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OUTCOMES

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Director of Physical Activity Professional Development Outcomes

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The Comprehensive School Physical Activity Program (CSPAP) model is one way to organize physical activity (PA) opportunities around specific target populations and points of intervention. It is recommended that physical education teachers serve as Directors of Physical Activity (DPA), given their expertise and experiences in the school setting. **PURPOSE:** This study examined the current role of physical education teachers in providing PA opportunities for students by implementing the CSPAP. The effects of professional development (PD) on teacher efficacy (TE) toward the implementation of the CSPAP were also investigated. **METHODS:** Using a collective case study approach, 30 physical teachers (Male=9; Experience 17.47) completed a survey on PA opportunities and self-efficacy. Twelve of the physical education teachers then participated in the DPA certification process, which consisted of a one-day workshop with 12-months of online support and follow-up to track their implementation of the CSPAP. Participants who

engaged in the DPA certification participated in a series of in-depth interviews, as well as observations and site visits. Over twelve months the researcher inductively reflected on the data with the intent of forming concepts, hypotheses, and theories through organizing themes and teacher vignettes. Descriptive statistics and a MANCOVA were calculated to determine group differences while a series of RM-MANCOVA's were used to determine pre/post differences. Regression analyses were employed to determine the predictors of change in PA. **RESULTS:** Qualitative results revealed six themes and three teacher vignettes. RM MANCOVA's revealed no significant difference between pre/post experience, however, regression analyses revealed significant predictors of offering PA opportunities. It was identified that group, TE and PD were both significant predictors when providing PA opportunities: (a) before and after school ($F(8, 21) = 2.65, p < .05, R^2$ $adj. = .31$), (b) with family and community members ($F(8, 21) = 2.62, p < .05, R^2$ $adj. = .31$), and (c) for staff wellness ($F(8, 21) = 3.80$, p<.01, R^2 $adj = .44$). **CONCLUSION:** Physical education teachers are capable and willing to provide PA opportunities, beyond those offered during physical education, by assuming the role of a DPA. The frequency of these opportunities is influenced by TE and PD.

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE: INTRODUCTION

As researchers, doctors, politicians, and the general public continue to discuss ways to best address childhood obesity, schools are being turned to as key players in combating the epidemic (Lee, Burgeson, Fulton, & Spain, 2007). Although nutritional and physical activity interventions are encouraged in the school setting, very little time has been designated throughout the school day to help increase healthy physical activity behaviors in children. This research study attempted to discuss ways in which children's physical activity levels could be increased to meet the 60-minute per day recommendation proposed by the Centers for Disease Control and Prevention. Specifically, it looked at the feasibility of training physical education teachers to implement opportunities for physical activity not just during the physical education class, but also throughout the entire school day.

Currently, much research has been conducted focusing on maximizing time spent in the physical education classroom to meet national guidelines of moderate to vigorous physical activity (MVPA; Luepker et al., 1996, McKenzie, Sallis, Kolody, & Faucett, 1997, Sallis et al., 1997). Research has also focused on implementing physical activity interventions in the general classroom, during recess, and before and after school (Jago, & Baranowski, 2004; Ridgers, Stratton, Fairclough, & Twisk, 2004). Recently, national organizations such as the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD), the National Association for Sport and Physical Education (NASPE), and Let's Move have suggested that the best way to combat childhood obesity may be through the inclusion of comprehensive school physical activity programs

1

(CSPAP). Although parts of CSPAP's have been implemented in schools, few studies have researched the impact of all five components of the CSPAP (e.g. physical education, before and after school, during school, family and community involvement, and staff involvement) as well as the feasibility of providing a CSPAP in the school setting. Furthermore, although integrating all five components of the CSPAP seems reasonable in the school setting, little if any research has been conducted to determine how implementation should occur and who should be in charge of leading enactment. Currently, the school community lacks an identified person to lead the charge in implementing CSPAP. It has been suggested that the physical education teacher is the ideal person for this task since their knowledge of children's physical activity and movement is extensive (Castelli & Beighle, 2007), yet it is unclear whether physical educators are prepared and willing to provide physical activity experiences for children outside of physical education. In a society where childhood obesity is a growing concern (Datar & Sturm, 2004) and teachers are being asked to fulfill multiple duties as part of their job description, it is important to determine the feasibility of redesigning the role of the physical educator and to understand how physical education teachers perceive their role as Directors of Physical Activity (DPA). In this context, the primary purpose of this research project was to examine physical education teachers' perceptions, self-efficacy, and implementation strategies related to the CSPAP model throughout the DPA certification process. Further, this study strived to identify the common points of intervention and the corresponding implementation strategies among participants. Finally,

2

a secondary purpose of this study was to compare teacher efficacy and emotions of participants and non-participants in targeted professional development.

GUIDING QUESTIONS

This research study is constructed on the basis of three guiding questions. The first question focused on teachers providing physical activity opportunities for children. The second question examined teachers' feelings about the implementation of CSPAP, while the third question focused on the role of Communities of Practice (CoP). The guiding questions are explained in further detail below:

Question One

This question sought to examine the perceptions and efficacy of the physical education teachers towards providing students with additional opportunities to be physically active. Specifically, differences in efficacy between the teachers who participated in the DPA certification process (treatment teachers) and those who did not (control teachers) were examined by the researcher. Furthermore, the researcher also explored the relationship between gender and years of teaching experience compared to teacher efficacy among the professional development participants and non-participants.

Question Two

The second guiding question examined teacher perceptions of as well as attitudes and feelings toward implementing CSPAP into their school environment. The researcher wanted to capture how teachers perceived implementing a CSPAP and if it was feasible for other physical education teachers to implement into the school setting.

Question Three

The third guiding question focused on how CoP facilitated a reshaping of the role of the physical educator to include the responsibilities of the DPA. Specifically, the researcher sought to determine the role that CoP played in teachers' implementing CSPAP into their school environment, as well as how it supported the teachers quest to implement additional physical activity opportunities into their school setting. These research questions as well as the hypotheses are discussed in detail within chapter two.

SIGNIFICANCE OF THE STUDY

Given the state of children's' health (Datar & Sturm, 2004), many health professionals strive to impact childhood obesity through physical activity and nutritional interventions. Although childhood obesity has plateaued over the last decade (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010) no one has found an effective way to reverse the trend of childhood obesity. Many have suggested that the school setting may be an ideal place to intervene with childhood obesity (Pate et al., 2006; Lee et al., 2007), as children spend most of their waking hours at school. However, it is unclear how schools should incorporate more physical activity and nutritional opportunities into their school day. Some have suggested that CSPAP's may help contribute to children meeting the suggested 60 minutes of physical activity a day (Centers for Disease Control and Prevention [CDC], 2011a), however little to no research has been conducted to determine the feasibility of CSPAP within the school setting and the impact that a comprehensive intervention may have on childhood obesity.

This study sought to determine if CSPAP's were feasible within the school setting, specifically when led by the schools' physical education teacher. Once feasibility of CSPAP is determined, then the effectiveness of such interventions can be measured. Future research should focus on the effectiveness of these physical activity opportunities within the school setting and how they specifically effect the physical activity level of students. Furthermore, research should be conducted that focuses on how additional physical activity opportunities effect the overall health of children and in turn its' effects on childhood obesity.

THEORETICAL FRAMEWORK

The theoretical framework for this study was derived from two theories: Self-efficacy theory and CoP. Self-efficacy, the belief one has in their ability to succeed in a given situation, plays a critical role in performance (Holden, Moncher, Schinke, & Barker, 1990), as efficacy influences behavioral choices, effort and persistence, as well as cognitive and emotional responses (Bandura, 1986). In turn these beliefs can determine how people feel, think, and motivate themselves. An important aspect of this research study was to develop an understanding of teachers' beliefs about implementing CSPAP within the school, and currently no known research has examined teacher efficacy toward the implementation of the CSPAP model.

CoP are defined by Lave and Wenger (1991) as groups of people who come together sharing a common interest, and have a goal of learning and sharing as they interact regularly. CoP can be formed in person, virtually, or anywhere that human interactions occur, but those who participate must find value by both contributing and

gaining from the community. The ideas and knowledge that teachers share and gain within the CoP help to build relationships and create connections that can be utilized in the future (Wegner, McDermott, & Snyder, 2002). Knowing that CoP have been shown to aid in professional development and implement change within the school setting **(**Barab & Duffy, 2000; Buckleya & Du Toitb, 2010) the researcher attempted to establish opportunities for a virtual CoP to occur among participants to aid in potential CSPAP changes within his or her own individual school settings.

The combination of these theoretical frameworks provides a useful tool to carve out a sense of the relationships between opportunities provided for physical activity, teacher efficacy, and teacher's perceptions of taking on additional responsibility as a director of physical activity. Further explanation of the theoretical frameworks discussed in this section will be given in chapter two of this dissertation.

SUMMARY OF METHODOLOGY

Using a mixed methodological approach, opportunities provided for physical activity throughout the school day as well as teacher perceptions and efficacy toward implementing the CSPAP throughout the NASPE DPA certification process were explored. Obtaining DPA certification required participants to participate in a 6-hour workshop, develop an action plan to implement the model at their school, provide artifacts of the successful implementation, and take a certification exam, while being supported by a trainer over the period of one academic year.

Using a pre/post design, thirteen teachers who completed the DPA certification, as well as 17 teachers who acted as a control group, participated in this study. Eleven

elementary and one secondary physical education teachers (Female = 8) with one to twenty-eight years of teaching experience volunteered to participate in the in-depth (qualitative) portion this study. Using the mixed-methodological approach, the researcher was able to determine the effect of the intervention on physical activity opportunities provided, as well as investigate the bigger picture of phenomena, in this case the process of DPA training and implementation of the CSPAP. Methodological details are discussed in chapter three.

DEFINITION OF TERMS

The following are operational definitions of terms used throughout this dissertation.

Physical activity is referred to by the Centers for Disease Control and Prevention as "any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level" (CDC, 2012a).

Moderate physical activity as stated by the CDC is reported in relation to "an absolute scale, and is physical activity that is done at 3.0 to 5.9 times the intensity of rest. On a scale relative to an individual's personal capacity, moderate-intensity physical activity is usually a 5 or 6 on a scale of 0 to 10" (CDC, 2012a).

Vigorous physical activity as stated by the CDC is reported in relation to "an absolute scale, and is physical activity that is done at 6.0 or more times the intensity of rest. On a scale relative to an individual's personal capacity, vigorous-intensity physical activity is usually a 7 or 8 on a scale of 0 to 10" (CDC, 2012a).

7

Moderate to Vigorous Physical Activity like both moderate and vigorous when reported

      separately on an absolute scale and is physical activity that is done at 3.0 or more

      times the intensity of rest" (CDC, 2012a).

Comprehensive School Physical Activity Program (CSPAP) is defined by AAHPERD as

      "an approach by which school districts and schools utilize all opportunities for

      school-based physical activity to develop physically educated students who

      participate in the nationally-recommended 60+ minutes of physical activity each

      day and develop the knowledge, skills, and confidence to be physically active for

      a lifetime" (AAHPERD, 2012).   A CSPAP is comprised of five components: (a)

      physical education, (b) physical activity during school, (c) physical activity before

      and after school, (d) staff involvement, and (e) family and community

      involvement. CSPAP is part of a larger school health framework called

      Coordinated School Health.

Coordinated School Health (CSH) is "a framework for planning and coordinating school

      health activities centers around eight critical, interrelated components: (a) health

      education, (b) physical education, (c) health services, (d) nutrition services, (e)

      counseling, psychological, and social services, (f) healthy and safe school

      environment, (g) health promotion for staff, and (h) family and community

      involvement" (AAHPERD, 2012).

Director of Physical Activity (DPA) was created by NASPE in the spring of 2011. The

      DPA stands for a physical education teacher who was trained by NASPE to

      implement and carry out a CSPAP in his or her own individual settings.

<u>Director of Physical Activity Training</u> includes a 6-8 hour workshop hosted by NASPE

with the purpose of "adding value to the role of the physical education teacher, by

identifying him/her as the expert in the educational setting, who will facilitate

implementation of the CSPAP model" (NASPE, 2012).

SUMMARY

Chapter one provided an introduction to the need of CSPAP's in the school

setting as well as whom might be best suited to lead the implementation process. Also

reviewed was the need for the study, purpose, significance, and definition of terms. An

overview of the relevant literature related to comprehensive school physical activity and

theoretical framework of the research study is presented in chapter two. Chapter three

reveals the methodological design of the study, whereas chapter four discusses the

results. Lastly, chapter five presents a discussion of the findings, implications, and

suggestions for future research.

CHAPTER TWO: LITERATURE REVIEW

Today's public health issues and youth sedentary behaviors have intensified the need to identify interventions that effectively increase the number of physical activity opportunities and correspondingly elevate patterns of engagement. This proposed research seeks to quantify and qualify physical education teachers' perceptions and self-efficacy regarding their roles and responsibilities related to the implementation of the Comprehensive School Physical Activity Program (CSPAP) model, as they progress through the National Association for Sport and Physical Education (NASPE) Director of Physical Activity (DPA) certification process. The CSPAP is a five-component model (National Association for Sport and Physical Education [NASPE], 2011a) that provides a framework for organizing physical activity opportunities for children, staff, and families across an educational curriculum. Specifically, the model identifies points of intervention with the goal of increasing physical activity engagement by offering more opportunities for physical activity. The overall intent of this project was to gain baseline assessment of current teacher practice and determine the effectiveness of the NASPE DPA training on modifying that practice among teachers wishing to implement the CSPAP model.

In a society where childhood obesity is a growing concern (Datar & Sturm, 2004) and teachers are being asked to take up multiple duties as part of their job description, it is important to determine the feasibility of redesigning the role of the physical educator and to understand how physical education teachers perceive their role as a DPA. In this context, the primary purpose of this research project was to examine physical education teachers' perceptions, self-efficacy, and implementation strategies related to the CSPAP

model throughout the DPA certification process. Further, this study strives to identify the common points of intervention and the corresponding implementation strategies among participants. Finally, a secondary purpose of this study was to compare teacher efficacy and emotions of participants and non-participants in targeted professional development.

Using a theoretical framework grounded in communities of practice and self-efficacy theory, a collective case study approach and mixed methodologies of surveys, interviews, site visits, and observations data were gathered among 11 practicing physical educators. These teachers were selected for in-depth study from a larger group of 50 teachers who had attended the seminal NASPE DPA training in Fort Worth, Texas during the summer of 2011. Over a twelve-month period, the researcher followed the progress of the teachers from pre-training assessment to post-implementation. The following chapters provide a comprehensive review of the literature, details of methodology employed, a summary or the results, and a discussion of the implications of the findings of this research study.

The following chapter will discuss existing literature about increasing opportunities for children to engage in physical activity in the school environment. Specifically, the current health status of children, along with the benefits and variables that may be related to youth participation in physical activity, will be discussed. After assessing the importance of physical activity, the role of schools in impacting children's physical activity will be addressed in relation to coordinated school health programs (CSHPs), comprehensive school physical activity programs (CSPAPs) and quality physical education. The teachers' role in implementing change within the school setting

will also be examined. Finally, self-efficacy theory and communities of practice as the theoretical framework for this research will be reviewed.

OVERVIEW OF PHYSICAL ACTIVITY

Physical activity, classified as movement of any skeletal muscle (Caspersen, Powell, & Christenson, 1985), is an important component in the maintenance of a healthy lifestyle. The Centers for Disease Control and Prevention (CDC), defines physical activity as any movement of the body that is caused by the contraction of muscles within the skeletal system that increases energy expenditure above the basal level (CDC, 2011a). For the purpose of this paper, the term "physical activity" will refer to a health-enhancing level of physical activity, which is defined by the CDC (2011a) as activity that, when added to baseline activity, produces health benefits. Further, the researcher will use the term moderate to vigorous physical activity (MVPA), which can be defined on an absolute scale as physical activity that is performed at 3.0 or more times the intensity of rest (CDC, 2011b). Examples of moderate intensity physical activity include brisk walking, water aerobics, or ballroom dance, while examples of vigorous intensity physical activity include jogging or running, swimming laps, and jumping rope. Current physical activity recommendations for youth (children and adolescents) propose at least 60 minutes of moderate to vigorous physical activity five or more days each week. This equates to walking briskly approximately 12,000 steps per day for girls and 15,000 steps for boys (Tudor-Locke et al., 2004). According to the 2008 Physical Activity Guidelines for Americans (U.S. Department of Health and Human Services [USDHHS], 2008), it is recommended that three or more days of the week should include aerobic activity, muscle

strengthening, and bone strengthening activities. These guidelines for physical activity in the youth population are increasingly important given the rise of health issues and the prevalence of obesity in children and adolescents. The following section will discuss the current health status of youth in the United States.

CURRENT HEALTH STATUS OF CHILDREN

Documentation of childhood obesity trends demonstrates that, while obesity among youth changed little between the 1960s and the 1980s, the predominance of obesity in children increased three-fold between 1980 and 2000 (Ogden, Flegal, Carroll, & Johnson, 2002). Although obesity rates started to plateau in the late 90s and continued on this pathway through 2008 (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010), there are few indications of reversal of these trends toward a healthier youth population. Currently, one third of youth in the U.S. are overweight and obese, which is an increase from 7% to 20% in children and from 5% to 18% in adolescents between 1980 and 2000 (National Center for Health Statistics [NCHS], 2011). The prevalence of obesity raises concern given that obese adolescents often become obese adults with heightened risks of a wide variety of health problems (Singh, Mulder, Twisk, van Mechelen, & Chinapaw, 2008). Low levels of physical activity in youth are often associated with obesity as participation in regular physical activity during childhood and adolescence helps control weight. This suggests that physical activity could facilitate a decrease in the amount of overweight and obese youth (USDHHS, 2008). Although some research suggests an adequate amount of youth meet recommended guidelines of physical activity (Pate et al., 2002), recent national estimates indicate that only about 18% of adolescents meet the current physical

13

activity recommendations of 60 minutes of MVPA per day (Eaton, Marx, & Bowie,

2007). Given the heightened and alarming levels of overweight and obese children,

coupled with the lack of physical activity that is observed among youth, it is important to

discuss the many benefits that result from regular engagement in physical activity (CDC,

2008; Corbin, Lindsey, & Welk, 2000; Lambert, 2000; CDC, 2010; Lubans, Morgan,

Cliff, Barnett, & Okely, 2010; Janssen & LeBlanc, 2010).

Benefits of Physical Activity

Even modest amounts of physical activity can have significant health benefits for

children. To achieve substantive health benefits, however, physical activity participation

should be moderate to vigorous in nature. When considering specific benefits,

recommendations regarding the type and intensity of physical activity may vary. For

example, to improve bone health, weight-bearing activities are more effective than

activities such as swimming (Janssen & LeBlanc, 2010). There are numerous benefits

related to physical activity participation in children (Sothern, Loftin, Suskid, Udall, &

Blecker, 1999; Strong et al., 2005; Janssen & LeBlanc, 2010; Janz et al., 2001), including

decreased cholesterol, depression, blood pressure, obesity, risk factors for metabolic

syndrome, and increased bone density. This synthesis of literature targets the benefits that

children are most likely to experience if they were to engage in physical activity as part

of the CSPAP model.

Bone health. Increasing bone density during childhood has the potential to reduce

the chance of bone mass reduction and osteoporosis in adulthood. Results from various

studies indicate that children with higher activity levels have higher bone mineral content

than their non-active peers (Bailey, McKay, Mirwald, Crocker, & Faulkner, 1999; Janz et al., 2006; Macdonald, Kontulaine, Petit, Janssen, & McKay, 2006; MacKelvie, Petit, Khan, Beck, & McKay, 2004). In a study conducted on 333 children, bone mineral content was measured at ages five, eight, and eleven and compared to levels of MVPA (Janz et al., 2010). It was concluded that those children who participated in the highest amounts of MVPA at the age of five had 4-14% more bone mineral content than their counterparts who participated in less activity. Furthermore, MVPA at the age of five predicted bone mineral content at ages eight and eleven for both boys and girls.

However, the literature is unclear about whether these improvements in bone mineral content, appearing in physically active children, are sustained into adolescence and adulthood. Currently, studies have shown a retention in bone mineral content from youth into adulthood in both non-human animals (Modlesky & Lewis, 2002; Silbermann, Schapira, Leichter, & Steinberg, 1991) and in elite child athletes (Bass et al., 1998; Khan et al., 1998). Whether these results hold true for children and adolescents who are not elite athletes and who have only moderate levels of physical activity engagement is unclear.

Although the direct connection between physical activity and bone mineral content in children is ambiguous, research has shown that certain types of activities, such as those that are weight bearing (jumping and running), are the most effective way to increase bone mineral density in youth (Lanyon, 1996). Youth who engage in these types of activities have, on average, 5-15% more bone mineral density than inactive children (Bareham & Riddoch, 2003). This positive relationship between child and adolescent

bone mineral content and physical activity suggests that school physical activity leaders should incorporate moderate to vigorous physical activity and weight bearing activities into their curriculum.

Cardiovascular disease and metabolic syndrome. Cardiovascular disease is among the most common diseases to affect adult morbidity and mortality in the United States (CDC, 2012b). Metabolic syndrome is defined as the clustering of multiple risk factors for cardiovascular disease that include central adiposity, increased triglycerides, elevated blood pressure, and impaired glucose metabolism (Janssen & LeBlanc, 2010). Consequently, the more risk factors for metabolic syndrome an adult exhibits, the greater likelihood he/she has to develop cardiovascular disease. The USDHHS has examined the prevalence of individual risk factors for metabolic syndrome in adults and found that metabolic syndrome is very high among the adult population (34% are at risk) and that risk increases with age and level of Body Mass Index (BMI; Ervin, 2009).

Research with adults has revealed that a heightened amount of physical activity and a healthy diet can have a positive effect on metabolic syndrome (Azadbakht, Mirmiran, Esmaillzadeh, Azizi, & Azizi, 2005; Williams et al., 2000). As metabolic syndrome and its relationship with physical activity is present in adults, there is an emerging area of interest that has grown over the last ten years concerning the relationship between metabolic syndrome and physical activity in children (Eisenmann, 2007; Steele, Brage, Corder, Wareham, & Ekelund, 2008; Pan & Pratt, 2008). Researchers believe that some children present "risk factors" that may be precursors to obesity or the result of increased adiposity (Pan & Pratt, 2008).

16

Recent literature suggests that there is indeed a strong relationship for youth between metabolic syndrome and physical activity (Eisenmann, 2007; Steele et al., 2008). In a study conducted by Davis et al. (2005) it was found that almost 50% of rural children participating in the study were overweight or at risk to be overweight with 15% of these children already having metabolic syndrome. In addition, Weiss et al. (2004) found similar concerns in their research study of obese and overweight children and adolescents. It was determined that the prevalence of metabolic syndrome in this population increased with the severity of obesity, revealing that among those children who were extremely obese 50% were diagnosed with metabolic syndrome. There are also several studies that suggest physical activity interventions have had positive effects on metabolic syndrome in children (Meyer, Kundt, Lenschow, Schuff-Werner, & Kienast, 2006; Kelley & Kelley, 2007; Farpour-Lambert et al., 2009; Janssen & LeBlanc, 2010). However, there is little research that explains the relationship between risk factors for metabolic syndrome in children and how it carries out through adulthood.

