachers 2
Part of teachers duty/have kids for long periods of time 3

Q6D: Role of society
Important 1
Influential/kids are influenced by everything around them 2
Society models the cultural beliefs about how important PA/healthy lifestyles are 3
Society is making an effort (though sometimes contradictory messages are sent to children), video games that require movement, apples in happy meals, etc. 4
Not doing enough 5
Depends on location, some cities/schools/communities are more active than others, some promote PA some don’t 6

Q7: Who is most responsible?
Parents 1
Takes a whole village/lots of people 2
Teachers on a limited scale/when kids are with them 3
School/teachers 4

Practices at Your School

Q8: Does your school place an emphasis on P.A.?
Yes 1
Yes, we have PE, taught by general teachers/other PA opportunities/activities offered to promote health 2
Yes, we have a PE teacher/specialist 3
No, not really 4
Q9A: Daily P.A. offered to your students?
- Recess (morning) 1
- Recess (afternoon) 2
- Recess (lunchtime) 3
- P.E. class weekly 4
- P.E. only part of the school year 5

Q9B: Do you believe that is enough time?
- Yes 1
- No 2
- Other or N/A 3

Q9C: why?

Q10: Could P.A. be incorporated more?
No, we do a good job of incorporating it at my school 1
Teachers could get more involved/collaborate with one another 2
Other suggestions 3

Teacher Efficacy

Q11: Do you have any training or personal knowledge on how to teach/incorporate P.A. in your classroom?
- No 1
- No, maybe one class in college/one in service training at work 2
- Yes 3

Q12A: Do you feel prepared to do P.A. in the class?
- No 1
- Yes 2
- Unsure 3

Q12B: What would you need to incorporate P.A. in the class?
- Training/ideas 1
- Time 2
- Materials/equipment 3
- Other 4

Q13: Do teachers’ beliefs about P.A. influence their willingness to incorporate P.A. in the class?
Yes, teachers should have a positive attitude 1
Yes, if a teacher isn’t fit/doesn’t participate with the kids the kids won’t get into it 2
No 3

Teacher Practices (yes)

Q14: Do you incorporate P.A. in your class?
- Yes 1
- No 2

Q15: How often/ in what ways?
- Daily 1
- Weekly 2

Q16: How do the kids respond to P.A. in class?
- Love it 1
- Helps them focus/learn 2
- Must be done properly 3
- Gives kids & teacher a break 4

Q17: Does your school offer P.A. training?
- No 1
- Other 2

Q18A: What support do you receive regarding the incorporation of PA in the class?
- Fellow teachers 1
- Parents 2
- Do not receive support 3

Q18B: Where would you like to see support from?
- Principal/director 1
- Parents 2
- No response 3

Q19: Challenges/barriers to incorporating P.A.?
- Time 1
- Other 2
Q20: Is there time in your current schedule to do P.A. in the class?
- Yes 1
- Teachers must make the time/schedule it 2
- No 3
- Fewer skills to teach would make it easier to incorporate P.A. 4

Teacher Practices (No)

Q21A: Comfort implementing P.A.
- Medium/so-so 1

Q21B: More comfortable with training?
- Yes 1

Q22: Biggest barrier?
- Time 1

Q23: Factors that would facilitate P.A.?
- Time 1
- Equipment 2
- Brainstorming with fellow teachers 3

Q24: How could you include P.A. in your class?
- Not sure 1
- Push-ups/jumping jacks 2

Q25: Possible benefits to the children?
- Helps stimulate cognitive functions 1
- Makes the day more enjoyable 2
References


doi:10.1038/sj.iyo.0803142