Studies have shown that there are associations between childhood physical activity levels and blood lipids, suggesting the youth engaged in regular levels of health enhancing physical activity are more likely to have improved cholesterol levels (Evans et al., 2009; Tolfrey, Jones, & Campbell, 2000). In addition to associations with blood lipid profiles, blood pressure has also been linked to physical activity levels in children. Specifically, low levels of fitness and physical activity (95th percentile or greater) in children are associated with increased hypertension (Nielsen & Andersen, 2003). There is also evidence that physical activity interventions that focus on increasing MVPA among

children and adolescents can decrease blood pressure in children (Hagberg et al., 1983; Jago, Jonker, Missaghian, & Baranowski, 2006). Most associations are shown with systolic blood pressure; however, there are studies focused on cardiovascular interventions that show a decrease in diastolic pressure as well (Hagberg et al., 1983; Bell et al., 2007).

Although enhanced levels of physical activity have not been directly linked to risk factors for cardiovascular disease, there are documented relationships between levels of physical activity and aerobic fitness among youth (Le Masurier & Corbin, 2006a). With this association in mind, several risk factors for cardiovascular disease are correlated with low levels of cardiovascular fitness in youth (USDHHS, 1996; Eiberg et al., 2005; Anderssen et al., 2007). Furthermore, like obesity, cardiovascular fitness has been shown to track from childhood into adulthood (Andersen & Haraldsdottir, 1993; Twisk, Kemper, & van Mechelen, 2002; Trudeau, Shephard, Arsenault, & Laurencelle, 2003), and low cardiovascular fitness in late adolescence has been associated with a greater possibility for development of risk factors for cardiovascular disease in adulthood (Hasselstrom, Hansen, Froberg, & Andersen, 2002; Twisk, Kemper, & van Mechelen, 2002). This is important to note because cardiovascular fitness can be increased during childhood (Carrel et al., 2005; Sola, Brekke, & Brekke, 2010), thus reducing risk for cardiovascular disease later in life.

As stated previously, while research is becoming more common, there are limited links between physical activity and specific risk factors of metabolic syndrome in youth. However, there is a connection between cardiovascular fitness and cardiovascular disease

in children and adolescents. Although there is minimal data linking childhood physical activity with risk of cardiovascular disease in adulthood, there is an association between levels of cardiovascular fitness and cardiovascular disease in adulthood (USDHHS, 1996). Therefore, the role of physical activity in youth may be to enhance or maintain a higher level of cardiovascular fitness in order to obtain health benefits. The provision of physical activity opportunities has importance in understanding the relationship between physical activity and physical fitness in youth, and how much physical activity is required to reduce the risks of cardiovascular disease, warrants continued investigation (Boreham et al., 2002).

Diabetes. Diabetes Mellitus is "a group of diseases characterized by high blood glucose levels that result from defects in the body's ability to produce insulin" (American Diabetes Association [ADA], 2012). There are two different forms of diabetes, type I and type II. Type I diabetes, previously known as juvenile diabetes, is diagnosed when the body is unable to produce insulin, while type II diabetes occurs as a result of the body's lack of ability to produce insulin or when the cells within the body ignore the insulin production (ADA, 2012).

Once considered an adult disease, type II diabetes is becoming more common in children and adolescents. Among children in the United States, diabetes is one of the most common chronic diseases (CDC, 2011c). Currently, there are over 215,000 diagnosed youth with diabetes, with a majority of cases being type II (Tompkins, Moran, Preedom, & Brock, 2011). In adults, physical inactivity and obesity are known to be risk factors for type II diabetes (CDC, 2011c). The prevalence of type II diabetes at younger

ages may be due to the increase in obesity and the decrease in levels of physical activity witnessed in children and adolescents (ADA, 2000).

A randomized control trial including 50 overweight middle school students (Carrel et al., 2005) investigated the effects of a fitness-oriented physical education class on body fat, cardiovascular fitness levels, and level of fasting insulin and glucose levels. The intervention took place over a nine-month period where students were randomly divided into a traditional physical education class and another that was fitness-oriented. Results showed a significant improvement in body fat, fasting insulin level, and cardiovascular fitness in the fitness-oriented group, suggesting a positive association between physical activity and the prevention of type II diabetes.

These results are consistent with other randomized control studies within the literature on research involving children. For example, a randomized control trial including 70 obese children (Owen et al., 1999), ages 7-11, found that the children who participated in a four-month physical training intervention (five days a week for 40 minutes per day) had a decrease in many precursors for type II diabetes including body fat percentage, total body fat mass, and visceral adipose tissue, as well as an increase in cardiovascular fitness. These findings are significant given children and adolescents who have type II diabetes often exhibit many of these risk factors (Shaibi, Michaliszyn, Fritschi, Quinn, & Faulkner, 2009).

Studies have also shown that adolescents with type II diabetes exhibit low levels of cardiovascular fitness and the majority do not participate in recommended levels of physical activity (Shaibi et al., 2009). Because type II diabetes is preventable through

participation in healthy behaviors, children should be provided with opportunities for physical activity engagement that are comprehensively organized within and beyond the school day.

Cognition and academic achievement. There is increasing evidence linking physical activity and physical fitness to children's academic achievement (Strong et al., 2005), with academic achievement measured directly using grade point average, standardized tests scores, and course grades and indirectly based on concentration, memory, and classroom behaviors. It is important to understand the effects that an increased amount of physical activity in students, specifically during the school day, may have on academic achievement. In the past, there have been associations drawn between mind and body, promoting the whole child, and proving reasons for physical activity as an aid in the learning process (Jensen, 1998). More recently, numerous studies have emerged concerning the effect of physical activity (Castelli, Hillman, Hirsch, Hirsch, & Drollette, 2011; Donnelly et al., 2009; Hillman, Buck, Themanson, Pontifex, & Castelli, 2009; Hillman et al., 2009; Kamijo et al., 2011; Sallis et al., 1999; Trudeau & Shepard, 2008) and physical fitness (Buck, Hillman, & Castelli, 2008; Kamijo et al., 2011) on children in relation to academic achievement and cognition. The following section will discuss the effects of physical activity, acute and chronic, and physical fitness on children's academic achievement and cognition.

Studies of the effects of physical activity on academic achievement became more popular with the publication of Sports, Play, and Active Recreation for Kids (SPARK; Sallis et al., 1999). SPARK is a health-related physical activity program, designed for

21

fourth and fifth grade students, aimed at increasing the amount of physical activity during physical education class and outside the school day. Using a quasi-experimental design, Sallis et al. (1997) provided professional development for teachers within seven different schools, dividing classrooms into three different conditions. Results showed that there was an increase in physical activity levels for those children who were taught health-related fitness lessons by physical education teachers (40 minutes) and classroom teachers (33 minutes) who were trained through the SPARK professional development program, rather than by those teachers who were untrained. Further examination revealed that although intervention classes devoted twice as much time to physical education than their controlled counterparts, academic achievement was unaffected (Sallis et al., 1999). Given the increase in time spent in physical education and the decrease in academic classes, further investigation is warranted to determine the effect health-related physical education has on academic achievement.

Recently, Donnelly et al. (2009) conducted a randomized control intervention that promoted physical activity across the curriculum (PAAC) in 24 elementary schools. The primary outcome of their study was to determine if the intervention altered BMI while secondary outcomes looked at physical activity and academic achievement. Results of the study showed that although BMI did not decrease overall, it was significantly impacted by PAAC; schools receiving more than 75 minutes per week of PAAC intervention had significantly lower increases in BMI than schools that received less than 75 minutes per week of PAAC. The secondary focus of the study was to determine if academic achievement was positively influenced by PAAC. Results indicated schools that

participated in PAAC had significantly greater increases in test scores. Therefore, Donnelly concluded that physical activity does have a positive correlation to academic achievement.

Positive associations have also been found between afterschool physical activity programs and improved cardiorespiratory fitness leading to an increase in cognitive control of working memory (Kamijo et al., 2011) and increased cognitive performance (Castelli et al., 2011). In a study conducted by Castelli et al. (2011) 59 children participated in a 120 minute afterschool physical activity intervention for a period of nine months. During this time, students participated in a structured afterschool program that included health-related fitness lessons, organized games, and motor skill development. Results showed that students who participated in the afterschool intervention significantly increased their cardiorespiratory fitness. A secondary finding of this study revealed a significant relationship between vigorous physical activity and children's cognitive performance, suggesting that intensity could play a role in the relationship of aerobic activity and improved cognition in children. As further research, Kamijo et al. (2011) examined 42 prepubescent children who participated in the intervention. The study observed the effects improved cardiorespiratory fitness had on the cognitive control of working memory. The research showed a significant relationship between increased cardiorespiratory fitness in children and increased cognitive control of working memory. These findings are crucial considering literature published within the realm of children's physical activity and academic achievement, as working memory is an essential part of

classroom learning activities and has been linked to improved academic performance (Alloway et al., 2005).

Although previously discussed research has reviewed chronic physical activity participation and school interventions in relation to academic achievement, there is also a promising area of research that has begun to examine the impact of single bouts of physical activity on academic achievement and classroom behaviors (Della Valle et al, 1986; Maeda & Randall, 2003; Mahar et al., 2006; Greico, Jowers, & Bartholomew, 2009). Mahar et al. (2006) evaluated the effects of classroom-based physical activity programs on children's on-task behavior. During an intervention where classroom teachers incorporated ten-minute physical activity breaks during classroom instruction, it was determined that increased amounts of physical activity in the classroom were successful in improving on-task behavior by 8%-20%. Another study conducted by Maeda & Randall (2003) had similar results, showing that short, five-minute bouts of vigorous physical activity positively affected concentration and math fluency. Greico, Jowers, & Bartholomew (2009) conducted a study to also look at time on task within the elementary school classroom, but examined the relationship between time on task and children's level of obesity, using BMI. It was determined that physically active lessons prevented a loss in time on task behavior, especially in those children who were overweight or obese.

Currently, there are only three known studies that appear in peer-reviewed journals examining the immediate effects of a single bout of physical activity on executive function (Hillman et al., 2009; Tomporowski, Davis, Lambourne, Gregoski, &

24

Tkacz, 2008; Budde,Voelcker-Rehage, Pietraβyk-Kendziorra, Riberio, & Tidow, 2008).

In a study performed by Hillman et al. (2009), 20 participants completed a maximal

fitness test and a battery of IQ and other psychosocial assessments. The participants were

then randomly assigned to a counterbalance of exercise and cognitive testing (i.e.,

modified Flanker's task and Wide Range Achievement Test). The exercise task consisted

of a 20-minute walk on a treadmill at 60% of maximal heart rate. Those who completed

the cognitive tasks after the acute bout of physical activity significantly outperformed

their seated counterparts in executive function task accuracy and academic testing in

reading, but not in mathematics or spelling. Contrary to these findings, in a study

conducted by Tomporowski et al. (2008), 69 overweight and inactive children failed to

demonstrate a cognitive performance difference after a 23-minute treadmill walking

session involving visual task switching (a numbers memorization task followed by

questions).

Some researchers have even consider the covariate of motor competency.

Mainly, Budde, Voelcker-Rehage, & Pietrasyk-Kendziorra (2008) in Germany conducted

another study examining the effects of acute bouts of physical activity on cognitive

performance. In their study, 115 healthy adolescents, aged 13-16, were randomized into a

ten-minute physical education lesson, bilateral coordinated exercise, or regular school

lesson group, and then asked to complete baseline testing on attention and concentration

with post exercise or rest testing. The bilateral coordinated exercise group exhibited

significantly higher attention and concentration, even though both active lessons resulted

in the same mean heart rate. Although only one acute physical activity study was

conducted in an authentic setting, these findings suggest that acute activity (single sessions of physical activity, such as recess, an activity break during academic time, or a physical education class) is positively associated with enhanced cognitive performance and academic achievement in children. However, further investigations are warranted to determine if these effects are consistent between healthy and obese children.

Despite these positive results relating to physical activity and physical fitness to academic achievement and cognition, little is known about the amount, type, or intensity of physical activity that is necessary to elicit such benefits related to cognitive performance. As such, releasing participants from academics for periodic physical activity breaks and formal instruction on health-related fitness, such as that provided during physical education, is valuable and does not appear to inhibit academic performance, but warrants further investigation.

Variables Related to Physical Activity Participation

As will be discussed later in this paper, the director of physical activity (DPA) is a professional development certification created to support and enhance the duties of a school's physical education teacher with the goal of increased opportunities for children to be physical active across the school day. This section will discuss children physical activity variables applicable to the DPA and the implementation of physical activity in schools.

Several studies have examined the variables related to physical activity engagement of children and adolescents (Biddle, Atkin, Cavill, & Foster, 2011; Biddle, Whitehead, O'Donovan, & Nevill, 2005; Sallis, Prochaska, & Taylor, 2000). Biddle,

Atkin, Cavill, & Foster (2010) conducted a systematic review focusing on correlates of physical activity over a ten-year period (2000-2010). Using this review as a guide, variables associated with physical activity participation or physical activity correlates were identified and summarized into five categories: demographic and biological, psychological, behavioral, socio-cultural, and environmental. Although all variables associated with youth physical activity are important, only the variables that are related to CSPAP will be discussed. Specifically, eight variables were chosen for review and include: (a) age and gender, (b) ethnicity, (c) socio-economic status (SES), (d) BMI, (e) barriers to physical activity, (f) participation in school and community sports programs, (g) parental influences, and (h) peer support and influences.

     Age and gender. It has been shown that as children get older, engagement in physical activity decreases, especially during adolescence (Nader, Bradley, Houts, McRitchie, & O'Brien, 2008; Troiano et al., 2008). A study conducted by Nader, Bradley, Houts, McRitchie, & O'Brien (2008) observed 1,032 children who participated in the research study for a total of six years, starting at age nine and ending at age 15. Results confirmed that physical activity significantly declined with age. This decrease in physical activity was seen in both males and females, and declined from approximately three hours of MVPA at the age of nine to 50 minutes of MVPA at the age of 15. These findings were corroborated by Troiano et al. (2008) who determined that physical activity measured over four years declined with age. It was reported that 42% of children ages 6-11 obtained 60 minutes of MVPA, whereas only 8% of adolescents achieved the same goal.

While physical activity decreases in both genders as children age, males are likely to demonstrate higher levels of physical activity participation than females (Bauman et al., 2009; Troiano et al., 2008), with some exceptions (Biddle et al., 2009). Beighle, Alderman, Morgan, & Le Masurier (2008) examined physical activity in 401 elementary students with the findings suggesting that boys participated in significantly more physical activity than girls in the winter and spring seasons. During the winter, girls accumulated 7,910 steps per day (SD = 2,496) and boys 8,991 steps per day (SD = 2,933), while during the spring girls accumulated 9,727 steps per day (SD = 3,640) and boys accumulated 11,112 steps per day (SD = 5,003). This is important to understand when offering physical activity opportunities within the school setting as geographical location and changing of the seasons may effect children's participation in opportunities provided for physical activity engagement.

Similar results were found by Troiano et al. (2008) in a study that measured physical activity levels of over 11,000 children and adolescents. It was determined that males participated in a significantly greater amount of physical activity than females in both the child and adolescent age ranges. Specifically, 48% of male children participated in at least 60 minutes of MVPA compared to 35% of their female counterparts, and 12% of male adolescents in at least 60 min of MVPA while only 3% of female adolescents met the criteria. These findings are similar to previous systematic reviews of literature that examined 59 studies of youth and adolescent physical activity. Of the 59 studies examined, 51 showed that males had higher levels of physical activity than females (Sallis, Prochaska, & Taylor, 2000; Biddle et al., 2005).

It is important to understand these findings when attempting to increase physical activity levels of youth in the school setting because physical activity may differ between males and females. As such, researchers and interventionists should provide activities for children that are appealing to both genders or present targeted programming.

Race/Ethnicity. Although race and ethnicity have been found to play a role in determining obesity levels among children and adolescents (Harding, Teyhan, Maynard, & Cruickshank, 2008), in most cases race, in and of itself, has not been shown as a significant correlate of physical activity. In a cross-sectional sample taken from an on-going longitudinal study, 107 children and adolescents were examined to determine differences in physical activity levels in various situations including the home environment, leisure activity, and during physical education. The results indicated few ethnic differences among physical activity when other characteristics such as social class and single versus dual parent households were controlled (Lindquist, Reynolds, & Goran, 1999). Similarly, Harding et al. (2008) examined physical activity in relation to race and ethnicity and did not find a correlation between physical activity and ethnicity in children. These findings are consistent with several systematic reviews covering literature over 30 years (1976 – 2005). In the literature reviews conducted by Sallis et al. (2000) and van der Horst, Chin, Paw, Twisk, & van Mechelen (2007) it was determined that of the 168 studies reviewed, only seven showed an association between physical activity and ethnicity or race in children, with 14 studies showing no association. Surprisingly, however, 18 studies showed a relationship between ethnicity and physical activity level in adolescents, while five studies showed no relationship. This suggests that further

research needs to be conducted to determine if there is a definite relationship between ethnicity and physical activity in children and adolescents, or if these relationships may be caused by other factors that were not controlled for in the studies that were conducted. Schools are places that provide opportunities for physical activity engagement and contain a diverse populous requiring specific targeted intervention to increase engagement.

Socio-economic status. Similar to ethnicity and race, other variables such as socio-economic status (SES) report unequivocal evidence as correlates and non-correlates of youth physical activity levels. In a study examining over 68,000 children and adolescents ages 6-17, researchers reported characteristics of low socio-economic homes having an association with low levels of physical activity (Singh, Kogan, Siahpush, & van Dyck, 2008). It was found that those children who had a lower SES, or lived in a neighborhood with a lower social capital, exhibited lower amounts of physical activity and higher amounts of sedentary behavior. However, other studies such as one conducted by Kimm et al. (2002) found that after following approximately 2,600 adolescent females for a period of six to eight years, SES was not found to have an effect on physical activity levels. Unequivocal results of these studies could be due to how SES is measured, whether it is based on household income or free and reduced lunch, and if it is self-reported by the child and parent or whether the information is obtained from the school.

Examining the role that SES plays in the level of engagement of youth physical activity is important given the levels of obesity in low economic areas. Awareness of SES should be utilized when planning targeted interventions in the school setting.

Body mass index. Researchers have also reported conflicting evidence on the relationship between BMI and physical activity levels in children and adolescents. BMI is a measurement that helps determine if a child falls within a healthy range based on weight and height. The BMI scale is different for adults than for children and teens. BMI is used as a tool to screen for children who may fall in a category of underweight, overweight, or obese. According to the child's BMI score, the child is categorized into a percentile ranking. Children are considered overweight if their BMI falls between the 85th and 95th percentile rankings located in the 2000 CDC growth charts and obese if their BMI falls beyond the 95th percentile (Barlow, 2007). Although these ranges are not diagnostic, elevated BMI among children indicates increased risk for future adverse health outcomes and development of disease (Ogden et al., 2010).

Several studies have addressed the relationship between BMI and physical activity. Over a period of six years, the National Health and Nutrition Examination Survey III was administered to more than 4,000 children aged eight through 16. While this study determined that BMI did not have a direct relationship to physical activity levels in children and adolescents, it did have a direct relationship to sedentary behavior, specifically TV viewing (Andersen, Crespo, Bartlett, Cheskin, & Pratt, 1998). However, in another large-scale cross-sectional study conducted by Raitakari, Taimela, & Porkka (1997), 2,358 children and young adults were examined and results concluded that BMI was inversely associated with levels of physical activity in both males and females. In general studies, researchers have concluded that BMI is negatively (Bullen, Mayer, & Reed, 1964; Corbin & Pletcher, 1968; Must & Tybor, 2005; Trost, Sirard, Dowda,

31

Pfeiffer, & Pate, 2003) or neutrally (Ekelund et al., 2005; Must & Tybor, 2005) associated with physical activity engagement.

Barriers to physical activity. Factors that inhibit physical activity participation, both real and perceived, are considered to be barriers. Literature suggests that barriers to physical activity are more consistently associated with less participation in physical activity in females, whereas those studies that did not classify gender differences found no relationship between barriers and physical activity. This is demonstrated in a research study conducted by Biddle et al. (2005) who studied adolescent females and determined the existing barriers to be consistently related to less physical activity; whereas Sallis et al. (2000) determined the aspects unrelated when not specifying gender. Of the 15 studies that were examined by Sallis et al. (2000), only 33% were significant in relation to barriers and physical activity.

Research suggests that facility or program access and availability can also be considered a barrier to physical activity participation. Some researchers argue that there is a significant correlation in that the more access children have to facilities and programs that promote physical activity, the higher levels of physical activity they obtain (Hoefer, McKenzie, Sallis, Marshall, & Conway, 2001; Sallis et al., 1992). Other researchers have shown that this relationship is unrelated (Biddle et al., 2011; Ferreira et al., 2007; Strauss, Rodzilsky, Burack, & Colin, 2001). This difference in results may be due to different measures of facility and program access (i.e. parental transportation, equipment and supply availability, program offering). Among the environmental interventions for school-aged children examined in literature, parents providing transportation to physical

activity opportunities for their children, as well as additional opportunities offered for children and adolescents, were most reported.

Numerous studies have been conducted examining the relationship between physical activity engagement and parental transportation to opportunities for physical activity (Lytle et al., 2009; Sallis et al., 1992; Hoefer et al., 2001). In a TAAG intervention study including 3,000 female adolescents, students were provided with increased opportunities to be physically active both during and outside of the school day (Lytle et al., 2009). Increasing the number of available activities, accessibility and appeal of structured and unstructured physical activity programs, and physical activity opportunities in schools and communities during and after school the school day were all part of the intervention. In addition, the intervention also sought to decrease barriers to participation (e.g. lack of female-preferred activity offerings). Results indicated that getting to and from community activities was a mediator of girls' MVPA (Lytle et al., 2009). Specifically, those students who had fewer transportation barriers obtained higher amounts of MVPA than those students who had more transportation barriers.

Although results should be interpreted with caution, a similar relationship was found in a large-scale cross-sectional study consisting 1,678 middle school students. The frequency of parents transporting youth to physical activity locations was collected along with seven-day physical activity self-reported data and frequency of sport participation of the students (Hoefer et al., 2001). In this study, it was found that parents transporting adolescents to sports and activity lessons contributed significantly to physical activity levels for both boys and girls. Congruent findings were reported in a research study

conducted on nine-year-old children. Using accelerometry and comparing the activity level with parental level of transportation to and from physical activity opportunities, researchers concluded that there was a trend toward significance, relating children's level of physical activity and parent transportation (Sallis et al., 1992).

Increasing the number of opportunities for children to be physical activity after school and during leisure time has also been shown to have a positive effect on activity engagement levels. In a controlled intervention study, 384 children participated in a study that provided extra opportunities for children to be physically active outside of normal school hours (Taylor et al., 2006). Results showed, after one year of intervention, children's accelerometer counts were 28% higher in the intervention group compared to the control. Furthermore, those children who participated in the intervention had higher amounts of MVPA and a slowed unhealthy weight gain.

Although many research studies examining the relationship between barriers to physical activity opportunities and decreased physical activity level of students have found positive associations, there are also studies that have had null findings (Sallis, Prochaska, Taylor, Hill, & Geraci, 1999; Strauss et al., 2001; Stucky-Ropp & Dilorenzo, 1993). In a survey conducted by Sallis, Prochaska, Taylor, Hill, & Geraci (1999) of 4-12 grade children and adolescents, results showed that access to facilities for physical activity was not correlated to levels of physical activity. Similarly, in two other cross-sectional studies of over 300 children and adolescents where physical activity levels were monitored and compared to the opportunities available to be physically active, no association was discovered (Strauss et al., 2001; Stucky-Ropp & Dilorenzo, 1993).

Although unequivocal evidence is present among the literature, there is enough positive evidence to suggest that all children should be provided ample opportunities to be physically active. There is no evidence that shows these opportunities to have a negative effect on the activity levels of children and adolescents and sufficient evidence that shows a positive association. When planning physical activity interventions within the school setting, it is important for school personnel to provide as many opportunities as possible both during and outside of the school setting, as well as to include parents and family members who are able to facilitate transportation to and from provided opportunities. Reducing the barriers to physical activity can help increase child and adolescent levels of physical activity.

Participation in school and community sports programs. When children and adolescents participate in sports programs, they are more likely to engage in higher levels of physical activity than peers who do not participate (Pate, Baranowski, Dowda, & Trost, 1996; Trost et al., 1997). This is evidenced by literature that examines the association between current physical activity levels and participation in school and community sports (Biddle et al., 2011).

Analyzing data that was collected from 12,000 youth and adolescents during the 1990 Youth Behavior Risk Survey, Pate, Baranowski, Dowda, & Trost (1996) found those youth who reported higher levels of physical activity had a much greater percentage of participation in organized sport than their less active peers. They suggest this "extra" participation in physical activity might cultivate more favorable attitudes towards

increased participation in healthy behaviors, such as more physical activity during leisure time.

Other research studies have similar findings. In a study investigating the factors influencing physical activity levels among 202 fifth grade students in a rural low socio-economic area, it was found that participation in school sports, among other factors, was a significant predictor of both moderate and vigorous physical activity (Trost et al., 1997). These associations are similar to previous research. In literature reviews focusing on research from the last 30 years, all 13 studies that examined the relationship between physical activity levels and school and community sports programs found a positive association between participation and physical activity levels of children and adolescents (Biddle et al., 2005; Sallis, Prochaska, & Taylor, 2000; van der Horst et al., 2007).

Participation in organized sport is of particular importance when examining physical activity interventions for children. It suggests that if youth have the opportunity to participate in school and community sport programs, they are more likely to be physical active. Therefore, if more opportunities are provided to youth to be physically active, their levels of MVPA will increase.

Parental influences. The role of schools in promoting physical activity opportunities in youth should reach beyond the school day to involve family and community. Families, specifically parents, play a key role in shaping childrens' health behaviors, including physical activity (Davison, Cutting, & Birch, 2003; Hinkley, Crawford, Salmon, Okely, & Hesketh, 2008; McGuire, Hannan, Neumark-Szainer, Falkner Cossrow, & Story, 2002; Moore et al., 1991; Neumark-Szainer D, 1999; Sallis,

Prochaska, & Taylor, 2000; Sallis et al., 1999). There are numerous opportunities and experiences that may influence a child's thoughts and perceptions in the home environment well before children are introduced to the school setting. Although parental physical activity levels have been proven important in young children (Moore et al., 1991), the research is inconsistent among school-aged children and adolescent populations (ages 7-18), with researchers reporting both positive relationships (Welk, Wood, & Morss, 2003; Vilhjalmsson & Thorlindsson, 1998) and null findings (Edwardson & Gorely, 2010; Nader et al., 1996).

In a study that examined 100 young children, ages four to seven, and their parents, it was found that, when objectively measured, parental level of physical activity had a significant effect on the activity level of children (Moore et al., 1991). Specifically, those children whose mothers were physically active were twice as likely to be active themselves, 3.5 times more likely if their father was physical active, and 5.8 times more likely if both parents were active. This result is supported by a systematic review conducted by Hinkley, Crawford, Salmon, Okely, & Hesketh (2008) which found that parental physical activity levels were positively associated with pre-school aged children's physical activity levels.

Within both school-aged children and adolescents, there have been unequivocal results found in the examination of parental and child physical activity levels (Biddle et al., 2011; Edwardson & Gorely, 2010; Welk, Wood, & Morss, 2003). Welk, Wood, & Morss (2003) examined elementary school students and their parents in a cross-sectional study addressing parental influences and physical activity levels of children. It was

determined that there were low, but significant, correlations between parental and children physical activity levels. Positive associations were also found in a study of over 1,000 young adolescents and their parents; youth physical activity levels (both male and female) were found to be positively associated with parental levels of physical activity (Vilhjalmsson & Thorlindsson, 1998). Although these two studies have found positive associations in both genders, many studies within the adolescent literature do not find correlations between children physical activity levels and both parents, but instead report fathers to have more of an association with adolescents than mothers (Biddle et al., 2005; Davison, Cutting, & Birch, 2003; Davison, 2003). Recently, studies examining parental modeling of physical activity and its effect on adolescent physical activity levels have shown a relationship among the two, specifically when participation is at a high level of intensity (vigorous in nature; Edwardson & Gorely, 2010). This could suggest that the association between parental modeling and physical activity levels are independent of intensity level.

Juxtaposed to research studies revealing a positive association between parental and children physical activity levels, there are also studies that have shown a null association between the two (Edwardson & Gorely, 2010; Nader et al., 1996). In a three-year intervention study, Coordinated Approach To Child Health (CATCH), researchers concluded that when parents were involved in the family CATCH intervention, there was a significant effect on children's attitudes, knowledge, and beliefs about physical activity, but not on levels of physical activity (Nader et al., 1996). Also supporting a null finding is a study of 300 adolescents in the western portion of the United States where

researchers determined that self-reported physical activity from parents was unrelated to the subjective and objective measures of physical activity levels for adolescents (Sallis et al., 1992).

Along with parental modeling, parental support and encouragement for children in relation to child and adolescent physical activity has also been well studied. Research about parental support has shown positive associations (Biddle et al., 2005; Gustafson & Rhodes, 2006; Edwardson & Gorely, 2010; Welk, Wood, & Morss, 2003) with physical activity levels in children. A systematic review of literature conducted by Gustafson & Rhodes (2006) revealed parent support of children's health behaviors and engagement in physical activity (i.e. encouragement, involvement, facilitation) had a positive influence on children's levels of physical activity. Of the 19 studies examined, it was determined the relationship between parental support and children's physical activity were stronger in younger children, but still significant among adolescents.

Sallis, Alcaraz, McKenzie, & Hovell (1999) examined fourth and fifth grade students' physical activity habits over a 20-month period. The purpose of the study was to determine correlates of youth physical activity change over time. The results revealed that parent's support was significantly associated with boys physical activity change over the 20-month period, but no significant association was found with girls. Other cross-sectional studies have found a positive relationship between youth levels of physical activity when compared with parental support (Davison, Cutting, Birch, 2003; Trost et al., 2003b). Using field measure tests and questionnaires, Davison, Cutting, & Birch (2003) examined 180 school-aged children's level of physical activity. A positive

association was found with girls' level of physical activity and the amount of reported parental support. Similarly, Biddle & Goudas (1996) surved 147 adolescents about their level of physical activity engagement and parental encouragement, determining that there was a significant positive association between the two.

Given the association between parental modeling, support and encouragement, and children's physical activity patterns, it is important for schools to provide opportunities for families to foster their relationships around physical activity. Providing this opportunity for parents has potential to lead to an increase of physical activity engagement in youth.

Peer support and influences. As children mature, they spend greater amounts of time with friends compared to family, thus increasing the opportunity for peer influences (Montemayor, 1983). In particular, peers could be an important source of social support for adolescent physical activity (Pender, Sallis, Long, & Calfas, 1994). This was evident in a two-year intervention study, (Trial of Activity for Adolescent Girls, TAAG), where middle school girls were given greater opportunities to be physically active both in and out of the school setting (Lytle et al., 2009). Lytle et al. (2009) reported that after the two-year intervention, those girls who were socially supported by friends to be active and who had a strong social support system in general had higher levels of MVPA than girls who were less supported. Although this study addressed just the female population, other studies have found a positive association for males (Zakarian, Hovell, Hofstetter, Sallis, & Keating, 1994).

Similar findings were suggested in cross-sectional literature. In a study that examined 372 youth, it was concluded that those children and adolescents with friends who support physical activity, and who attended events to provide spectator support, are more likely to have higher levels of physical activity participation (Duncan, Duncan, & Strycker, 2005). Another study, conducted with over 1,000 children and adolescents, found similar findings when comparing self-reports of physical activity levels and peer support. This would confirm that peer support has a positive correlation to child and adolescent physical activity levels (Prochaska, Rodgers, Sallis, 2002).

Why correlates of physical activity are important to the present study. Understanding factors related to youth physical activity is important for teachers who are planning physical activity interventions within the school setting. An underlying goal of the present study is to encourage teachers to provide more opportunities for children and adolescents to be physical active, with hopes that youth will take advantage of the opportunities available and increase participation in physical activity. By understanding the correlates of physical activity, teachers can be more prepared when choosing opportunities for youth to be active.

As a researcher it is important to understand the correlates of youth physical activity in order to plan interventions that address possible variables to determine best practices for implementing and promoting physical activity. Understanding this relationship will help guide the structure and programming of physical activity interventions and guide teacher's implementation of CSPAP in order to maximize

opportunities for children to be physically active and in turn increase physical activity levels of youth.

COORDINATED HEALTH MODELS IN SCHOOLS

Schools play a central role in providing opportunities for children and adolescents to participate in physical activity (Pate et al., 2006). Traditionally, students have engaged in physical activity during physical education class, recess, and school-related sporting events. However, as we progress further into the 21st century, alarming trends in child and adolescent health are emerging, suggesting that schools may need to reevaluate and expand their role in providing physical activity to youth (Pate et al., 2006). Currently, schools, specifically the teachers and administrators within the school building, have the opportunity to influence and encourage participation of physical activity through physical education courses and afterschool activities (Eaton et al., 2008). In 2001, the Surgeon General identified schools as a key setting to implement programs and strategies to address the prevalence of overweight and obese trends among youth, stating that children spend large portions of their time at school and that schools have the capability to provide opportunities to engage children in healthy eating and physical activity and to reinforce healthy lifestyle messages (USDHHS, 2001).

Lee et al. (2007) suggested that schools play an important role in the fight against childhood obesity. They reason that schools are an ideal venue to address obesity issues because (a) over 95% of children and adolescents are enrolled in school, (b) physical activity and healthy eating are an established part of school curriculum, and (c) schools with well-designed and well-implemented physical education programs can effectively

42

promote healthy behaviors such as increasing physical activity and healthy nutrition, while working toward decreasing the amount of time children spend participating in sedentary activities. Similarly, Katz et al., (2005), who participated in a CDC taskforce centering on childhood obesity, are also in support of schools playing a key role in the prevention of obesity among children and adolescents. In their summary report, they concluded that schools offer multiple advantages for implementing programs designed to prevent and control overweight trends in youth by providing continuous and intensive contact with the majority of children and adolescents in the United States. Furthermore, Story, Nanney, & Schwartz (2006) added that no other institution has as much continuous and extensive contact with children during the first two decades of life. Thus, schools have vast potential to positively affect the physical activity levels and weight of children.

Individuals and committees are not the only ones who acknowledge schools as an ideal place to intervene with overweight and obese children; in a report published by the USDHHS (2011, p. 265), *Healthy People 2020*, objectives for the nation, specifically relating to physical education and physical activity in schools, were released. The objectives included:

- PA-3: Increase the proportion of adolescents who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity.
- PA-4: Increase the proportion of the Nation's public and private schools that require daily physical education for all students.

Given the prevalence of obesity among youth in the United States, it has been recommended that children participate in at least 60 minutes of health-enhancing physical activity every day (Strong, et al., 2005). Schools are an appropriate setting to provide a positive influence on youth regarding physical activity levels and health status indicators (Flynn et al., 2006; Sallis & McKenzie, 1991) given that children spend most of their waking hours at school. Physical education has been listed by many organizations as an ideal place for children to learn about the importance of physical activity and to develop an understanding for a culture that values movement. However, given the state of physical education in schools (e.g., only 6% of all schools provide daily physical education), children might not have enough time to participate in a health-enhancing level of physical activity on a daily basis. The follow section will discuss the current role of physical education in schools as well as the current status of physical education in the school setting, in relation to a coordinated approach which draws on multiple resources to provide physical activity opportunities.

Coordinated School Health Programs

Coordinated School Health Programs (CSHPs) have become increasingly popular in districts across the country over the past 20 years, coinciding with statements pushing for schools to be more involved in confronting the childhood obesity epidemic. In the following section, a brief history and description of CSHPs is provided with a specific focus on CSPAP, a single part of CSHPs.

Brief History of CSHPs. Originating in the early 1900s, School Health Programs (SHPs) focused on three general areas: school health instruction, health services, and a

healthful environment (Allensworth, Lawson, Nicholson, & Wyche, 1997). Beginning in the early part of the 20th century, the main focus of SHPs was on infectious disease prevention. However, as time continued and disease prevention became more manageable, health behaviors emerged as the major cause of disease and death among youth (Allensworth et al., 1997; Reed & Jernstedt, 2000), with six behaviors accounting for 70% of adolescent morbidity and mortality: unintentional and intentional injuries, drug and alcohol abuse, sexually transmitted diseases and unintended pregnancies, diseases associated with tobacco use, illnesses resulting from inadequate physical activity, and health problems due to inadequate dietary patterns (Kann et al., 1995). As a result of these behaviors becoming more prevalent, physical education was implemented into the school systems. Beginning in the mid 20th century, physical education focused on physical training and was often associated with instruction in self-control and hygiene (Lee & Bennett, 1985).

During the 1930s and 1960s school health became a major focus among a variety of agencies and professional organizations, leading to many important documents emphasizing a range of health issues (Allensworth et al., 1997). These articles included *Suggested School Health Policies*, published by the National Committee on School Health Policies of the National Conference for Cooperation in Health Education, and *Health Appraisal of School Children*, published by the NEA–AMA Joint Committee on Health Problems in Education (Means, 1975).

In the 1980s, CSHPs were developed to address multiple facets of health in an educational setting. Today, the National Center for Chronic Disease Prevention and

Health Promotion (NCCDPHP) of the CDC supports an eight-component model (e.g. health education, physical education, health services, nutrition services, counseling, psychological, and social services, health and safe school environment, health promotion for staff, family and community involvement; see Table 1), originally introduced by Allensworth & Kolbe (1987). The NCCDPHP provides guidance on the collection of survey data regarding health programs and policies in schools (NCCDPHP, 2011). In 2004, federal legislation was passed that required all districts with federally-funded school meal programs to develop and implement wellness policies by the beginning of the 2006-07 school year. The Child Nutrition and WIC Reauthorization Act of 2004 directed school districts to set goals for physical activity, nutrition education, campus food provision, and other school-based activities designed to encourage student wellness. Although all eight components may not be present in every school, the CDC recommended in 2011 that the incorporation of all eight pieces was suggested to be comprehensive in addressing the health needs of children (NCCDPHP, 2011). Further, this reauthorization encouraged the inclusion of physical education teachers on direct wellness committee and promotes involvement in CSHPs.

  Definition of CSHPs. Although the concept originated in the 1980s, the Institute of Medicine (IOM) reviewed previous models and definitions of Comprehensive School Health in 1995 and coined a new term: "Coordinated School Health" (Allensworth et al., 1997). In 2007, the CDC decided that the term Coordinated School Health better described "the systematic approach needed to coordinate the policies, practices, and components" (CDC, 2011a) and proclaimed a name change of the current eight-

component model to "Coordinated School Health". Due to the uniqueness and differences of each individual school, the definition of CSHPs differ depending on the situation. There are general definitions for CSHPs used by various organizations including the CDC and IOM (CDC, 2011a). The definition that will be used and discussed in this paper is from the CDC and is as follows:

> CSH is a systematic approach to improving the health and wellbeing of all students so they can fully participate and be successful in school. The process involves bringing together school administrators, teachers, other staff, students, families, and community members to assess health needs; set priorities; and plan, implement, and evaluate all health-related activities. CSH typically integrates health promotion efforts across eight interrelated components that already exist to some extent in most schools. These components include health education, physical education, health services, nutrition services, counseling, psychological and social services, healthy and safe school environments, staff wellness, and family and community involvement (CDC, 2011b, p. 3).

Components of CSHPs. CSHPs typically contain eight components (see Table 1) and although all eight components are essential and encouraged, research shows that school-based programs often focus on four components: (1) health education, (2) physical education, (3) nutrition services, and (4) family and community involvement. This could be due to the fact that these four components have the closest relationship to childhood obesity (Abood, Black, & Coster, 2008; Baranowski et al., 2000; Carrel et al., 2005; Datar & Sturm, 2004; Neumark-Sztainer, Story, Hannan, Tharp, & Rex, 2003).

Teaching children the importance of health at an early age can help provide a foundation for healthy choices throughout life. Initially, CSHPs were often carried out through nutritional goals (Baranowski, et al., 2000; Briefel, Crepinsek, Cabili, Wilson, & Gleason, 2009; Fox, Gordon, Nogales, & Wilson, 2009; Institute of Medicine, 2007), but now some focus on physical activity behaviors as well (Irwin, Irwin, Miller, Somes, & Richey, 2010). In 2004, the CDC created a guide for schools that included research-based strategies to address the issue of childhood obesity (Wechsler, McKenna, Lee, & Dietz, 2004), which included ten strategies schools should implement to promote the prevention of childhood obesity. The first of these strategies was to encourage healthy eating and lifelong physical activity in children through CSHPs, specifically through the components of health education, physical education, and nutrition services. Because of this emphasis, specific programs have been developed to focus on physical activity throughout the school day. These programs are most commonly known as CSPAP.

Comprehensive School Physical Activity Programs

According to the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD), a CSPAP is an approach that supports a CSHP and encourages school districts to "utilize all opportunities for school-based physical activity to develop physically educated students who participate in the nationally-recommended 60+ minutes of physical activity each day and develop the knowledge, skills, and confidence to be physically active for a lifetime" (AAHPERD, 2012). With the majority of children's time spent in school, it is important that school personnel are working towards achieving the

60-minute a day recommendation for children. A CSPAP gives schools an organizational structure as the best chance of completing this task.

The CSPAP model was formalized by NASPE in 2008 as the organizational framework best suited to deliver physical activity programs in schools. Although only in existence for a few years, many changes have already been made to the original idea of CSPAP. Initially, CSPAP consisted of a four component model: (1) quality physical education, (2) school-based physical activity opportunities, (3) school employee wellness and involvement, and (4) community involvement. In 2010, awareness of the importance of participation in physical activity increased with the *Let's Move* campaign, introduced by First Lady Michelle Obama. The primary goal of this campaign was to cure childhood obesity within a generation. In support of this initiative, President Obama also launched the first task force on childhood obesity. In the spring of 2010, NASPE, with support of *Let's Move,* established the inaugural *Let's Move in School*. This initiative focused on creating more physical activity opportunities for children during the school day. Because the initiative was similar to the mission of the original NASPE-created CSPAP, NASPE officially combined the two movements in the late spring of 2011. *Let's Move in School: A Comprehensive School Physical Activity Program* (NASPE, 2011) is a five-component model that encourages physical activity throughout the school day. Each component of the *Let's Move in School* is based on a specific body of empirical evidence, which is beyond the scope of the present study.

Let's Move in School is centered on quality physical education because it provides the fundamental basics in developing lifelong movers. Research shows that quality

physical education programs can contribute to students' regular participation in physical activity (Fairclough & Stratton, 2005) and can increase student participation in moderate to vigorous physical activity (CDC, 2001; Rink, 2012).

Along with a quality physical education program, students need to participate in physical activity throughout the school day. This component, school-based physical activity opportunities, includes, but is not limited to, classroom physical activity breaks, organized recess, and open gym opportunities. These physical activity opportunities should not to take the place of physical education, but should add to physical activity time accumulated during physical education class. They should also encourage students to use the skills and knowledge learned in physical education to help students successfully become physically active (NASPE, 2008; Castelli & Ward, 2012).

The third component of *Let's Move in School* is physical activity before and after school. Students and staff should partake in before and after school physical activities, such as intramural programs, zero hour physical education, interscholastic athletics, and active transportation to school (walking and biking) to help supplement daily MVPA. In fact, students who walk or bike to school generally expend more energy overall throughout the day (Tudor-Locke, Neff, Ainsworth, Addy, & Popkins, 2002; Beighle & Moore, 2012) than those who arrive via car or bus. Physical activity opportunities and programs occurring before and after normal school hours have great potential for increasing overall daily physical activity levels of youth (Allison & Adlaf, 2000).

Staff involvement is the fourth component of *Let's Move in School*. School employee wellness programs have been shown to improve staff health, increase physical

activity levels, and be cost effective (Eaton, Marx, & Bowie, 2007; Heidorn & Centeio, 2012). Schools should plan and implement activities, policies, and incentives for faculty and staff to promote participation in modeling an active and healthy lifestyle. Students who view positive role models who are "living what they preach" are more likely to engage in physical activities themselves (Moore et al., 1991).

Family and community involvement is the final component within the CSPAP. Families are an important part of students' lives and impact their physical activity levels (Ornelas, Perreira, & Ayala, 2007; Cipriani, Richardson, & Roberts, 2012). Therefore, it is extremely important that schools provide opportunities for families that are educational, fun, and allow them to participate together in physical activity. Examples of possible events include family fun nights and group exercise programs. Providing students and their families knowledge and experiences that allow them to engage in physical activity within the community is important as well. Having community sponsors to help create a culture of physical activity, providing use of school facilities for community recreation, using community facilities and programs to promote student and family physical activity, and sharing personnel and other resources with the community could all help enhance opportunities for families to be physically active together (Pate et al., 2006).

Role of Quality Physical Education in CSPAP

As previously stated, physical education is considered the center of the CSPAP model, making it important to understand quality physical education and its current status within the school setting. Physical education is a formal learning environment where

certified physical educators teach children: (a) the skills necessary to perform a variety of physical activity, (b) the implications and benefits from involvement in physical activity, (c) to participate in regular physical activity, (d) to be physically fit, and (e) the value physical activity and its contributions to a healthful lifestyle (NASPE, 2004). Lessons in physical education focus on the skills and knowledge needed to establish and maintain an active and healthy lifestyle. It is important to understand that affective physical education lessons are designed to develop both physical and cognitive skills of students, while also teaching students the value of physical activity. Physical education is designed to offer meaningful and appropriate instruction and not just the availability of time to be physically active (Le Masurier & Corbin, 2006b).

Quality physical education programs provide the foundation of healthy, active lifestyles that support all learning, encourage the importance of teaching the whole child, and help to ensure future success for youth (NASPE, 2001). A quality physical education program is comprised of five main elements: (a) delivery by a certified physical education teacher, (b) adequate opportunities to learn (150 min per/week at the elementary level; 225 min per/week at secondary) in the K-12 environment, (c) meaningful content, (d) appropriate instruction according to state and national standards, and (e) accurate student and program assessment (NASPE, 2001). Although teachers and researchers understand what is included in a quality physical education program, not all physical education programs exhibit the characteristics described above.

Status of physical education. NASPE and the American Heart Association (AHA) have conducted research on the status of physical education within the United

States through *The Shape of the Nation Report.* The latest report (2010) describes seven

important areas that impact physical education across the nation: (a) time requirements,

(b) exemptions/waivers and substitutions, (c) class size, (d) standards and assessment, (e)

physical education teacher certification/licensure, (f) accountability, and (g) online

physical education (NASPE & AHA, 2010).

Physical education instruction, which has been a part of the school curriculum

since the 1800s, can increase students' knowledge of physical activity and their physical

fitness levels (USDHHS, 1997; McKenzie, Sallis, Faucette, Roby, & Kolody, 1993).

Quality physical education, and opportunities for physical activity from kindergarten

through 12th grade, is recommended by many national associations including: (a)

American Academy of Pediatrics, (b) NASPE, (c) the AHA, (d) the USDHHS, (e) the

U.S. Department of Education, (f) the President's Council on Physical Fitness, and (g)

Sport and the Centers for Disease Control and Prevention; and is also included in the

national health objectives published as part of the National Healthy People (HP) 2020 (Le

Masurier & Corbin, 2006b; USDHHS, 2011). Although national associations have

suggested a minimum amount of physical education minutes, state law sets the minimum

amount of minutes required for physical education.

There is currently only one state in the United States, Illinois, that requires daily

physical education in grades K-12. Of the remaining states, 84% have some type of

mandate for elementary physical education, 78% mandate for middle school/junior high,

and 90% have mandates for high school physical education. Within these states, there are

only five that require students to take physical education K-12 and only two that make a

requirement for grades 1-12. State legislation has focused on the number of minutes dedicated to physical education instruction or physical activity opportunities.

Understanding the current physical activity and physical education time requirements set forth by each state is important when discussing CSPAPs because most children are not meeting the recommended amounts of daily physical activity through physical education class alone. Therefore, it is necessary that children and adolescents are presented with more opportunities to be physically active throughout the day in order to meet the recommended minutes and ensure the health benefits. Initially there was a concern that if physical education were offered every day, students would think that they did not have to engage in additional physical activity because they had already met the recommendation during the school day. However, there are no evidenced compensatory effects, as children who move in school are not less likely to engage in physical activity outside of the school setting (Morgan, Beighle, Pangrazi, 2007).

In addition to time restrictions set forth by the structure of the school day, exemptions and waivers, class size, and subject matter marginalization also inhibit physical education programming and physical activity opportunities. The combination of exemptions and waivers decrease the amount of opportunities for youth to be physically active which could have an effect on students' overall physical activity level. In addition to exemptions and waivers, students may not have the opportunity to experience quality physical education due to subject matter marginalization, which can include larger class sizes in physical education as compared to other academic subjects and a lack of accountability for physical education teachers. In addition, accountability for subject

matter including standards and assessments are often dissimilar to those in core subject counterparts. At the time of data collection for The Shape of the Nation 2010, only 12 states (24%) required some form of assessment to take place within the physical education classroom. When barriers toward physical education are overcome, quality physical education programming can be offered and schools will be able to increase the amount of time students are physically active during the school day.

Director of Physical Activity (DPA) and Implementation of the CSPAP

As schools look to increase opportunities for students to be physically active, it is important to identify an individual within the school environment who is capable of managing this task. Until now, identifying and training those individuals who would carry out the implementation of *Let's Move in School* went undone. In the fall of 2010, NASPE convened a DPA task force to develop a certification program that would prepare physical education teachers to modify their role in addressing public health issues related to sedentary behaviors of children. The task force consisted of seven different people including an appointed NASPE representative, three university faculty members, a nationally recognized secondary physical education teacher, a nationally recognized elementary physical education teacher, and a physical education district coordinator. In the spring of 2011, NASPE, along with the task force, created a DPA certification to teach physical education teachers how to implement *Let's Move in School* within their own environments. This certification process provides a series of professional development initiatives, with the first pilot certification being the basis of this dissertation.

Although published research is nonexistent regarding DPA certification and CSPAP implementation into the school setting, Centeio (2011) conducted a pilot study to gather information from quality physical education teachers in regards to CSPAP. The primary aim of the study was to examine how physical activity was currently being enacted across the curriculum in schools whose physical education teacher had been identified as highly effective. It was a secondary goal of the project to determine the relationship between teacher's self-efficacy and the implementation of CSPAPs. Teachers who had previously been awarded *Teacher of the Year* were deemed as highly effective and were targeted to participate in the study. Participants included 16 teachers who had a range of teaching experience from five to 30 years. Results of an online, 63-quesiton survey revealed that all 16 teachers believed that CSPAP was "very important" in regards to physical activity within the school setting. Teachers were already implementing specific parts of the CSPAP including physical activity during the school day (recess, classroom teacher-led physical activity within the classroom, and drop-in physical activity sessions at the secondary level) and instigating physical activities that included family and community involvement. Finally, there was no significant correlation between teachers' self-efficacy toward the provision of physical activity opportunities, years of teaching experience, and CSPAP level of implementation. Given the sample size, it was concluded that more research was needed to determine the physical education teachers' involvement in physical activity throughout the school day, as well as research to determine the frequency and intensity of the physical activity that is taking place. We

must better understand what teachers current do in order to design effective professional development opportunities.

PROFESSIONAL DEVELOPMENT

Professional development in education can be defined as the vast range of activities and interactions that teachers engage in to increase their knowledge and skills, improve their teaching practice, and contribute to their personal, social, and emotional growth (Cohen, McLaughlin, & Talbert, 1993). Professional development can include formally networking and exchanging ideas with colleagues, an hour-long seminar, a multiple-day seminar, a national convention, or even a college course.

In the past decade, the calls for a commitment to teacher learning have increased exponentially, most likely from the standards-based movement (Wilson & Berne, 1999). Higher standards for teachers inevitably grew when students were expected to achieve a higher standard. It was inevitable that teachers would need something new, a fresh component of professional development, in order to enhance instruction to their students (Wilson & Berne, 1999). Understanding what makes professional development successful is important when trying to reform the teacher or school environment.

Much research in education has focused on how teacher professional development should be conducted, mainly based on methods that have failed or been unsuccessful in the past. The forefront of literature criticizes trainings, workshops, and in-services that are "one shot deals"; in other words, professional development that is only offered once seems to be unsuccessful (Ball & Cohen, 1999; Darling-Hammond, 1998; Locke, 2006). These types of workshops do not include follow-up training or hold teachers accountable

57

for implementation. It has been shown that very little of what is introduced during "one shot" development workshops actually enters the classroom (Friesen & Clifford, 2003). Furthermore, it is often found that single workshops are disconnected from issues that are taking place in the classroom environment (Ball & Cohen, 1999).

Becker and Reil (1999) believe that these short professional development opportunities leave little time and opportunity for teachers to implement the ideas and teaching practices into their classroom setting. In a study conducted by Becker and Riel, 4,000 teachers who participated in different forms of professional development in over 1,100 schools reported one-day professional development and in-services as boring, inappropriate, unfocused, and irrelevant to their work. Furthermore, many teachers believed methods that were brought forth during these workshops often contradicted what was thought to be best teaching practice within the field of education.

There are, however, researchers who believe single episodes of professional development can be successful if implemented properly (Lydon & King, 2009). In their examination of continued professional development with science teachers (Lydon & King, 2009), single episodes of professional development were assessed in regards to teacher knowledge, understanding, and implementation. Results suggested that a well-structured, single episode of professional development, if based on practical knowledge, could have a long-term impact on those involved.

Effective Professional Development

Over the past decade, a broader view of teacher professional development has emerged, treating teacher learning as interactive and social process, based in discourse

and community practice (Cochran-Smith & Lytle, 1999). Researchers have compiled data from previous studies and combined success stories to create what they believe is an appropriate and beneficial form of professional development (Darling-Hammond & McLaughlin, 1995; Desimone, 2009; Desimone, 2011). The two studies that will be discussed here are by Desimone and Darling-Hammond and McLaughlin. These researchers were chosen because they are prominent in professional development literature within the field of education.

Desimone (2009; 2011) believes that there are five main features of professional development: (a) content focus, (b) active learning, (c) coherence, (d) duration, and (e) collective participation. Desimone proposes that it is important for professional development to focus on subject matter content and on how students should learn that content. Professional development may be unsuccessful if it is not content specific (Darling-Hammond & Mclaughlin, 1995). Active learning, which allows teachers to become involved, is also deemed important for successful professional development. Being involved is more than engaging in hands-on activities; it allows teachers to try out new ideas in the classroom, reflect on the new ideas, and discuss the new ideas with others. Consistent professional development for teachers is also important. If there is a lack of coherence, teachers may become confused and no longer implement ideas learned in the professional development. Desimone also discusses the importance of duration. It has been found that professional development is most successful when spread out over a longer period of time and consisting of over 20 hours of contact time (Garet, Porter, Desimone, Birman, & Yoon, 2001). The last part of professional development that is

deemed important is the sense of community. Teachers should participate in professional development together, in order to develop a support group and a sense of camaraderie.

Darling-Hammond & McLaughlin (1995) have also developed a list of items that they believe creates an effective professional development program. Some of their ideas are similar to those mentioned above, however there is a greater focus on involving teachers as consumers and disseminators of knowledge. Within their article, the dual role as a teacher and learner within professional development is discussed and deemed important because it allows teachers to struggle with their own uncertainties and work through them with reflection. One of the similarities of the work by Darling-Hammond & McLaughlin compared to that of Desimone (2009; 2011) is the idea of collaboration. They take it a step further than Desimone and discuss creating a community of practice where teachers feel comfortable to rely on their community to share knowledge. Additionally, Darling-Hammond and McLaughlin feel it is important in professional development to include activities that are grounded in inquiry and reflection, take place over a prolonged period of time, and are connected to other aspects of school change.

A study conducted by Garet et al. (2001) examined the relationship between features of professional development that were identified within previous literature and teachers self-reported personal change in knowledge, skills, and classroom teaching practices. Of the 1,027 math and science teachers who participated in the professional development workshops, six themes emerged as important to effective professional development: (a) content knowledge specific, (b) opportunities for active learning, (c) coherence with other learning activities, (d) the form of professional development

(workshop vs. study group), (e) group participation and (f) duration. These findings are consistent with those characteristics deemed important by Desimone (2009; 2011) and Darling-Hammond and McLaughlin (1995).

Professional Development in Physical Education

Within the field of physical education, there are limited opportunities for teachers to participate in continuing professional development (Deglau, Ward, Sullivan, & Bush, 2006; Doutis & Ward, 1999; Stroot, Collier, O'Sullivan, & England, 1994) even though professional development is recommended by both federal and state education departments as a means to improve dissemination of knowledge and improve student learning (National Commission on Teaching & America's Future, 1996). Given the lack of opportunity for physical education teachers to participate in content-specific professional development, literature with a specific focus on physical education teacher professional development is limited.

Armour (2006) and Armour & Yelling (2004; 2007) have conducted studies focusing on effective professional development for experienced physical education teachers. In a study that analyzed career-long professional development for 85 physical education teachers, Armour & Yelling (2004) conducted interviews to examine the forms of professional development teachers had taken in the past, to understand teachers' thoughts and perceptions of previous experiences, and to garner recommendations for change. The results of the study yielded three suggestions for professional development for experienced physical education teachers. First, professional development opportunities should be school-based and applicable in the daily routine of the teacher.

Second, teachers should have the opportunity to collaborate with others. Lastly, professional development should be based on overall student outcomes and carried out as such. For example, physical education teachers should create an objective that is targeted to a specific group of students and keep this end goal in mind throughout the professional development.

In a more recent study that focused on a four-year professional development initiative among physical education teachers, O'Sullivan and Deglau (2006) discussed important findings in regards to creating professional development for physical education teachers. The results were congruent with other educational researchers mentioned previously (Desimone, 2009; Desimone, 2011; Darling-Hammond & McLaughlin, 1995). O'Sullivan and Deglau stated the importance of teacher involvement within the professional development. Teachers should be treated with respect within the professional learning environment and should be active learners throughout the process. It is important for the professional development to be content specific and include follow-up opportunities over a period of time. It was also suggested that physical education teacher professional development have specific student and teacher outcomes established and that outcomes designated should be a balance of the teacher's vision and the program's needs.

Although the method of professional development is important, other researchers believe that availability of resources could affect teacher learning and development as professionals. McCaughtry, Martin, Hodges-Kulinna, & Cothran (2006) sought to understand factors that made physical education teacher professional development

successful and what that success meant in relation to teachers' feelings about change. Thirty physical education teachers in an urban setting participated in both interviews and classroom observations that were associated with ongoing professional development. Researchers discovered that teachers felt the resources they were given in professional development helped improve their instruction in the classroom. However, teachers had mixed emotions about receiving new resources to use as part of the professional development. They were overwhelmed and worried about how they would use the new material and incorporate it into their classes, but at the same time, they were excited to try something new. The researchers' main conclusions were not focused on professional development, but on the emotions of the teachers. They suggested the need to anticipate and be receptive to emotional responses that teachers may have in regards to change (McCaughtry et al., 2006).

Given the lack of documented, content specific, effective professional development opportunities within the field of physical education it is important to understand what researchers have deemed as effective in the past and build on those experiences to create more professional development opportunities specific to physical education teachers, such as the DPA certification.

DPA Certification

The DPA certification process was a professional development designed to advance the knowledge and expertise of physical educators in implementing physical activity opportunities throughout the school day. Upon successful completion of the certification requirements, teachers became certified Directors of Physical Activity (C-

DPA), thus acknowledging them as having expertise in the design and implementation of physical activity programming.

The DPA certification process consisted of four integral steps. First, teachers participated in a one-day interactive workshop. Second, the teachers were asked to create an action plan to implement at least one component of the CSPAP. This action plan was developed after the teachers had completed the workshop and had talked about their action plan with administration at their school. Once the workshop was completed and teachers had created an action plan they then continued with twelve months of web-based support that consisted of e-learning modules, implementation resources, exclusive access to DPA social media pages, and a certification exam. Finally, teachers were asked to submit artifacts that provided evidence of successful implementation of their action plan.

Professional development is important to facilitate school reform and teacher change. Unfortunately, within the field of physical education, teachers often do not obtain a similar amount of content-specific professional development as their core subject peers. There are numerous strategies to implement effective professional development within the classroom setting. Understanding how the DPA certification program and the theoretical framework can influence effective professional development may be crucial in increasing opportunities for children to be physically active within the school setting.

THEORETICAL FRAMEWORK

Communities of practice and self-efficacy theory have been chosen as the tenets of the theoretical framework for this research study. Given the need for teacher adaptation and change in providing additional opportunities for physical activity, these

theories were chosen because they allow the researcher to examine the relationships between opportunities provided for physical activity, teacher efficacy, and teacher's perceptions of taking on additional responsibility as a director of physical activity, while also examining the effects of a community of practice on teacher adaptation.

Communities of Practice

Over the last two decades, providing teachers with meaningful professional development that results in effective change in the classroom has been a concern for educational researchers (Yildirim, 2008). As stated previously, traditional forms of teacher professional development and in-service training do not always enhance teachers' knowledge or help them develop new instructional practices. In fact, many models of teacher development are seen as ineffective (Borko, 2004). There is emerging literature to support learning communities as a means of addressing school reform issues. The process of changing the way professional development is implemented and utilized begins by transforming the culture of the organization, where the focus shifts from individual to shared goals of understanding and responsibility (DuFour, Eaker, & DuFour, 2005). Accordingly, professional development should be aligned with the contextual factors and workplace structure.

Research has shown that positive and supportive working relationships among teachers and administrators can help teachers to "buy-in" to new school initiatives and professional development opportunities, particularly when developed through human interactions (Kaufman & Ring, 2011). Originally introduced by Dewey (1916), the notion of communicating with other teachers and co-workers led to enhanced teachers'

lives, and today it is believed that this interpersonal communication leads to teacher

empowerment and efficacy (Edwards, Green, & Lyons, 2002).

Similar to Dewey, Lave & Wegner (1991), like Bandura years later, believed that

learning was a social process and should be placed in the context of lived experiences and

that learning is part of a social phenomenon, even for adults (Wegner, 1998). This

assumption resulted in the development of communities of practice (CoP), which

develops when social interaction is an evolving, continuous, and contextual process that

involves participation, social relations, and other elements (Lave & Wenger, 1991).

Although learning is a main characteristic within a CoP, it could be either a primary

reason for a CoP to gather or a secondary outcome of interaction among the members.

CoP's are defined by Lave and Wenger (1991) as "a set of relations among

persons, activity, and world, over time and in relation with other tangential and

overlapping communities of practice" (p. 98). CoP can be formed in person, virtually, or

anywhere that human interactions take place, but those who participate in the

communities must find value in their participation. The ideas and knowledge that

teachers share and gain within the CoP help to build relationships and create a connection

that can be utilized in the future (Wegner, McDermott, & Snyder, 2002). Groups can be

heterogeneous or homogeneous in nature; however, there is a uniting common interest.

This arrangement of shared learning space challenges the idea that acquisition of new

knowledge occurs individually and in isolation (Lave & Wegner, 1991).

As CoP became increasingly popular, Wenger (1998) elaborated on the concept of

CoP based on a social learning theory framework, arguing that learning is critical and

fundamental to human interactions. Further, adult learning is an ongoing process where people actively participate and communicate in a social setting in order to make sense of and construct their experiences about the living world. This notion has similarities to Vygotsky's child development theory, which states "learning is a necessary and universal aspect of the process of developing culturally organized, specifically human, psychological function" (Vygotsky, 1978, p. 90). Similarly, Wegner believed that knowledge is created, transferred, and maintained through active social participation. CoP, in this sense, are an ideal context for motivated participants to improve their knowledge and skills; consequently, organizational performance and effectiveness are enhanced. The emergence of CoP in the educational setting, was thereby defined by Wenger, McDermott, & Snyder (2002) as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (p. 4), which is the definition that the researcher will utilize in this present study.

Creating CoPs. Three characteristics are essential in the development and integration of a CoP: (a) the domain, (b) the community, and (c) the practice (Wenger, McDermott, & Snyder, 2002). Each contributes to CoP in a unique way and without each individual part a CoP would be incomplete.

The domain. The *domain* of a CoP is a set identity for a group that shares a specific area of interest; it is not simply a group that has something in common such as a club because within the domain knowledge transfer occurs (Wenger, McDermott, & Snyder, 2002). Instead, the domain is a definitive measure, usually self-defined by group

members, and helps to lay the boundaries for each specific CoP. This determined boundary establishes the foundation and guidelines, as well as clarifies the subject matter of the given CoP. The specific of the domain provides a foundation for the CoP and keeps the group focused on its intent. Accordingly, participants who belong to the group must value the material being exchanged and actively participate in the learning and reflection that is going on within the domain.

In relation to the DPA certification, the domain would be "Director of Physical Activity" or even more general, "integrating physical activity throughout the school day". These two domains are common interest areas of the teachers who are participating in the research study. However, it is important to note that the domain would not be determined by an external entity, such as the professional development conveners, but more by the teacher who identified him/herself as having and interest in the topic or sharing a passion about the subject matter The domain serves a fundamental role in attracting like-minded teachers to this professional development opportunity.

The community. The *community* within the CoP is the relationship built among the participants, which allows them to learn and share with each other (Wenger, McDermott, & Snyder, 2002). The element of community creates the social structure of learning and forms a social system in which participants interact with one another and build relationships during the process of learning (Wenger, McDermott, & Snyder, 2002). The key to a successful community is participant interaction and contribution, which allows participants to gain knowledge from the experience. A normative expectation of the community is the directional exchange of information; as the unwritten rule is the

shared contribution. It therefore goes without saying, that the most successful CoP occur when participants are motivated to interact, develop a sense of openness and trust within the community, feel like they are key contributors to the community, and feel as though everyone is equally committed (Cargill, 2006; Stuckey & Smith, 2004; Teigland & Wasko, 2006; Wartburg & Teichert, 2006). It is also critical that membership within a CoP remains voluntary and genuine, and able to occur in any environment or designated place. A community decides how often they would like to assemble; however it is important that participants regularly gather, socialize, and exchange information in order for all members to benefit.

The community within the DPA certification process could include local teachers going through the same process, or might develop as an online community through email and social networking sites. The community could gather at a specific place and time to discuss the DPA certification process and CSPAP or could choose to continually interact on a site such as *Facebook*. The important part of the community is that teachers are participating in the exchange of knowledge, information, and even socialization on a consistent basis.

The practice. Wenger, McDermott, & Snyder (2002) used the term *practice* to denote "a set of common approaches and shared standards that create a basis for action, communication, problem solving, performance, and accountability" (p. 38). That is to say that practice is not simply shared interests that people have in common; it is shared interests that are developed, accepted, and continuously refined by participants of the community. Practice must support the domain and could be tools, language, basic skills,

69

ideas, methods, or any specific knowledge that pertains to the domain. Creating a shared repertoire of resources usually takes time and sustained interaction of the group members. With a successful shared practice, participants are able to work together to enhance one's learning.

Within the context of the DPA certification process, the practice focuses on CSPAP and the integration and implementation of CSPAP into the school environment. Teachers share ideas about successful and unsuccessful implementation strategies and communicate knowledge and concepts with their community. The practice helps community members learn and work together to create successful opportunities for children to be physically active.

The combination of the three elements of *domain, community*, and *practice* are essential to establishing and carrying out a CoP. These three characteristics distinguish CoP from other types of work groups and teams. A traditional work group or team might work together to accomplish a specific or given task; however CoP focus on developing participants' capacities, and building and exchanging knowledge. These three elements allow those who participate in CoP to gain knowledge and understanding while sharing information and building relationships with people who have similar interests.

There have been numerous research studies in the field of education concerning the implementation and effectiveness of using CoP (Barab & Duffy, 2000; Buckleya & Du Toitb, 2010; Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004; Buysse, Sparkman, & Wesley, 2003; Doppelt et al., 2009; Laluvein, 2010; Mitchell, 1999; Morrell, 2003; Perry, Walton, & Calder, 1999; Tippins, Nichols, & Tobin, 1993).

However, little research has been conducted on the effectiveness of CoP specific to physical education (Keay & Lloyd, 2009). The following section will briefly discuss CoP as seen within general education and will then narrow the focus to those studies that have been conducted within the field of physical education. Despite the emergence of CoP in the field of education, only a small sampling of this research will be discussed within this review. These studies were chosen because they are representative of a larger body of literature, are best aligned with the needs of physical education teachers, and utilized the definition and elements previously described.

In a two-year long professional development intervention, 23 teachers were followed through three different professional development experiences (Doppelt et al., 2009). Five teachers used the previously established curriculum, five teachers implemented the reform curriculum without attending professional development, and 13 teachers implemented the reform curriculum while attending professional development. The results indicated that teachers who participated in frequent professional development opportunities that focused on engaging them in the learning process and creating a socially collaborative community had students who achieved significantly higher academically than both groups of their professional counterparts who did not participate in the professional development (Doppelt et al., 2009).

CoPs have a positive effect on the professional development experience of teachers, among fourth grade English teachers, who were provided the opportunity to participate in a CoP (Yildirim, 2008). By journaling their experiences and participating in interviews, the teacher reported that the framework of the CoP was beneficial for their

development (Yildirim, 2008), given the "deeply elaborated knowledge and perceptions…developed the ability to share and collaborate…[as well as] planned and implemented new initiatives as a results of the CoP" (Yildirim, 2008; pp. 250).

The studies outlined above show that CoP are effective in the general education setting; however, in a literature review on CoP specific to the physical education setting, only one research study emerged. The study, conducted by Deglau, Ward, Sullivan, & Bush (2006), examined 17 physical education teachers and followed them through a physical education professional development series. The teachers participated in six meetings over a six-month period; the meetings were referred to as PEP-talk. PEP-talk was designed as a social setting where teachers could discuss the problems and successes they were experiencing within their physical education classroom. It was confirmed that the community formed by the teachers provided professional support and collaboration, but failed to demonstrate any changes in best practice or a transfer of learning to teaching practice.

Online communities of practice. As previously stated, CoP can take many forms, including that utilizing online forums or media, whereby the teachers are not in close proximity with one another. Specifically referred to as virtual CoP (vCoP), these are communities of practice formed online. It is important to note that vCoP maintain the same characteristics as a traditional CoP, but physical meetings occur seldom or not at all. For example, webinars, chat groups, listservs, social media groups, & Wiki's are all examples of how teachers could form vCoP's.

vCoP have been formed voluntarily by teachers in the K-12 setting (Jung Won &

Brush, 2009) and have also been used to facilitate formal professional development

opportunities for teachers (Barab, MaKinster, & Scheckler, 2003; Karagiorgi &

Lymbouridou, 2009; Sherer, Shea, & Kristensen, 2003; Vavasseur & MacGregor, 2008).

In a research study conducted by Jung Won & Brush (2009), three different vCoP,

involving 23 teachers and over 2,000 posts were examined. During the analysis, five

themes emerged as the purpose for the community: (a) sharing emotions, (b) utilizing the

advantages of online environments, (c) combating teacher isolation, (d) exploring ideas,

and (e) experiencing a sense of camaraderie. Given the results, the authors concluded that

when developing communities of practice within the field of education, emphasis should

be placed on cultivating teachers' emotional states.

Although some vCoP are entirely social-driven, other communities begin as a

means of professional development for teachers. Some vCoP's aid traditional forms of

professional development by extending the learning environment beyond traditional

forms of communication such as face-to-face contact, while other vCoP's conduct the

entire professional development experience online. Vavasseur & MacGregor (2008)

conducted a mixed-methods research study examining the participation of 40 middle

school teachers and principals who used vCoP within their professional development

series. Results showed the online community provided teachers with a place to share

ideas, reflect and discuss issues, and make new connections with their colleagues.

Successful professional develop through vCoP occurs when teachers are active

participants and are invested in the community of practice. Many teachers, as found in the

previous mentioned research, use vCoP as not only as a place to network, but a place to gain support from their colleagues. More research is needed to determine if these support systems have a carryover effect to student academic learning in the classroom setting.

In addition to research supporting traditional CoP, there is research that supports vCoP as a successful professional development method. In a research study conducted by Hibbert (2006), 23 teachers participated in a vCoP. All online interaction was used as a data source for the research, as well as field notes from the researcher and email correspondences. Results showed that the vCoP allowed teachers to engage in "transformative" dialogue about their teaching practices. Although valuable in this situation, the author makes key suggestions for creating a more effective vCoP, including providing a space for teachers to problem solve individual issues within their personal school setting. Creating a safe, online environment for this type of interaction may be critical to implementing a successful vCoP.

CoP within the field of education allow teachers to share their own expertise while acquiring new knowledge from their colleagues. Although under-studied among physical educators, the CoP framework was selected as a guide for professional development in the DPA certification program, given its potential and currency.

Social Cognitive Theory

The second theory identified for inclusion in the framework informing this study is social cognitive theory (SCT), which explains how people influence their own lives as they generate thoughts, feelings, and behaviors. SCT roots are derived from early learning theorists, including behaviorists such as Watson, Pavlov, Thorndike, and

Skinner, as well as cognitive learning theorist Tolman, but its development is credited to Albert Bandura (Pajares, 2002).

Bandura suggested that human actions are the result of both social and self-influences, thus assuming that people are proactive agents in their lives who try to control the social factors that impact them. The development of the SCT was Bandura's way of describing the interception between cognitive processes and the environment's impact on behavior (Price & Archbold, 1995). SCT posits that learned behavior can be socially learned within an environment; however, this affect is not limited only to environmental factors but also those of the individual's cognition (Bandura, 1986). Within SCT, people learn by observing others, with the environment, behavior, and personal (cognitive) tenets acting as contributing factors to the learning experience, thus forming reciprocal determinism (Bandura, 1977).

Thoughts, beliefs, and emotions, which comprise the personal tenet, interact bi-directionally with the behavior and environment. Essentially, the personal domain influences behavior and behavior in turn influences a person's thoughts and emotions. For example, a person's beliefs, expectations, self-perceptions, goals, and intentions guide behavior; however, the behavior that is carried out will then affect one's thoughts and emotions. The other two reciprocal interactions that may occur are behavioral influences on the environment and the environment's influence on the person. Bandura contends that people are both products and producers of their environment (Bandura, 1977; 1986); a person's behavior will influence the environment that they are exposed to and behavior in return will be influenced by that same environment. Although the bi-directional

interactions of SCT are dynamic, these tenets do not possess equivalence in power, are in constant flux, and are dependent upon the other domains (Bandura, 1986).

SCT acts as an overarching framework and elucidates the intercession between the environment, one's beliefs and their action that can also explain an individual's self-efficacy. Self-efficacy theory highlights the importance of self-belief in ability and outcome value (Maddux, 1995). "Perceived self-efficacy is the belief in one's ability to organize and execute the course of action that is required to produce given attainments" (Bandura, 1997, p. 3). The following section will discuss self-efficacy theory, general teacher efficacy, and teacher efficacy within the physical education classroom.

Self-efficacy theory. Self-efficacy, the belief one has in their ability to succeed in a given situation, plays a critical role in performance (Holden et al., 1990). Self-efficacy is thought to impact a person in many ways including behavioral choices, effort and persistence, and even cognitive and emotional responses (Bandura, 1986). These beliefs can then determine how people feel, think, motivate themselves, and behave in general. Efficacious people, or people with higher levels of efficacy towards a specific task, utilize resources to solve problems. Conversely, people who are less efficacious are more apt to exhibit enabling characteristics, as they rely on others to solve the problem or elect to confront the problem.

Bandura (1994) suggests that people with high levels of efficacy are more likely to feel accomplished and have positive feelings of personal well-being. Individuals with this outlook approach challenges differently than those who are less efficacious. For example, a person who has a high-level of efficacy would approach a difficult task as a

challenge, and in such a manner that they would try to master the task rather than avoid it. However, a person who is less efficacious would look at that same task and avoid it at all costs to prevent failure. Many times, people with a lower sense of self-efficacy dwell on their personal deficiencies and the obstacles they encounter instead of looking at tasks as challenges to overcome.

Self-efficacy beliefs are constructed from four main principles: (a) mastery experiences (personal experiences), (b) vicarious experiences (witnessing others experiences), (c) social influences, and (d) physiological and affective states in various situations (Bandura, 1997). In order to increase or decrease perceived self-efficacy, a person must adapt one of the previously mentioned four principles.

Mastery experiences. Personal, or mastery, experience is an important and influential source of efficacy, given that it provides first-hand evidence of whether or not a person is successful (Bandura, 1997). If a person previously succeeds at something, their efficacy will increase for that particular task; if they fail, their efficacy will decrease. Failures of certain tasks early on in an attempted task can be detrimental to a person's perceived efficacy for that individual task, versus if a person succeeds a number of times first and then fails, their efficacy might not be affected because the previous success has established a belief in one's capabilities (Bandura, 1997). If success comes easily, individuals come to expect quick results and are quickly discouraged by failure; a resilient sense of self-efficacy requires experience in overcoming obstacles through effort. Accordingly, mastery experiences challenge current assumptions and abilities and help one reformulate their perceptions of competency.

Vicarious experiences. The second way of increasing and strengthening levels of self-efficacy is through vicarious experiences, or comparisons between one's self and another. Seeing someone similar to one's self succeed at a particular task may raise the observer's belief that they too can achieve and succeed at the same or a similar activity; consequently, observing others fail despite their effort toward the task could lower the observer's perception of personal self-efficacy (Bandura, 1997). For example, a teacher who observes another teacher being successful in a similar context might feel more confident when presenting the same lesson to his or her own students. However, if they observe ineffective instruction, then their level of efficacy toward teaching that lesson might decrease. It is important to note that the influence of vicarious experiences on increasing efficacy is highly correlated with the perceived similarity of the model, i.e. the person being observed (Bandura, 1997). If the model is thought of as similar to the observer, then the successes or failures of the model are more persuasive in influencing the self-efficacy of the observer. Similarly, if the observer sees his/herself as very different from the model, then his/her perceived self-efficacy is not significantly influenced by the model's behavior and the outcome of the event.

Social influence. Social influence, otherwise known as verbal persuasion, is the third way of influencing a person's perceived level of efficacy. Social influences, such as words of encouragement from a loved one, can become especially important when sustaining a level of efficacy while struggling with difficulties. Verbal persuasions might not be enough to raise levels of efficacy in advert situations, but may help sustain levels when doubt is expressed. It has also been shown that people who are verbally persuaded

78

to believe that they possess the skills needed to succeed at certain activities are likely to give greater effort than if they hold self-doubts and dwell on personal inadequacies (Bandura, 1997). If someone has been persuaded that they lack capabilities, they tend to avoid challenging activities and often give up quickly in the face of adversity (Bandura, 1997). Social influence creates positive efficacy when provided with specific feedback on performance. When individuals are aware of their own behavior and are provided timely critique on specific tasks, they are more likely to modify their behaviors and, in turn, enhance their own efficacy.

Physiological/emotional state. The fourth and final influence that can affect a person's level of efficacy is the individual's emotional and physical needs. Bandura (1997) states that in stressful situations people often exhibit signs of stress, such as fatigue, fear, shakes, and aches. It is not uncommon for people who encounter stressful situations to perceive these stress signals as an inability to perform the given task. This perception occurs most often in people who have lower self-efficacy. On the other hand, those individuals who witness the same stressors and symptoms and are more efficacious often sense these signs as normal or unrelated to their ability and likeliness to succeed. An individual's mood can also have an effect on their impression of self-efficacy (Bandura, 1994). Positive mood enhances perceived self-efficacy, whereas negative mood may diminish it. Although the psychological and emotional states are expressed in Bandura's SET, most studies applying SET to practice are concerned with the first three sources that influence self-efficacy and the fourth often receives less attention (Labone, 2004). In fact, little is actually known about how emotions actually affect an individual's

self-efficacy (Williams, 2009). Overall, the constructs of mastery experiences, vicarious experiences, social influences and one's emotional state contribute to perceived efficacy.

Extensive research has been conducted on the impact of self-efficacy on a wide variety of human activity. The remainder of this section will review the relationship between self-efficacy and education, specifically teacher efficacy.

Teacher efficacy. Numerous studies have addressed self-efficacy in education with academics (Prat-Sala & Redford, 2012; Zhu, Chen, Chen, & Chern, 2011), career development (Betz, 2006; Lent, 2005), health (Jung, & Brawley, 2011; Paxton, Motl, Aylward, & Nigg, 2010; McCleary-Jones, 2011), athletics (Bray, Balaguer, & Duda, 2004; Coffee & Rees, 2011; Marcos, Miguel, Oliva, & Calvo, 2010), and coaching (Chow, Murray, & Feltz, 2009; Tsorbatzoudis, Daroglou, Zahariadis, & Grouios, 2003) all being extensively examined.

"The task of creating learning environments conducive to development of cognitive competencies [which] rests heavily on the talents and self-efficacy of teachers" (Bandura, 1997, p. 240), or teacher efficacy is considered an important factor in student and teacher success (Klassen, Tze, Betts, & Gordon, 2011). Ashton defines teacher efficacy as a teacher's " belief in his or her ability to have a positive effect on learning" (Ashton, 1984, p.142) while Guskey and Passaro (1994) define it as the "belief or conviction that teachers can influence how well students learn, even those who may be difficult or unmotivated" (p.3). Similarly, Ross (1994) defines teacher efficacy as "the extent to which teachers believe their efforts will have a positive effect on student achievement" (p. 3).

80

Goddard, Hoy, & Woofolk Hoy (2000) developed a model that was consistent with SCT and retained major influences of self-efficacy (mastery experiences, vicarious experiences, social persuasion, and physiological/affective states). It is believed that efficacy is context specific, and therefore teachers' feelings of efficacy can change given specific situations. For example, a physical education teacher may feel efficacious to provide physical activity opportunities for students within the constraints of physical education class, but this confidence might change if the teacher is removed from the gymnasium.

When understanding the concept of teacher efficacy, researchers refer to general teaching efficacy and personal teaching efficacy (Ashton & Webb, 1986; Guskey, 1989). Instead of individual traits of a teacher that lead to student academic achievement, general teaching efficacy is the broad ability that teachers possess for managing problems within the classroom environment (Ashton & Webb, 1986). Personal teaching efficacy, on the other hand, refers to the individual teacher and the belief they have about their ability to influence academic achievement and learning tasks within the classroom environment. Personal teaching efficacy is an internal belief that is rooted in an individual's self-efficacy, whereas general teaching efficacy is an external construct that can include general assumptions of the field and has the capability of being influenced by societal issues (Ashton & Webb, 1986; Guskey, 1989; Tschannen-Moran & Hoy, 2001). An example of the difference of these two concepts is, "Will teachers be able to handle the implementation of this model?" (general efficacy) and "Can I successfully implement this model into my classroom?" (personal efficacy). The difference in these two

statements and types of efficacy in teachers is substantial (Ashton & Webb, 1986) because the root of these beliefs may be both internal and external. Teachers who have a low level of teaching efficacy or instructional efficacy often have a pessimistic view of students' motivation, which leads to issues inside their classroom (Bandura, 1997). Teachers who have a low instructional efficacy can be derailed by classroom issues, because they distrust their own skills for handling distractions such as student behavior and classroom management (Bandura, 1997).

Teachers' level of perceived instructional self-efficacy can go so far as predicting student performance (Ashton & Webb, 1986; Bandura, 1997). The higher the teacher efficacy the greater the likelihood of student and programmatic success. Supporting this relationship between achievement and efficacy, Ross (1992), conducted a study that included 18 seventh and eighth grade history teachers who were followed through a professional development program that examined curricular change in their everyday classrooms. Results showed student achievement was higher in those classrooms containing teachers with a high level of self-efficacy.

Although much of the teacher efficacy research is positive, researchers and theorists have called for diversification of methodologies beyond surveys and self-reports to include qualitative studies that investigate teacher efficacy (Klassen et al., 2011). In addition to increased diversity of methods, researchers believe the sources of teacher efficacy (master experiences, vicarious experiences, verbal persuasion, and physiological) should be re-examined and validated in context (Goddard, Hoy, & Woolfolk Hoy, 2004; Henson, 2002; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

Particularly unstudied is Bandura's fourth source of self-efficacy, physiological and emotional state (Labone, 2004). Although research has been conducted regarding the physiological state (stress and anxiety) of self-efficacy, much less is known about how teachers' emotions affect their level of self-efficacy. Teacher efficacy literature provides little insight into teacher emotions and how they relate to their personal teacher efficacy and achievement and accordingly warrants further study (Williams, 2009).

Hargreaves (1998; 2005) has conducted research that focuses on the emotional geographies of teachers, while Bullogh & Young (2002) have studied the overall involvement of emotions in teaching. Other researchers also feel that emotions play a key role in teachers' lives. In an article written by Oatley (2000), emotions are described as an interaction between the environment and the individual, and are a product of the judgment of events and how they pertain to the teacher's life and future goals. This suggests that emotions play a key role in how an individual interprets an interaction with the environment (Frijda, 2000; Lazarus, 1999). Although emotions have begun to be researched in relation to teachers' practice, more research is needed about the effect teacher emotion plays on teacher efficacy. Generally, the positive correlates suggest that teacher emotion mediates efficacy.

Teacher self-efficacy in physical education. Self-efficacy has been shown to affect physical activity lifestyle changes (McAuley & Blissmer, 2000; Dishman, et al., 2004). According to SET, teachers who feel efficacious about providing physical activity opportunities and who participate in physical activity themselves are more likely to have physically active students (Ernest & Pangrazi, 1999; Bandura, 1986). Understanding the

concept of teacher efficacy within the realm of physical education is important for the context of this research project. This section will discuss the history of teacher efficacy within the physical education setting.

Self-efficacy is important because individuals with low self-efficacy may experience doubt or feel uncomfortable with the content, environment, and teaching strategies, resulting in lower standards of performance (Bandura, 1997). In contrast, efficacious teachers employ effective problem solving skills, develop strategies to be more effective teachers, manage their emotions well, and persist in the face of failure. Although the exact measurement of self-efficacy can be illusive, once derived, inferences can be made about the relationship between efficacy and the curriculum that is being taught in the physical education setting. Since efficacious teachers use more varied instructional strategies, are more likely to try to new things, and have higher student performance, measurement has merit (Ross, 1992).

In relation to the current obesity crisis, teachers need to feel empowered to teach children how to be physically active and it is the job of researchers working with teachers to figure out how to accomplish this task. The study being described here is important because it will help determine if being a self-efficacious teacher leads to the implementation and enactment of a more content-rich, physically active curriculum.

Many districts construct their curriculum based on the national standards, but teachers may feel they do not have enough knowledge or time to implement these standards into their classroom. A few research studies have shown that how teachers think and feel about their curriculum is a strong indicator of whether the teachers will

eventually execute that particular curriculum (Curtner-Smith, 1999; McCaughtry et al., 2006). In summary, there is robust evidence that teacher self-efficacy is a major determinant of effective teaching.

In this present study, the SCT will serve as the framework to describe the relationships between the environment, self- efficacy, and how teachers carry out their roles and responsibilities. The CSPAP index gathers information about current practices within the school environment regarding youth physical activity opportunities. School and district policy, as well as current implementation of CSPAP and opportunities to be physically active, will all be measured within the environment. Teacher behavior is the second tenet of SCT and will be measured through submission of action plans. An action plan represents changes that will take place within the school environment. It also is a comprehensive document that provides specific objectives, information, and a plan of action about how the teacher will incorporate new opportunities for youth to be physically active. The third and final tenet of SCT is personal. The personal tenet will be measured through teacher interviews. Teacher interviews will help determine the perceptions and feelings of the teacher while implementing CSPAP into the school environment.

Summary

From the current health crisis and correlates of physical activity engagement to communities of practice and teacher efficacy, the framework described above provides a comprehensive description of the bi-directional relationships that contribute to the provision of physical activity opportunities for school-age children. Teacher professional

development targeting these features was created to help teachers implement physical activity within targeted intervention points, focusing specifically on the needs of their individual school environment. The designed framework also captured the teachers' roles and responsibilities as well as their perceptions related to providing additional physical activity opportunities for children.

PURPOSE

Given today's public health issues and youth sedentary behaviors, there is a need to provide opportunities for physical activity engagement. This proposed research seeks to quantify and qualify physical education teachers' perceptions, self-efficacy, and implementation strategies related to the CSPAP model. The overall intent of this project is to improve the training experience provided to teachers who wish to implement the CSPAP model; however, its potential is much greater given the paradigm shift associated with the role physical educators play in implementing a CSPAP, and the impact such a program could have on student physical activity behaviors. Given the novelty and the influential nature of this training, it is the researcher's desire to examine the outcomes resulting from the DPA certification process, which is intended to modify current practice in schools across the country. In a society where childhood obesity is a growing concern (Datar & Sturm, 2004) and teachers are being asked to fulfill multiple duties as part of their job description, it is important to determine the feasibility of redesigning the role of the physical educator and to understand how physical education teachers perceive their role as a DPA.

CHAPTER THREE: METHODOLOGY

Given today's public health issues, youth sedentary behaviors, and the need to identify successful interventions, this research seeks to quantify and qualify physical education teachers' perceptions and self-efficacy related to the Comprehensive School Physical Activity Program (CSPAP) model, as they progress through the National Association for Sport and Physical Education (NASPE) Director of Physical Activity (DPA) certification process. In relation to this dissertation, success is increasing the number of physical activity opportunities for children. Further, this study strives to identify the common points of intervention and the corresponding implementation strategies among participants.

After the data collection methods were aligned with the research questions, a mixed methodological approach was selected for this study. Over the last twenty years, there has been progress in defining mixed methodology; however, the present terminology remains organic and under development (Teddlie & Tashakkori, 2009). Currently, the most extensive definition of mixed methodology addressing philosophical perspectives, research techniques, and research design is offered by Creswell & Plano Clarke (2011), who identify six elements that categorize a research project as employing mixed methods. The research,

> (a) collects and analyzes persuasively and rigorously both qualitative and
> quantitative data (based on research questions); (b) mixes (or integrates or links)
> the two forms of data concurrently by combining them (or merging them)
> sequentially by having one build on the other, or embedding one within the other;

(c) gives priority to one or to both forms of data (in terms of what the research

emphasizes); (d) uses these procedures in a single study or in multiple phases of a

program of study; (e) frames these procedures within philosophical worldviews

and theoretical lenses; and (f) combines procedures into specific research designs

that direct the plan for conducting the study (p. 5).

On a research continuum, mixed methodology would be placed on the center, drawing on

qualities of both traditionally classified quantitative and qualitative research. Such

methods or philosophies are thought to be a comprehensive approach to gather evidence

of the research question (Teddlie & Tashakkori, 2009). When developing the research

design, the proposed questions should lead the researcher to adhere to a fixed or emergent

methodology, which predicates the establishment of qualitative and quantitative methods

before the research study begins (Creswell & Plano Clark, 2011). Whereas, an emergent

design allows researchers to add qualitative or quantitative components to their research

during the existing study because an issue may arise and need to be addressed (Morse &

Niehaus, 2009). Accordingly, a fixed mixed method design was applied to this study.

Details of the methodology are provided in the sections that follow.

<center>SIGNIFICANCE/STATEMENT OF THE PROBLEM</center>

The prevalence of obesity in America has increased at alarming rates over the past

few decades, with over one-third of school-aged children categorized as overweight and

obese (Datar & Sturm, 2004; Whitlock, Williams, Gold, Smith, & Shipman, 2005). Being

overweight or obese in childhood often tracks into adulthood as evidenced by the

Bogalusa Heart study (Freedman, Dietz, Srinivasan, & Berenson, 1999) which found that

by the age of ten, 60% of children who were overweight had at least one metabolic or cardiovascular risk factor, and 25% of these same children had more than two risk factors for disease. Childhood obesity has been linked to many diseases that were once known only for adult onset (i.e. diabetes, hypertension; Wabitsch, 2000). Given the availability to children within the school setting, along with the abundance of evidence suggesting the negative effects obesity has on children and their adult lives, schools have been identified as an ideal place for intervention. With more time being spent in academic subject areas and less in physical education, a comprehensive approach to health and physical activity has been endorsed to address obesity issues among children (Donnelly et al., 2009; Pate et al., 2006).

NASPE recommends that schools implement a CSPAP to help children contribute to the recommended amount of at least 60 minutes of physical activity day (NASPE, 2008). A CSPAP model is comprised of five key components: (a) quality physical education, (b) before and after school activity opportunities, (c) during the school day physical activity opportunities, (d) school wellness and staff involvement, and (e) family and community involvement (LMIS, 2012; see Figure 1). If implemented correctly, a CSPAP would provide more opportunities for physical activity. Donnelly et al. (2009) suggested that implementing opportunities during the school day for children to be physical activity promoted increased levels of movement in children as well as had a positive effect on academic achievement. In their three-year study of 24 elementary schools, it was found schools providing physical activity opportunities during the school

day had significantly higher rates of daily physical activity and academic achievement scores than their counterparts.

Currently, the school community lacks an identified person to lead the charge in implementing CSPAP into the school setting. It has been suggested that the physical education teacher is the ideal person for this task, since their knowledge of children's physical activity and movement is extensive (Castelli & Beighle, 2007). This person would be considered the DPA or the individual who coordinates physical activity opportunities across all the points of intervention. With the advent of First Lady Michelle Obama's *Let's Move!* campaign, reshaping the role of the physical education teacher to include responsibilities of a DPA is opportune. Physical educators are trained to provide quality physical activity experiences for children within the physical education setting and should be leading the integration of physical activity into the school curriculum (Castelli and Beighle, 2007). However, physical educators may not be prepared to be DPAs in the school setting for lack of health related fitness knowledge (Castelli & Williams, 2007). In addition, there may be little alignment between post-teacher education professional development and the actual needs of the teacher (Beighle, Castelli, Erwin, & Ernst, 2009). Physical educators need to refine their skills and update their knowledge if successful implementation and organization of CSPAP is to occur. In the fall of 2010, NASPE convened the DPA task force to develop a certification program that would prepare physical education teachers to modify their role in addressing public health issues related to sedentary behaviors. Given the paucity of research centered on

supporting teachers' transition to physical activity leaders and implementers of the CSPAP, this study is timely and justified.

<p align="center">PURPOSE OF THE STUDY</p>

The primary purpose of this research project was to examine physical education teachers' perceptions, self-efficacy, and implementation strategies related to the CSPAP model throughout the DPA certification process. Further, this study strives to identify the common points of intervention and the corresponding implementation strategies among participants. In general, this project was intended to improve the training experience provided to teachers who wish to implement the CSPAP model. Its potential is much greater than a one-time targeted professional development considering the paradigm shift associated with the role of the physical educator and the impact that these physical activity opportunities could have on student physical activity behaviors. The novelty and influential nature of such training may result in this national initiative changing current practice in schools across the country; therefore, measurements of baseline efforts are necessary. A secondary purpose of this study was to compare teacher efficacy and emotions of participants and non-participants in targeted professional development. The purposes set forth in this study were guided by three research questions.

<p align="center">RESEARCH QUESTIONS AND HYPOTHESES</p>

Research Question #1: How are teacher perceptions of and efficacy toward their responsibilities centered around providing physical activity opportunities for children?

a. How does efficacy differ between the teachers who participated in the DPA training (intervention teachers) and the teachers who did not (control teachers)?

b. How are gender and years of teaching experience related to efficacy among professional development participants and non-participants?

It is hypothesized that self-efficacy among teachers toward implementing physical activity opportunities for children will increase in the intervention group and will not significantly change in the control group. Second, there will be no significant difference in efficacy toward implementing physical activity based on gender or years of teaching experience. Finally, teachers who participate in the DPA certification process will feel emotionally involved and feel that it is their responsibility to provide activity opportunities to students.

Research Question #2: What are teacher perceptions of and attitudes and feelings toward the implementation of a CSPAP?

There are several hypotheses related to the second research question. It was hypothesized that teacher attitudes and feelings toward CSPAP would reflect a feeling of personal responsibility toward providing activity opportunities to students. Second, teachers' feelings would be positive, while their perceptions of implementation would focus on the development of targeted physical activity programs that increase the number of opportunities for children, staff, and families to engage in physical activity. Further, although teachers would have overall positive feelings toward CSPAP, it was

92

hypothesized that teachers would face barriers toward the implementation of CSPAP that would result in frustration. Finally, the teacher would not implement all five components of the model, but focus his/her efforts on a specific population and a single organizing factor such as before and after school physical activity opportunities.

Research Question #3: How do CoP facilitated a reshaping of the role of the physical educator to include the responsibilities of the DPA?

It was hypothesized through the implementation of CSPAP and the DPA certification process that teachers would develop a community of practice among colleagues and DPA participants in order to gain ideas and support. This engagement in the CoP would help teachers gain new ideas and hopefully lead to successful implementation of the CSPAP. Since CoP develop when there is common interest and a contribution by all, it was hypothesized that teachers would engage in a CoP to develop CSPAP implementation strategies. This would be evidenced by the self-reported collaboration with colleagues and level of participation in online resources such as *Moodle* and *Facebook*, as well as through the building of relationships and partnerships necessary for carrying out their action plan.

RESEARCHER'S ROLE AND BIAS

As a former NASPE Major of the Year and award-winning physical education teacher, the researcher has developed a distinct opinion about how physical education should be taught and the role the physical educator should play in the school setting. The researcher is aware of the current state of physical education in schools and understands

appropriate practices in the physical education setting. This background gives the researcher a distinct lens through which to view the professional development and certification process. It is believed that implementing a quality physical education program and employing an effective CSPAP will increase the number and quality of opportunities for physical activity and subsequently reduce health risk, predominantly among children. Furthermore, it is understood that physical education teachers may be overwhelmed with daily tasks required by his/her job and teachers might be uncomfortable taking on additional tasks within the school setting.

During the development of the DPA certification, the researcher had an extensive role in helping the DPA task force to plan the training and also attended the enactment of the first training. Given the researchers role in the program development and supportive perspective toward CSPAP, there was a strong adherence to established methodological protocols. Furthermore, as a former physical education student teacher supervisor who lives in the vicinity of the research project, the researcher has a personal relationship with two of the teacher participants who agreed to be in this study. With these biases stated, the methodology described from this point forward will try to minimize any distortion of results.

<div align="center">CONTEXT</div>

Physical education teachers have a long history of marginalization within the school setting, including lack of subject importance, inequitable workplace conditions, extensive duties outside of teaching, and lack of accountability (Stroot et al., 2004; Stroot, Faucette, & Schwager, 1993; Sparkes & Templin, 1992; Sparkes, Templin, &

Schempp, 1993). Being marginalized within the school context has also led to the isolation of many physical education teachers from other teachers within their school, allowing for little collegial stimulation (Stroot, Faucettle, & Schwager, 1993). Much focus is placed on core academic subject areas in relation to funding, professional development, and curriculum reform, and little attention is paid to the experiences students receive in the physical education classroom (Sparkes, Templin, & Schempp, 1993). This isolation from colleagues, as well as the lack of professional support, has the potential to lead to a static physical education curriculum (Stroot et al., 1994). Physical education teachers, with little support in the school setting for curriculum reform and professional development, might lack the content knowledge needed to incorporate changes within their physical education curriculum, let alone to integrate changes of physical activity outside of their gymnasium.

Since 2008, NASPE has endorsed CSPAP as the organizational framework best suited to deliver physical activity programs in schools. Often practicing teachers experience professional development opportunities that lack alignment with their instructional and philosophical needs. Specifically, physical education teachers are frequently omitted from discussions involving educational reform (Rink & Mitchell, 2002). Without educational reform in the field of physical education, most children will not experience the recommended amounts of moderate to vigorous physical activity (MVPA), which are designed to improve and maintain children's health. Given the need for pertinent professional development for teachers in the field physical education, the DPA certification training was designed to increase the number of physical activity

opportunities for children, prepare physical educators to implement best practice in their gymnasiums, and to provide the resources necessary to create a culture of physical activity within the school environment.

This research study followed the first cohort of teachers to participate in the NASPE DPA certification process. Fifty-four K-12 physical education teachers participated in the training hosted by NASPE. The fifty teachers originated from four different school districts in the southwest portion of the United States (Appendix A). Registration for the DPA certification required a participation fee of $150, which was paid by each school district for all participants. Prior to participation in a six-hour workshop, teachers were asked to complete a self-assessment requiring them to describe their current circumstance regarding opportunities for students to be physical active in their school environment. Next, teachers attended a one-day DPA certification regional workshop, where they partook in hands on activities that focused on increasing physical activity opportunities for children. During the workshop, the unique elements of each component were introduced and sample activities and implementation strategies were provided. After the completion of the workshop, the teachers who decided to continue with the certification process were asked to develop an action plan. The action plan focused on the teachers' goal of CSPAP implementation within their individual school setting. Once the action plan was completed the teachers' completed a series of tasks that were facilitated through online courseware (see Table 2). Over the course of one academic year, the teachers who are attempting certification took part in a series of online modules, action plan implementation, artifact collection, post CSPAP index, and

certification exam. Access to online forums were developed to create an opportunity for teachers to participate in a virtual Community of Practice (vCoP). This process is explained further during the procedures portion of this chapter.

PARTICIPANTS

After Institutional Review Board approval was granted, a total of 95 adult physical education teachers were recruited and volunteered to participate with written consent obtained prior to the data collection (Appendix B). Specifically, 54 physical education teachers served as the treatment group, 36 physical education teachers served as the control group (Appendix C), and five DPA trainers also volunteered to participate in the study (Appendix D). The following paragraphs include a description of each participant group (intervention, control, DPA trainers).

A convenient sample of 54 K-12 physical education teachers (female = 39) participated in the Fort Worth, TX DPA training. Of the original 54 participants who attended the DPA workshop, 13 (female = 9) decided to engage in the entire certification process. Of those 13 teachers, 11 (female = 9) agreed to participate in the in-depth portion of the research study (Appendix E) Within the treatment group, teaching experience ranged from one to 26 years.

As recruitment for the control group, 181 physical education teachers, who chose not to participate in the DPA training, but work in the same district as DPA training attendees, were contacted by email. A total of 36 K-12 physical education teachers (female = 17) agreed to serve as the control group of the research study, however only 18 (13 female) completed both the pre-post survey. The teachers who participated as part of

the control group included four high school physical education teachers, two middle school physical education teachers, and twelve elementary physical education teachers. Teachers were majority white (68%) and had an average teaching experience of 20.5 years.

There were a total of six DPA trainers who were present at the DPA certification workshop. Of the six trainers, five volunteered to participate in the research study, with one declining because of a potential conflict of interest. The trainer participants agreed to take part in an interview about the process of the DPA certification and the teachers who were involved in the training. The trainers were deemed as experts in the field of physical education and ranged in profession from physical education teacher educators, district coordinators, and physical education teachers' of the year. A consort diagram is provided for more detailed information about participant consent (Appendix F)

<div align="center">INSTRUMENTS</div>

Two instruments were selected and merged together thus creating the CSPAP Index to capture the contextual, demographic, instructional practice, and the self-efficacy of the physical education teachers in their school context. The selected instruments are described and justified in this section.

CSPAP Index

Despite a comprehensive search for valid and reliable instruments that were aligned with the research questions and content of this study, no single, validated instrument adequately represented the context associate with this research study. However, two existing surveys were selected because they were specific to physical

education teachers and physical activity. The CSPAP Index (Appendix G) consists of 120 questions adapted from two previously validated surveys: Physical Education Teachers Physical Activity Self-Efficacy (PETPAS) scale (Martin & Hodges-Kulinna, 2003) and the School Physical Activity Policy Assessment (S-PAPA; Lounsbery, McKenzie, Morrow, Holt, & Budnar, 2011) survey. The adaptations will be explained further in the following sections.

PETPAS scale. To examine teacher efficacy toward providing physical activity opportunities, a 20-item teacher self-efficacy survey from Martin & Hodges-Kulinna (2003), was used. The PETPAS survey was developed using exploratory and confirmatory factor analysis, resulting in a 16-item, four factor, multi-dimensional teacher self-efficacy scale. The confirmatory factor analysis suggested that as different models were run, the common goodness-of-fit indexes (Bentler-Bonett Normed Fit Index [NFI], Bentler-Bonett Non-Normed Fit Index [NNFI], and Comparative Fit Index [CFI]) all increased, while the average absolute residual decreased (Martin & Hodges Kulinna, 2003). The 16-item, four factor model was the most parsimonious of all the models, resulting in a best fit (NFI=.89, NNFI = .91, CFI=.93). The four factors included in the survey were: (a) student factor, (b) time, (c) space, and (d) institution. Since the one factor model was not an adequate representation of data, according to the fit indexes (NFI=.78, NNFI=.79; CFI =.81), the self-efficacy data was reported within the factors. The survey, which is a Likert scale closed item design, assessed the level of support and resources available (i.e., students, time, space, institution) to contribute toward teachers' delivery of physical activity opportunities.

Since its creation in 2003, the PETPAS survey has also been tested for validation and reliability outside of the United States, using Turkish physical education teachers (Gencay, 2009). The goal of that study was to determine if there were differences between gender and teaching experience among Turkish physical education teachers. Gencay (2009) performed an exploratory factor analysis to confirm the four original factors of the PETPAS scale (Cronbach's Alpha = .86). Independent t-tests also indicated that there were significant gender differences within the factors of space, time, and institution. Furthermore, one-way ANOVA results indicated that factors of student and space were significantly different by teaching experience and gender.

In order to align with the context of this study, the PETPAS was slightly modified. In the same format as the pre-existing sixteen questions, four were added to specify physical activity throughout the school day instead of during physical education class. This was done because the research project focused on teacher's efficacy toward physical activity during the entire school day and not just in physical education class. There was not a physical education teacher efficacy survey about physical activity throughout the school day at the time the research was conducted. Specifically, questions 100-116 on the CSPAP Index (Appendix G) were used from the PETPAS survey and questions 117-120 were added to adapt the survey to meet the needs of this study.

S-PAPA tool. The S-PAPA tool (Lounsbery, McKenzie, Morrow, Holt, & Budnar, 2011) contained a series of open and closed questions (e.g., Likert or ranking) about demographics (seven questions) and three of the current CSPAP components: (a) physical education, (b) physical activity during school, and (c) physical activity before

school. The physical education portion of the survey consisted of 40 questions that target current curriculum, policies, time, budget, and teacher professional development. The second component of the CSPAP present in the survey, physical activity during school, consisted of 32 questions that focused on recess (policies, supervision, student access, and equipment) as well as the integration of physical activity into the academic curriculum. Physical activity before and after school was also represented in the tool with ten questions that centered around general policies, transport to school, the number and type of opportunities offered for intramural sports, interscholastic sports, physical activity clubs, and special events.

Since the S-PAPA did not comprehensively address all the CSPAP model components, additional questions were added. Specifically, questions were designed in the same format to address the intervention points pertaining to the two other CSPAP components: staff involvement and family and community involvement. Checklists were also added to measure the level of implementation within each CSPAP component. Additional questions were also provided for physical activity before and after school since the S-PAPA included the least number of these items. Further, open-ended questions were included as an "other" category at the end of each section to allow for inclusion of responses that may not have been listed within the survey.

All questions added to the CSPAP Index were modeled after the S-PAPA. The questions were checked for content validity first by experts within the field of physical education and then through a pilot survey that was sent out to National Teachers of the Year (2010). The Teachers of the Year filled out the questions and were able to list

additional items that did not appear on the checklist of the question. These data were compiled and the researcher added items to the checklist at that time. Future studies will look at the validity and reliability of the additional questions.

The pilot survey, discussed above, led to research questions proposed for this dissertation. Despite a small sample size (n=16), the data analysis revealed that Teachers of the Year believed implementing CSPAP and physical activity into the physical education curriculum was "very important". The findings also suggested teachers were already implementing portions of physical activity throughout the school day and involving family and community in physical activity events. Although these were positive findings, it was unclear how teachers felt about being responsible for implementing physical activity throughout the school day. Results also revealed that participants' level of self-efficacy was not significantly related to the amount of physical activity opportunities they were offering throughout the school day. Since it was hypothesized that Teachers of the Year would be enacting best practice, this pilot studied provided necessary justification for the current study.

<div align="center">PROCEDURES</div>

The following section will discuss the procedures that took place during the DPA certification process. The teachers were allowed up to one year after the initial training to complete these certification steps. The certification steps are as follows: (a) CSPAP Index – pre, (b) DPA certification workshop, (c) action plan approval, (d) interview number one, (e) certification tasks (E-learning modules, artifact collection, and action plan implementation), (f) onsite observation and interview number two, (g) CSPAP Index –

post and certification exam, and (h) DPA trainer interview. It is important to distinguish that even though procedures read as if they unfolded in chronological order, once participants completed the DPA certification workshop the following certification steps could have been completed in a non-sequential manner.

CSPAP Index – Pre

Before attending the one-day DPA certification workshop, 54 teachers were contacted via email and asked to complete the CSPAP Index as part of the certification process. Those teachers who did not complete the CSPAP Index before arriving at the certification workshop (N=2) were asked to fill out the survey on-site.

DPA Certification Workshop

The DPA certification workshop was led by six DPA trainers and lasted a total of eight hours. During the workshop, teachers participated in a series of activities and sessions that introduced how to provide maximal opportunities for children to be physically active. Most sessions were interactive in nature and allowed the participants to brainstorm and collaborate with others who were attending. The researcher was present at the workshop and made observations of the teachers' and trainers participation. These observations and notes were put into the researchers' observation journal and were used as an artifact for data analysis. Further, all supplemental materials such as presentations, and handouts were collected as artifacts.

Action Plan Approval

At the end of the workshop, the participants were asked to engage in a series of steps to secure DPA certification, among these was to create an action plan that

demonstrated how they planned to implement the CSPAP within their school setting. The action plan (Appendix H) was record of the teachers' targeted point of intervention and included the steps needed, for teachers' to carry out during implementation. It included the type of physical activity that would be implemented, the targeted group for intervention, the timeline in which the intervention would be completed, the resources needed to accomplish the tasks and the people who would be involved in the implementation. The action plan was submitted to the trainer via a courseware website hosted by Moodle. A trainer provided feedback on the action plan, which may have included a request for revision. The final action plan served as roadmap of the implementation of the CSPAP. The researcher used the action plan as an artifact for each teacher. The action plan was used to guide discussion during the on campus visit and interview number two.

Interview Number One

The first interview was semi-structured and followed an established protocol (Appendix I). The interview took approximately 30 minutes and was conducted as an in-person interview. It consisted of a series of questions that focused on the perceptions and beliefs teachers had about the DPA training and providing physical activity opportunities for children, as well as their new role as a DPA and how they foresaw implementing their action plan.

A semi-structured interview design was used to allow for the discussion to be guided, but also for conversational dialogue and follow up questions between the participant and the researcher to occur (Glesne, 2006). Probing questions were also used

during the semi-structured interview. These allowed for the researcher to clarify a response from the participant and also allowed opportunities to explore participant responses, which helped to develop informative-rich data (Marrow, 2005). The interview was audiotaped and transcribed, in order for the researcher to revisit at any time and for member checking to occur.

Other Certification Tasks

Throughout the certification process, there was a series of ongoing tasks for participants, including the completion of E-learning modules as well as artifact collection and action plan implementation. The certification tasks were used in the data analysis section to help triangulate themes that emerged during qualitative data analysis.

E-learning modules. The teachers were asked to participate in E-learning. Teachers were provided access to a website that was designed to provide a continual backup database of all submissions as well as feedback about the training. In order to complete the certification, teachers were asked to participate in a series of three online modules, hosted on *Moodle*, to help continue their education on CSPAPs (Appendix J). Each module was based on one of the five components of the CSPAP and was accounted for in the certification test at the end of the DPA certification program. The first module was designed to increase teachers' awareness about quality physical education programs. It discussed the importance of physical education, appropriate practices for K-12, current obesity trends within the United States, and appropriate station design for maximum physical activity. Module two focused on physical activity throughout the school day. Specifically, it discussed how to incorporate physical activity within academic content,

physical activity breaks for attentional reset, recess, and "drop in" activities. The third module, about physical activity before and after school, focused on walking or biking to school and the walking school bus and how it could be implemented within schools. Log on frequency, module completion time, and "hit count" data were secured but were not analyzed in this present study.

Over the academic year, data were also collected from online community forums, which acted as a host for discussion to occur among the DPA participants. There were two different types of community forums: (a) a "formal" discussion board where the participants could post questions for the trainers of the DPA certification as well as their other DPA participants and (b) a private social networking site, Facebook, where teachers and trainers could communicate with each other in a more personal manner. The Facebook site was not located directly on the website. Instead, teachers were given a link to access the social network where they could communicate with fellow participants to gain help and support.

Artifact collection and action plan implementation. Also ongoing throughout the certification process was the collection of artifacts. Teachers were asked to submit artifacts (i.e., lesson plans, teaching materials, student expectation documents, supplemental learning materials, de-identified student step count data, etc.) evidencing implementation of each step of their action plan. Artifacts, in this sense, were defined as electronic files (e.g., images, testimonials, meeting minutes, presentation slides, etc.) that evidenced CSPAP implementation plan. As part of the creation of the action plan, the teacher were required to identify the type of artifact that would provide evidence of their

completion of that step. Although selection of the artifact was initially at the teachers' discretion, their choices had to be approved by a trainer. Because the instructions were left very vague, the artifact submissions varied by teacher and by the chosen CSPAP component for intervention. Although part of the certification process, collecting artifacts provided a second way (outside of observation) for the researcher to determine how implementation of the CSPAP occurred. These artifacts were analyzed as a source of triangulation within data analysis.

School-Based Observations

As teachers were implementing their action plans, submitting artifacts, and participating in E-learning materials, they were asked to allow the researcher to visit his/her school to observe the progress of the CSPAP implementation. During the observation the researcher spent one school day with each teacher. The researcher observed the teacher instructing physical education classes as well as implementing their targeted CSPAP component. While the observation was in progress the researcher took field notes about what was taking place in the school environment. The field notes were entered into the researchers' observation journal and were used as artifacts for data analysis. No formal systematic observation tool was utilized.

Interview Number Two

Similar to the first interview, the second interview was semi-structured and followed an established protocol (Appendix I). The interview was conducted in-person at each participant's school and took approximately 60 minutes. It consisted of a series of questions that focused on the teachers' thoughts, perceptions, and beliefs about

implementing CSPAP into their school setting. This interview took place toward the end of the DPA certification process. All of the participants had begun to implement their designated CSPAP component and most were close to the end of the school year.

A semi-structured interview design was chosen in order for the researcher and participant to have a thorough yet guided discussion. This specific type of interview allowed for conversational dialogue as well as follow-up and probing questions between the participant and the researcher to occur (Glesne, 2006). It was important for the researcher to be able to clarify responses from the participant as well as gave the researcher opportunities to explore participant responses, which helped to develop informative-rich data (Marrow, 2005). The interview was audiotaped and transcribed, in order for the researcher to revisit at any time and for member checking to occur.

CSPAP Index and Post Certification Exam

Once the teachers had completed everything for DPA certification (action plan submission, action plan implementation, and artifact submission) they were asked to take the final CSPAP certification exam. This exam contained 32 questions and focused on the DPA training, the CSPAP implementation, and the skills needed to become a DPA. At the end of the certification training the teachers were prompted to take the post CSPAP index. The certification exam was used as an additional artifact for each participant, while the CSPAP index –post was used to compare change over the DPA certification process. The researcher secured the certification scores, but they were not analyzed as part of this study.

DPA Trainer Interviews

At the end of the DPA certification process, the trainers of the DPA process were also interviewed (Appendix L). The interview lasted approximately ten minutes and was done in-person or over the phone. The purpose of this interview was to gather insight on the experience of the trainers in regards to their interaction with the teachers who participated in the DPA certification process. This interaction occurred not only at the one-day training workshop, but also through email and social networking sites over the year of the training.

DATA REDUCTION AND ANALYSIS

In this study, both quantitative and qualitative analyses were used to examine the research questions. The quantitative portion of this investigation included creating a database, preparing and reducing the database, as well as conducting and running the statistical analysis, while the qualitative data analysis required understanding how to make sense of text and images so that one can form answers to the research questions (Creswell, 2005). The challenge in mixed methods research is how to analyze the data from both qualitative and quantitative research as well as by individual data sources and from a collective, across data source perspective. For this study, qualitative and quantitative results were analyzed and reported by research question. The rest of this section will justify and explain the purpose of mixed method research in this context and will conclude with a detailed plan of data analysis organized by research question. Specific data analysis methods will be described by the research question and corresponding methodology employed (Appendix M).

Quantitative Analysis

Prior to conducting any analyses, data was thoroughly screened. The process of data screening included thorough examination of the accuracy of data entry. The data set was assessed for missing values, univariate outliers through the observation of plots and z-scores, multivariate outliers through Mahalanobis distance, and the fit of data with multivariate analysis. The data screening analysis, along with statistical analysis, was conducted with the statistical software SPSS 18.0, and α was set at .05. Descriptive statistics were calculated for all primary outcome measures and internal reliability estimates and bivariate correlations were computed when deemed appropriate. For a detailed plan of the quantitative data analysis, please see the analytical plan (Appendix M).

Data Analysis by Research Question

The following section will provide an overview of the data analysis plan, as organized by research question.

Research question #1. To better understand teacher perceptions of and efficacy toward providing physical activity opportunities for children the following data sources were interpreted individually and collectively: (a) CSPAP Index, (b) artifacts and (c) teacher interviews.

This research question was measured by both quantitative and qualitative research methodologies. Control and treatment participants' data from the CSPAP Index were discussed in relation to the (a) self-efficacy, (b) S-PAPA, and (c) open ended response questions.

The self-efficacy portion of the CSPAP Index measured teachers' efficacy toward implementing physical activity opportunities within their physical education classroom and during the school day. A MANOVA was used to examine the five subscales of teacher efficacy (student, space, time, institution, physical activity throughout the school day), teachers' efficacy in relation to gender, and years of teaching experience. Also in relation to self-efficacy, separate ANOVAs were used to determine differences between treatment (teachers who participated in the intervention) and control (those who did not participate in the DPA training).

The S-PAPA portion of the index was analyzed using descriptive statistics for each individual question, rather than by CSPAP component, because of the individuality of each question. A series of repeated measures ANOVAs were conducted to determine the presence of any group (treatment control) versus time (baseline, post-intervention) differences respective to each S-PAPA item.

In addition, to the quantitative analysis listed above, some of the artifact data that was submitted by the teachers required additional quantitative data analysis. Specifically, the artifact data was coded based on the following criteria: frequency (e.g., number of children participating in event), time (e.g., amount of activity minutes pertaining to the event), and type (e.g., family fun day) of allocated physical activity opportunities related to targeted CSPAP component for intervention. Inter-rater agreement was set at .80 and descriptive statistics were reported.

Qualitative interviews were conducted to determine the perceptions of the teachers in regards to the DPA certification program. Using the qualitative methods

111

described above, the interviews were transcribed and member checked and a thematic

analysis was conducted. Details of the methodology used to interpret these data are

presented in the next section.

Research question #2. To better understand teacher perceptions of and attitudes

and feelings toward the implementation of CSPAP the following data sources were

interpreted and individually collected: (a) teacher interviews, (b) artifacts, (c) E-learning

opportunities, (d) on-site observations and (e) open-ended questions within the CSPAP.

A thematic analysis was conducted to examine common themes throughout each case, as

well as through multiple cases, using the qualitative methodologies described in the

qualitative analysis section and outlined in the analytical data plan (Appendix M).

Research question #3. In order to determine how Communities of Practice

facilitate reshaping the role of the physical educator to include responsibilities of the

DPA, the following data sources were individually and collectively analyzed: (a) teacher

interviews, (b) trainer interviews, (c) artifacts, (d) E-learning opportunities and (e) onsite

observations. All sources were triangulated to determine individual and common themes

among the cases. This data analysis will follow all the criteria outlined in the data

analysis plan (Appendix M) and are also described in the qualitative data analysis section.

Qualitative Analysis

The purpose of using qualitative research in this study was to help researchers

understand the nature of each physical education teachers' thoughts, perceptions, and

beliefs about the DPA setting and how they impacted the personal and school setting

while addressing the idea of CSPAP. A multiple case study approach was chosen to help

facilitate the gathering and framing of these individual teachers' cases, with the intent of also conducting an overall thematic analysis.

While various methods can be used to conduct qualitative research, a collective case study method was chosen for this research study. Case study is an intensive description and analysis of a phenomenon or social unit (Glesne, 2006), while a collective case study is developed when multiple instrumental cases are being looked at as a whole (Stake, 2000). Using a collective case study design allowed the researcher to investigate the bigger picture of phenomena, in this case the process of DPA training and implementation of the CSPAP.

As suggested by Merriam (2002) data analysis in this dissertation began the moment the first observation was collected. By following this philosophy, it has allowed the researcher to make adjustments as needed and to start formulating and "testing" emerging themes as data collection is in process. During the process of data collection for this study, the researcher consistently reflected on the data, worked to organize it, and tried to discover what stories or themes existed. It was also important to the researcher that the data analysis was inductive in nature. This allowed the researcher the freedom to gather data with the intent to form concepts, hypotheses, and theories, not the reverse (Willis, 2007). The researcher chose to analyze the data collected (e.g. interviews, observations, field notes, artifacts, and E-learning materials) using organization of themes and constant comparison methods (Strauss & Corbin, 1998).

Validity, also known as trustworthiness, was not only important within data collection, but was a constant focus throughout the qualitative design of the research

113

study. The researcher in this dissertation chose to use six verifications of trustworthiness (Creswell, 1998): (a) triangulation, (b) peer review and debriefing, (c) negative case analysis, (d) clarification of researcher bias, (e) member checking and (f) using a rich, thick, description. The verifications of trustworthiness are explained throughout the subsequent section.

Triangulation. One of the unique characteristics of qualitative research is the use of multiple data collection methods to provide a rich description of the phenomenon as well as to contribute to the trustworthiness of the data. Many refer to this multiple method collection of data as triangulation. Triangulation is used when researchers draw on a combination (at least three) of collection techniques in order to develop a richer sense of the entire phenomenon.

Using the multiple data sources collected throughout the study, the researcher hoped to gain an in-depth sense of the entire DPA process and the phenomena that the teachers experienced. Specifically, teacher interviews, site-observations, submitted artifacts, E-learning participation, and trainer interviews allowed the researcher to obtain a broad picture of the training process along with the teachers' feelings and perceptions of the DPA certification process. Furthermore, using multiple sources helped the researcher identify key themes that emerged from multiple data sources.

In addition to including different types of data collection, triangulation can also include multiple site collection, multiple sources, multiple investigators, or even multiple theoretical perspectives (Glesne, 2006). In this research study, the researcher used a multi

case study analysis to triangulate the different cases of DPA and this allowed the researcher to discuss common themes that were seen among the DPA participants.

Peer review and debriefing. Peer review and debriefing focus on bringing in an external source to check the research process. The main purpose of a peer reviewer is to keep the researcher honest and to ask questions that help the researcher reflect on the process that they have undergone. A peer reviewer reviewed the documents that were collected during this research process and help the researcher critically examine method, design, and interpretation. The peer reviewer confirmed alignment between data sources, quotations, and the themes that had been drawn from each individual teacher. Further, the peer reviewer, substantiated the overall case analysis and critically evaluated the data analyses decisions that were made by the researcher.

The peer review for this dissertation was conducted by a physical education master student named Jason Schafer. Jason is qualified for this role because he has previously taught quality physical education and has been involved in instituting professional development workshops to physical education teachers. He is familiar with the current research in the field of physical education as well as the purpose and expectations of the CSPAP model. Jason was given de-identified materials to review. During the peer review, Jason verified the research process and the decisions and interpretations that were made about the data. He reviewed the data periodically throughout the research process. Specifically, he looked at all interviews and observations once they were transcribed and complete.

Negative case analysis. Negative case analysis was conducted by the researcher constantly during data collection procedures. Although there was not a negative case found among the data, it helped the researcher remain open-minded to emerging themes and may subsequently lead to the discovery of an unanticipated finding. Negative case analysis is often conducted as part of a validity check in order to disprove or contrast the hypothesis and in turn refine the working hypothesis.

Subjectivity. It was important for the researcher to reflect on his/her own subjectivity (Glesne, 2006) and how it was used throughout the research process. During the process it was determined that the researcher was invested in providing more physical activity opportunities for children and acknowledged attachment to the field of physical education and how this attachment may have led to an overemphasis on findings that supported the given hypotheses. Research bias was addressed in this research study by constantly exploring the researchers' subjectivity. During the research process, notes were taken before and after interviews and observations in order to address pre-conceived opinions and reflect on biases and subjectivities. These notes were then reflected upon and analyzed during data analysis.

Member checking. Member checking is designed to ensure accuracy of data that is being collected and interpreted by the researcher. During the member checking process, researchers shared interview transcripts, analytical thoughts, and even drafts of the final research report with participants to ensure that the researcher was properly representing participants' thoughts and ideas. Lincoln & Guba (1985) consider member checking to be one of the most important techniques for establishing credibility of a

study. Throughout this research project, each participant had the opportunity to review his/her submissions and check them for accuracy. Specifically, after every interview was transcribed it was sent to the participant for them to confirm the accuracy of the text as well as to provide the participant with an opportunity to make changes to transcription. If the participant felt changes were needed, they were allowed to modify the text of the transcription and return the updated document to the researcher.

Rich, thick description. A rich, thick description in the writing technique of the researcher was used to allow the reader to enter into the case of each individual teacher and feel like he/she is a part of the story being told. It was the intent of the researcher to try and allow the reader to make connections with the researcher and the participants. Providing a rich, thick description allows the reader to make decisions about whether or not the interventions used by the teachers participating in DPA certification is transferable to their personal setting. Without a rich, thick description, the reader would not be able to make such a decision. Purposely, to provide this detailed of a description, the researcher kept a meticulous research journal throughout the entire research process. Included in this research journal are the feelings of the researcher, pre and post thoughts about interviews that were conducted, and observational notes. Entries were both spontaneous and formal.

CHAPTER FOUR: RESULTS

Using a mixed methodological design, this study examined teacher perceptions of the Comprehensive School Physical Activity Program (CSPAP) and the Director of Physical Activity (DPA) professional development as well as the relationship between teacher efficacy and physical activity opportunities provided to children. This chapter presents the findings of the present research study in three main parts. Part one focuses on research question number one, which contains both quantitative and qualitative data analyses and is organized by the following headers: (a) data screening, (b) descriptive statistics, and (c) primary analysis. The subsequent sections of this chapter are focused on the findings regarding research questions two and three and contain emergent themes and teacher vignettes.

PART 1: RESEARCH QUESTION ONE

The first research question focused on teacher perceptions of and efficacy toward providing physical activity opportunities for children. Specifically, several hypotheses were proposed. First, it was hypothesized that teacher efficacy would increase among the treatment group over control group as a result of the DPA certification process. Second, the researcher believed that teacher efficacy toward implementing physical activity opportunities based on gender and teaching experiences would remain unchanged. Finally, it was hypothesized teachers would feel a sense of responsibility for implementing physical activity opportunities to children.

Data Screening

Prior to conducting the analyses, quantified data were screened for data entry accuracy, missing values, univariate and multivariate outliers, normality, linearity, and assumptions for multivariate analyses. The initial dataset included response data from N = 30 participants (Appendix F). Participant data responses were all within their defined range and the means and standard deviations seemed plausible to move forward with data analyses (see Table 4 for descriptive statistics). There were no participants who exhibited missing data, which is attributable to the online data collection format that required a response for each question.

Before data screening took place, data reduction was conducted on the responses to the CSPAP index. Originally, the CSPAP index consisted of 120 questions. During data reduction, only questions that had a direct relationship to the research questions were used in data analyses. This resulted in the direct analysis of 53 questions. Data were screened for potential univariate outliers using z-score values greater than a 3.29 criterion as cutpoints (Tabachnick & Fidell, 2007), which detected two cases of univariate outliers in the data set, however, because the outliers were quite proximal to the 3.29 z-score value criterion and appeared representative of the sample population, they were retained. Data were also screened for multivariate outliers using a Mahalonobis distance value of p < .001 (Meyers, Gamst, & Guarino, 2006), however there were no multivariate outliers among the data. Finally, normality, linearity, multicollinearity, and homoscedasticity were assessed among all of the variables on the CSPAP Index. The normality of the variables were visually examined using graphical plots and also through the skewness

and kurtosis of variables. Using a criterion of +/- one (Meyers, Gamst, & Guarino, 2006), there were five variables that showed signs of normality violations: ethnicity, teacher efficacy student pre, teacher efficacy toward physical activity during the school day pre, teacher efficacy student post, and teacher efficacy toward physical activity during the school day post. These variables were modified using three different transformations (Log transformation, Square root transformation, and reciprocal transformation) however, the transformed variables did not correct violations of skewness and kurtosis therefore the untransformed variables were used in analyses (Games, 1984; Field, 2009). The linearity and homoscedasticity between variables were visually assessed by examination of bivariate scatterplots and no violations were found. Homoscedasticity was confirmed using Box's M within the MANCOVA analyses (Meyers, Gamst, & Guarino, 2005). An issue of multicollinearity was not evident in the present study since none of the variables were highly correlated at .90 or higher (Tabachnick & Fidell, 2007). Multicollinearity was also confirmed within the regression analysis with *VIF* values of less than 10 (Meyers, Gamst, & Guarino, 2006). After all data screening was completed analyses were conducted beginning with the descriptive statistics.

Descriptive Statistics

As a result of data screening in preliminary analysis, a total of N = 30 subjects were retained for further analysis (Appendix F), with all measured variables included in subsequent analyses.

Teacher efficacy variables. Teacher efficacy was represented by five subscales which included TE student (i.e. teachers' efficacy for teaching physically active lessons

120

when students' did not enjoy, value, or want to be physically active), TE space (i.e. teachers' efficacy perceptions that they had difficulty teaching physical activity due to space restrictions), TE time (i.e. teachers' efficacy when they did not have enough time to teach physically active lessons), TE institution (i.e. teachers beliefs that lack of funds, equipment, support presented obstacles in providing physically active lessons), and TE PA during (i.e. teachers' efficacy toward providing physical activity opportunities outside of the physical education classroom). Participant scores measuring teacher efficacy pre and post revealed teachers had the highest amount of efficacy within TE student (Table 4 & 5) followed by their efficacy toward providing students physical activity experiences during the school day (Table 4 & 5). Participants reported lower teacher efficacy scores on the other three variables (Table 4 & 5). To compare these results to similar studies, it is necessary to reveal efficacy scores in a percentage due to different Likert scales used (Martin & Hodges-Kulinna, 2003; Gencay, 2009). The range of teacher efficacy scores within this research study, reported in percentile, was 60%- 85% across the variables. These results were slightly higher than previous studies that reported teacher efficacy scores averaging from 50%-70% across variables (Martin & Hodges-Kulinna, 2003; Gencay, 2009). An overall Cronbach's alpha of $\alpha = .82$, with individual subscales ranging from $\alpha = .77 - .88$, which was similar to previous research $\alpha = .73 - .88$ (Martin & Hodges-Kulinna, 2003; Gencay, 2009).

Physical activity opportunity variables. Participants were asked to report the number of physical activity opportunities provided across the school day within four separate categories including PA opportunities during school, PA opportunities before

121

and after school PA opportunities for family and communities and PA opportunities for staff. The physical activity opportunities within this section are reported by mean; this represents the average number of physical activity experiences offered within each component, at each school. The mean scores of all physical activity opportunities subscale variables ranged from $M = 2.07$ to 4.83 ($SD = 1.31$ to 2.23). Physical activity opportunities offered for school staff to engage in had the lowest mean (pretest, $M = 2.07$, $SD = 1.31$; posttest, $M = 2.50$, $SD = 1.66$), while opportunities offered during the school day reported the highest mean (pretest, $M = 4.23$, $SD = 2.18$; posttest, $M = 4.83$, $SD = 2.23$). Some categories of opportunities provided for physical activity showed statistically significant correlations among teacher efficacy scores.

Variable intercorrelations. Intercorrelations among the variables were examined before the primary data analyses took place. Specifically, intercorrelations were calculated separately pre/post for both the control group and the treatment group (Table 6 & 7). In addition, intercorrelations were examined with all participants (Table 8), with group as a separate variable and these correlations are presented within this section.

Pre-test. In general, the differences in this pre-test data were related to ethnicity, gender, and efficacy. Referring to Table 8, the group variable had a significant negative correlation ($r = -.37, p < .01$) with ethnicity. It is believed that this correlation was significant because of the lack of ethnic diversity within the treatment group. Gender was significantly correlated ($r = .38, p < .05$) with teacher efficacy towards providing students' opportunities to be physical activity within physical education class, whereby females were more efficacious about providing student physical activity opportunities

during physical education. Teacher experience was positively correlated with TE student ($r = .41, p < .05$), TE institution ($r = .46, p < .05$), and TE PA during school ($r = .46, p < .05$). Given the positive nature of these correlations, teachers who had more teaching experience were more likely to have higher efficacy within the three given constructs of teacher efficacy. Not surprisingly, TE student was positively correlated with TE space ($r = .55, p < .05$), TE institution ($r = .48, p < .01$), TE PA during school ($r = .90, p < .01$), and the amount of physical activity opportunities provided for staff ($r = .40, p < .05$). As teachers were more efficacious about providing opportunities for students to be physically active in the physical education classroom, they were also more confident in overcoming issues related to providing additional physical activity opportunities such as lack of space and institutional constraints. In addition, the teachers who were confident in providing physical activity within the physical education classroom also were efficacious toward additional opportunities to be physically active during the school day and providing opportunities for staff within the school. TE student was negatively correlated with TE time ($r = -.46, p < .05$), stating that the more efficacious a teacher was about providing physical activity opportunities for students in physical education class, the less confident they were about the amount of time they had to create ample opportunities for students to be physically active. TE space was positively correlated with TE institution ($r = .62, p < .01$), TE PA during school ($r = .63, p < .01$), and opportunities for families and the community to be physically active ($r = .42, p < .05$). Teachers who were highly confident about securing activity space for their students to be physically active were also confident in overcoming institutional barriers related to physical activity opportunities in

123

physical education as well as providing physical activity during the school day. Teachers who were efficacious about securing space for physical activity were also confident about providing additional opportunities for families and community members to be more physically active. TE time was negatively related to TE PA during school ($r = -.48, p < .01$), as well as additional physical activity opportunities offered for staff ($r = -.47, p < .01$). Teachers who exhibited less confidence in overcoming barriers related to the amount of time for physical activity to occur in physical education were more likely to be confident in providing physical activity opportunities during the school day. In addition, teachers who had low confidence in overcoming time barriers related to providing physical activity opportunities during physical education were more likely to increase the amount of opportunities provided for staff to be physically active. TE institution was positively correlated with TE PA during school ($r = .57, p < .01$), and opportunities provided for families and community members to be physically active ($r = .52, p < .01$). As such, teachers who have high confidence in overcoming institutional barriers are more likely to also be confident in provided opportunities outside of physical education as well as provide additional opportunities for families and community members to be physically active. Teachers who were efficacious toward providing opportunities for children to be physically active outside of physical education class actually were more likely to provide additional opportunities for children to be active during the school day ($r = .39, p < .05$) as well as provide opportunities for their fellow staff members to be physically active ($r = .45, p < .05$). Given that efficacy is task and context specific, these difference were not surprising. Finally, opportunities that were provided for children to be physically active

124

during school ($r = .41, p < .05$) as well as additional opportunities provided for family and community members ($r = .56, p < .01$) were significantly correlated with providing additional opportunities for staff. This indicated that teachers who provided more opportunities for children to be active during the school day, as well as opportunities for family and community members to be physically active were more likely to provide additional opportunities for staff to be physically active.

Because there were differences between treatment and control groups at baseline which many influence the power of these variables, a delta score was calculated by subtracting the pre-test values from the post-test values as a measure of change within the individual subjects. These variables were then further decomposed through a regression analysis, which will be introduced in subsequent sections.

Post-test. In general, the differences in this pre-test data were related to ethnicity, gender, and efficacy. Referring to Table 8, the group (treatment and control) variable was positively correlated with TE student ($r = .47, p < .01$) and providing opportunities for staff to be physically active ($r = .39, p < .01$), while negatively associated with ethnicity ($r = -.37, p < .05$). Given the lack of ethnic diversity in the treatment group, the control group was correlated with the ethnicity of participants. Teachers who participated in the DPA training were associated with having higher confidence than their control counterparts in providing physical activity opportunities for students within the physical education classroom. In addition, there was also an associated with teachers who participated in the DPA training and providing opportunities for staff within their school building to be physically active. Teacher experience was significantly associated with TE

space ($r = .39, p < .05$) and TE PA during school ($r = .39, p < .05$). This signifies that

teachers who are more experienced are more likely to have higher levels of confidence

toward overcoming space barriers and providing physical activity opportunities beyond

the physical education classroom. TE student was associated with TE space ($r = .39, p <$

$.05$), TE institution ($r = .38, p < .05$), TE PA during school ($r = .86, p < .01$), and

providing opportunities to be physically active during the school day ($r = .37, p < .05$).

Teachers who experienced high confidence toward providing physical activity

opportunities for students in the physical education classroom were also more likely to

have high levels of confidence towards overcoming institutional barriers and providing

physical activity opportunities during the school day. Further, teachers with high levels of

confidence toward providing physical activity opportunities within the physical education

classroom are significantly associated with providing more opportunities for physical

activity throughout the school day. TE Space was significantly correlated with TE

institution ($r = .68, p < .01$), TE PA during school ($r = .57, p < .01$), and offering more

physical activity opportunities for students during the school day ($r = .42, p < .05$). Given

these associations, teachers who are confident in securing activity space are also more

confident in overcoming institutional issues surrounding physical activities in the

physical education classroom and providing physical activity opportunities during the

school day. Moreover, these teachers are also more likely to provide a higher number of

physical activity opportunities for their students during the school day. TE institution was

positively associated with TE PA during school ($r = .55, p < .01$) as well as physical

activity opportunities provided during the school day ($r = .46, p < .05$), family and

community events ($r = .47, p < .01$), and staff physical activity opportunities ($r = .42, p <$ .05). Those teachers who have higher levels of confidence toward overcoming institutional issues related to physical activity opportunities are more likely to have high levels of efficacy towards implementing physical activity experiences during the school day. Higher levels of TE institution efficacy are significantly related to providing more physical activity opportunities in numerous areas including during the school day, family and community events, and additional opportunities for staff to be physically active. TE PA during school is significantly associated with the amount of opportunities provided during the school day ($r = .47, p < .05$), for families and communities ($r = .47, p < .01$), and for staff wellness ($r = .42, p < .05$). Thus suggesting, teachers who are more confident about providing physical activity opportunities to students outside of physical education are more likely to offer a greater number of opportunities offered within these three areas of the CSPAP. Teachers providing opportunities for students to be physically active during the school day also have positively correlated levels of opportunities provided before and after school as well as for family and community members. Opportunities provided to students to be physically active before and after school are positively associated with the number of opportunities provided for families and communities ($r = .56, p < .01$), as well as staff wellness ($r = .59, p < .01$). In addition, opportunities to be physically active that are provided to families and the community are significantly associated with opportunities for staff to be physically active ($r = .73, p <$ .01). This signifies that teachers who provide opportunities within these three areas are more likely to provide opportunities within other CSPAP components.

Primary Analysis

The primary analysis of the quantitative variables included calculating a series of MANCOVA's and multiple regression analyses. A multivariate analysis of covariance (MANCOVA) was employed to determine if there was a significant difference in teacher efficacy and physical activity opportunities offered among the control and treatment groups at baseline. A second set of analyses two RM MANCOVA were calculated to determine significant difference in teacher efficacy and physical activity opportunities offered from baseline to post testing in both the treatment and the control group. Regression analyses conducted used four separate dependent variables including: (a) opportunities provided for physical activity during the school day (change from pre and post), (b) change in physical activity opportunities provided before and after the school day, (c) change in physical activity opportunities provided for family and communities and (d) change in physical activity opportunities offered for staff.

Series one: MANCOVA. In the MANCOVA dependent variables included the five subscales of teacher self-efficacy (i.e. Student, Space, Time, Institution, and PA During School), while the independent variable was group (control or treatment). Three covariates were used including gender, teacher experience, and ethnicity. These were selected because of known relationships with the dependent variable.

Using Wilks's criterion (Table 9) the composite dependent variate was not significantly affected by group (Wilks's λ, $F[5,21] = 2.46$, $p = .067$, partial $\eta^2 = .37$) when controlling for gender, teaching experience, and ethnicity. These results confirmed that there were no significant differences at start between groups (control and treatment)

in all five subareas of teacher efficacy. Mean scores for teacher efficacy was highest when providing physical activity opportunities during the school day (M_T= 21.15±2.61, M_C=19.47±5.76), but lowest when dealing with space issues (M_T=11.31±3.50, M_C=12.59±4.77).

To determine if the control and treatment groups were significantly different at baseline in regards to the amount of physical activity opportunities offered, a second multivariate analysis was conducted using the same covariates. The dependent variables included four areas in which teachers are able to offer physical activity opportunities (during school, before and after school, family and community, and staff involvement) while the independent variable was group (control or treatment).

The Wilks's criterion (Table 10) was not significantly affected by group (Wilks's λ, $F[4,22]$ = .412, p = .798, partial η^2 = .070) when controlling for gender, teaching experience, and ethnicity. These results confirmed that there were no significant differences at start between groups (control and treatment) in all four subareas of provided physical activity opportunities. Mean scores for teacher efficacy was highest when providing physical activity opportunities during the school day (M_T= 4.00±1.63, M_C=4.41±2.55), but lowest when providing physical activity opportunities for staff (M_T=2.23±1.01, M_C=1.94±1.52).

Series two: RM MANCOVA. The researcher sought to determine if the control group teacher efficacy scores had changed over the eight-month period, therefore a repeated measures multivariate analysis of covariance (RM MANCOVA) was used. There were ten dependent variables that included the five subscales of teacher efficacy

129

both pre and post treatment. Gender and teaching experience were controlled for within the analysis.

The main effect was not statistically significant (Wilks λ, $F[5,10] = .44$, $p=.81$, partial $\eta^2 =.18$) indicating no differences between pre/post. Maulchy's test indicated that the assumption of sphericity had been met and no corrections were needed. The univariate results confirmed the RM MANCOVA showing that there were no statistically significant differences between pre/post tests in all five subareas of teacher efficacy (M TE_Student$_{Pre}$=16.29 ± 4.46, M TE_Student$_{Post}$=14.88 ± 4.37; M TE_Space$_{Pre}$=12.59 ± 4.77, M TE_Space$_{Post}$= 11.41 ± 5.24; M TE_Time$_{Pre}$=12.29 ± 4.51, M TE_Time$_{Post}$=12.17 ± 3.80; M TE_Institution$_{Pre}$=15.18 ± 5.76, M TE_Institution$_{Post}$=15.06 ± 3.67; M TE_PA DS$_{Pre}$=19.47 ± 5.76, M TE_PA DS$_{Post}$=18.94 ± 5.41).

In addition to determining changes in teacher efficacy a second RM MANCOVA was used to determine any significant changes in physical activity opportunities offered, among the control participants. All four subareas of physical activity opportunities both pre and post were included as the eight dependent variables, using the same covariates as above.

Results revealed no overall significant difference among pre and post test scores (Wilks λ, $F[4,11] = 2.64$, $p=.09$, partial $\eta^2 =.49$). *Means* and *SD* were consulted to identify trends among four subareas of physical activity opportunities provided (M Opp. for PA During School$_{Pre}$=4.41 ± 2.55, M Opp. for PA During School$_{Post}$=4.94 ± 2.54; M Opp. for PA Before/After School$_{Pre}$= 3.88 ± 1.73, M Opp. for PA Before/After School$_{Post}$=3.29 ± 2.20; M Opp. for PA Fam./Comm.$_{Pre}$=2.88 ± 1.69, M Opp. for PA

Fam./Comm._Post=2.88 ± 1.76 , *M* Opp. for PA Staff Inv._Pre= 1.94 ± 1.52, *M* Opp. for PA

Staff Inv._Post=1.94 ± 1.43).

Similar to above, two additional RM MANCOVA's were run to determine

significant difference with teacher efficacy and physical activity opportunities provided

with those participants in the treatment group. Results showed that there was not an

overall statistically significant difference over time for either teacher efficacy (Wilks λ ,

F[5, 6] = .780, *p*=.598, partial η^2 =.39 (*M* TE_Student_Pre=17.84 ± 1.82, *M*

TE_Student_Post=18.46 ± 1.45; *M* TE_Space_Pre=11.31 ± 4.77, *M* TE_Space_Post= 10.15 ±

5.24; *M* TE_Time_Pre=12.31 ± 4.27, *M* TE_Time_Post=11.15 ± 3.05; *M*

TE_Institution_Pre=14.07 ± 3.25, *M* TE_Institution_Post=14.46 ± 2.88; *M* TE_PA

DS_Pre=21.15 ± 2.61, *M* TE_PA DS_Post=21.46 ± 2.60) or physical activity opportunities

provided (Wilks λ, F[4, 7] = .578, p=.688, partial η^2 = .248, (*M* Opp. for PA During

School_Pre=4.00 ± 1.63, *M* Opp. for PA During School_Post=4.69 ± 1.84; *M* Opp. for PA

Before/After School_Pre= 3.31 ± 1.55, *M* Opp. for PA Before/After School_Post=3.46 ± 1.61;

M Opp. for PA Fam./Comm._Pre=3.00 ± 1.53, *M* Opp. for PA Fam./Comm._Post=3.76 ±

2.13 , *M* Opp. for PA Staff Inv._Pre= 2.23 ± 1.01, *M* Opp. for PA Staff Inv._Post=3.23 ±

1.69).

Series three: Regression analyses. Six independent variables were used in the

regression analyses (group; teacher efficacy toward institution, student, time, space, and

PA during the school day) controlling for years of teaching experience and beginning

level of opportunities provided during the school day. Only variables with significant

correlations were used in the regression analyses, thus gender was not included and

ethnicity was not included given the lack of ethnicity difference within the treatment group. The first regression analyses looked at the predictors in relation to the change in physical activity opportunities offered during the school day. The results of the regression showed no statistical significance for the overall regression model $F(8,21) = .85$, $p = .575$, R^2 $adj. = -.05$ (Table 11 & 12).

The second multiple regression was conducted to determine the significant predictors within the change in physical activity opportunities provided before and after the school day. Regression results (Table 8 & 9) revealed that the overall regression was statistically significant $F(8, 21) = 2.65$, $p < .05$, R^2 $adj. = .31$. Two of the eight (group and teacher efficacy towards providing physical activity opportunities during the school day) independent variables provided a significantly unique contribution to the prediction of change in before and after school physical activity opportunities. Specifically, those participants who attended the DPA training were more likely to have increased the number of in before and after school physical activity opportunities offered. Also, some teachers realized that that they were currently under utilizing this point of intervention and accordingly targeted before and after school as time where more physical activity opportunities could be provided.

Physical activity opportunities provided for family and communities were the dependent variable of the third regression. Analyses revealed that the overall regression was statistically significant $F(8, 21) = 2.62$, $p < .05$, R^2 $adj. = .31$ (Table 11 & 12). Three of the eight (group, TE student, and TE institution) independent variables significantly contributed to the prediction of change in physical activity opportunities offered for

families and communities. Teachers who participated in the DPA training were more likely to have a change in physical activity opportunities offered for families and communities. Also, teachers who were less confident in providing physical activity opportunities for students during physical education were more likely to have an increase in the amount of physical activity opportunities they offered families and community members. Additionally, teachers who were highly confident in their institution (e.g. administration support, etc.) showed a significant increase in the amount of physical activity opportunities provided for families and community members. Accordingly, both the participation in the DPA professional development and teacher efficacy were predictors of the number of physical activity opportunities provided by physical education teachers.

The fourth and final multiple regression, conducted with physical activity opportunities offered for staff as the dependent variable revealed that the overall regression was statistically significant, $F(8, 21) = 3.80$, p<.01, $R^2\ adj = .44$ (Table 11 & 12). Of the eight independent variables three of the predictor variables significantly contributed to the prediction of change in physical activity opportunities offered for staff (group, TE institution, and beginning opportunities for staff) and accounted for 44% of the variance. Teachers who participated in the DPA professional develop were more likely to have positive changes within the physical activity opportunities offered for staff. Moreover, teachers who had a high level of confidence toward their institution (e.g. administrative support) were more likely to provide additional opportunities for staff to

be physically active. Also, some teachers realized that that they were currently offering few physical activities for staff and thus appropriately targeted this point of intervention.

Empirical analyses. In addition to the quantitative analyses conducted in this study, data from six sources including, a) pre/post teacher interviews, b) artifacts from certification process, c) observational data, d) field notes, e) open-ended survey results, and f) e-learning materials were used and analyzed by inductive analysis and thematic coding to provide thick, rich description of the process of providing more physical activity opportunities by implementing the CSPAP model (Glesne, 2006). The participants from whom the qualitative data were gathered consisted of eleven (male = 3) primarily elementary, physical education teachers who taught in a large urban school district in the southern part of the United States, as previously described. Common themes among individuals and across participants are presented in the following sections, followed by the inclusion of three teacher profiles. Themes are reported according to research question, while the teacher profiles are presented in part four of this chapter. One common theme emerged in relation to research question one: *Ready to Lead the Charge! Ready, Set, Go!*

Theme one: ready to lead the charge! ready, set, go! The key theme that emerged in relation to research question one centered on who in the school environment should oversee, organize, and facilitate physical activity opportunities for students. It was evident throughout the compilation and analyses of data sources that all eleven teachers involved in the DPA certification program believed offering additional opportunities for children to be physically active was important. Although the treatment (DPA training

participants) physical education teachers agreed that offering physical activity experiences was important, there were some discrepancies about the level of involvement and the role that the physical educator should play in providing these opportunities. All eleven teachers who were in the treatment group felt that it was already in the job description of the physical education teacher and part of their "normal" responsibilities (Field notes, September 2011 & May 2012).

Laura, who was one of the teachers who attended the DPA certification workshop, was among the many teachers who believed integrating CSPAP into their current curriculum is already part of the job description, she stated:

> I think it goes hand and hand [physical education and CSPAP] - you know I think a lot of us have been doing these activities and we just consider it part of being a physical education teacher - you know - and so each year we try to add more and more - to get our students to see how important it is to be "FIT" (Laura, pre teacher interview, October 2011).

Similarly, Lexi believed it was a role that she was already deep in the midst of. When asked about reshaping the role of the physical educator, she stated:

> Well honestly, I feel like that is already a role that we are taking on with being leaders of CATCH committee's on most of the campuses in our district, or wellness committees. Those are just responsibilities that we are already assigned

and are looked at to handle within our school to get them [the school] involved in health and wellness. So I feel like it is something that it already there and we just – the DPA – will help establish and make everybody more alert (Lexi, pre teacher interview, 2011).

Some teachers did not come out and explicitly say that they were already conducting many of these activities, however when asked about their experience at the DPA training they discussed how good they felt about things they were already accomplishing within their school setting, items that were being addressed within the training. Lila states,

It [the DPA training] was just a wealth of information that was presented – and you know I thought of it like – I gave myself some Kudos because – I do that. I pull that in [. . .] I kinda sat there and I was like, oh yeah, I'm doing that – ok – I can grow this area [. . .] you know there is always room for growth (Lila, pre teacher interview, 2011).

Lila also continued on and expressed the need for re-shaping the role of the physical educator to be beyond the scope of the physical education classroom. She stated:

I think it is essential. I mean with budget cuts and them cutting the way that we as teachers are cut – you know – the constraints of 135 minutes a week of physical

136

activity – umm – it is essential that everyone jump on board. Especially with the students, with the obesity epidemic and overweight kids now are not active enough you know – the technology has come in so strong that they don't get to play outside, so they are missing that outside activity whether it be at a school or out in the community and I think we forget about that as adults with all of our busy lives. We need to be reminded of this and make sure that we stress it in the lives of our children (Lila, pre teacher interview, November 2011).

While expressing the need for CSPAP and the role the physical education teacher should be playing within that process, many discussed how the DPA training helped provide motivation for them to implement new activities they had not thought of in the past (Field notes, September 2011 & May 2012). When asked to talk specifically about attending the training William stated,

I thought it was motivating - it kinda sparks you - it is kinda like going to church camp and you come back and you are all - you know - and it made you want to go and be the best you can be for as long as you felt that aura of excitement (William, pre teacher interview, October 2012).

Similarly to William, Lila found the training was motivating to her, and she stated,

I learned a lot of really neat ideas and information. It gave me some inspirations that I thought would not be possible in a school. To hear about some schools that is actually doing certain things, I am like that could probably happen and give me some hope" (pre teacher interview, October 2012).

Within the realm of teachers who believed providing additional opportunities as part of their current job description there were differences in how involved the physical educator should be. Some teachers believed that the physical educator should only facilitate the offering of the physical activity opportunities. "The physical education teacher is the person who should be facilitating or arranging for the physical activities, not necessarily leading," stated Rachel (Rachel, post open-ended survey, June 15th, 2012). Most teachers however felt that the job of the physical education teacher went beyond just facilitating and thought that the physical education teacher should initiate the opportunities and provide support for the activities being integrated. Cassidy stated,

Their role should be to initiate the implementation of physical activity ideas and concepts into all time slots of the school day. They should be the driving force behind educating the administration, teachers, students, and parents about increasing daily physical activity in creative ways (Cassidy, post open-ended survey, June 15th, 2012).

138

Nathan agreed with the hands on approach of Cassidy stating, "the physical education

teacher is certainly in the best position to provide and support physical activity during the

school day" (Nathan, post teacher interview, May 12th, 2012).

Although the majority of teachers expressed their support for reshaping the role of

the physical education teacher, four teachers, specifically teachers among the control

group who did not attend the DPA training, felt that although physical activity

opportunities are important, it is not the role of the physical education teacher to provide

such experiences for the students. One teacher stated,

> If the physical education teacher has the time and inclination, he/she can provide
>
> additional opportunities to be physically active. However, I think it is unrealistic
>
> to expect an individual physical education teacher to take on this extra work. I
>
> think that it might be 'ok' if a physical education teacher can enlist parents and
>
> volunteers to run these types of programs (Control group participant number 4,
>
> pre open-ended survey post, August 15th, 2011).

Another teacher felt that although it is important "they are not a babysitter" and should

not have to be responsible for such activities before and after school (Post open-ended

survey, June 15th, 2012).

Although discrepancies were present among teachers, specifically among the

DPA participants and non-participants, the data overall showed that: (a) integrating

additional physical activity opportunities for students is important and necessary, and (b) the physical education teacher is the ideal person to lead the charge in implementing these opportunities, but the extent to which they should be involved personally in carrying the activities out is still up for discussion.

<div align="center">PART 2: RESEARCH QUESTION TWO</div>

Research question two examined the teacher's perceptions of and attitudes and feelings toward the implementation of a CSPAP. Four hypotheses were proposed in relation to research question two. First, it was hypothesized that teacher attitudes and feelings toward CSPAP would reflect a feeling of personal responsibility toward providing activity opportunities to students. Second, the researcher believed that teachers' would have positive feelings toward implementation of CSPAP, however their perceptions of implementation would focus on the development of targeted physical activity programs that would increase the number of opportunities for children, staff, and families to engage in physical activity. Further, although teachers would have overall positive feelings toward CSPAP, it was hypothesized that teachers would face barriers toward the implementation of CSPAP that would result in frustration. Finally, the teacher would not implement all five components of the model, but focus his/her efforts on a specific population and a single organizing factor such as before and after school physical activity opportunities.

Using descriptive statistics the CSPAP Index, participants' action plans, researcher field notes and observations, common occurrences among the DPA participants were summarized. It was found that the most common point of intervention

among the DPA participants was physical activity opportunities offered before and after school, with an average of 4.35 opportunities offered per school building. Among those opportunities offered, classroom physical activity breaks and active recess were the most commonly performed among the teachers. Although before and after school was the most common targeted place for intervention, the greatest number of additional opportunities were surrounding family and community involvement. It was within this realm where most teachers participating in the DPA certification process chose to implement their action plan causing an average increase of opportunities offered from 2.85 per school to 4.20, as nine out of 11, chose to focus their action plan on implementing a variation of different family and community wellness events. These events ranged from family fun runs, community 5K's and even parent and community wellness nights. Regardless of the event focus, teachers used ideas from the DPA training, personal experience, and suggestions from colleagues to develop events that were successful in creating additional opportunities for children and family/community members to be physically active. Among these events teachers identified themselves to be successful by the number of people in attendance and not necessarily that the event just took place. Teachers were pleased to announce to the researcher the total number of participants who attended the designated events. Although many teachers were already offering opportunities for children to be physically active before the DPA certification program, teachers were able to increase total opportunities offered in each category of the CSPAP.

Decomposition of the descriptive data suggested that there were some common points of intervention and strategies employed by the teachers to increase the number of

physical activity opportunities offered for children, families, community members, and school staff. Among the 13 teachers within the treatment group, all of them implemented at least one additional physical activity beyond their initially proposed action plan, with 92% implementing at least two additional opportunities. Surprisingly, 54% of the teachers implemented three or more additional physical activity opportunities during the school day. In total, 51 additional opportunities outside of physical education were provided by just 13 teachers, within a single school year, thus evidencing the capability and appropriateness of physical education teachers serving as directors of physical activity.

Overall, the most frequent point of intervention was during the school day with 61 total physical activity opportunities offered across all 13 schools, where the treatment teachers were housed. Of those 61 opportunities, 16 were implemented because of the CSPAP initiative. Initially, three teachers targeted this component, but over the school year two other teachers added opportunities during the school day. Table 13described the common strategies for implementation, which for during the school day included, providing equipment bags and games for students at recess, helping classroom teachers to provide physical activity breaks within the classroom setting, and encouraging active recess through supervision and activity zones. Reorganizing recess was the most common area identified for physical activity, which was already being addressed by many (n = 6) of the teachers prior to the DPA training.

Six teacher action plans focused on the family and community involvement component of CSPAP and two teacher added opportunities as the school year progressed,

resulting in 13 additional opportunities for children to be physically active. The teachers focused on organizing family and community events held at their schools. These events included wellness days (4 teachers), community sponsored walks on school grounds (5 teachers), and four other types of school sponsored physical activity events. Field days were among the most common events offered, but all of these were already part of the physical education program prior to participation in the DPA training.

From baseline, an additional 12 physical activity opportunities were added across the 13 schools through before and after school programs. The most common means of expansion were teachers adding running clubs and open gyms. There was little evidence of teachers increasing physical activity opportunities through collaborations with joint use agreement groups such as the YMCA or other childcare organizations, despite being a recommendation within the training. It was simply easier for teachers to do these tasks themselves, than to engage in collaborations with other organizations that already had guidelines and protocols in place. Further, these programs could then serve as an extension of the teacher's physical education program and provide opportunities to refine motor skills as well as a chance to be active.

Targeting staff wellness was the least frequent focal point of the teachers in this study. No teacher selected staff wellness as an outcome of their action plan; however, as the school year progressed four teachers stated that they had indeed offered walking/jogging clubs for staff and had begun to focus on staff wellness. Two schools had staff *Biggest Loser* and *Bootcamp* events. These events typically focused on weight loss over simply offering a chance to be physically active. The physical education

teacher, him/herself was usually the event coordinator but often solicited help from other teachers to carry it out. It is believed that this is the least common point of intervention because the teacher focused on "being there for the children, because if they did not do it who would," leaving little time to address the health and wellness of their colleagues.

In accordance with the DPA training the teachers were not permitted to identify changes in physical education as their primary action plan outcome. However, three teachers felt that they would be remiss if they did not in turn reshape their teaching practice, specifically the amount of moderate to vigorous physical activity offered during physical education, while making the other changes to their school environment. Teachers added instant activities, refined transitions, changed management strategies, and integrated technology such as pedometers into their classes, which resulted in a self-reported increase in physical activity time during physical education.

In addition to descriptive statistics, given the previously stated hypotheses, empirical findings suggested four themes that emerged from the data, using coding, deductive reasoning, peer debriefing, member checking, observations and researcher journaling: (a) Eye of the Beholder, (b) Seeking Acknowledged Status (c) Positive Experiences but Not Without Barriers, and (d) Three Keys to Successful Implementation.

Theme One: Implementation Is In the Eye of the Beholder

The first theme that materialized from the data was *implementation is in the eye of the beholder.* This theme captures the similarities and differences that occurred among the teachers related to CSPAP implementation. Although each teacher attended the same training, had access to the same materials, and positively perceived CSPAP and their

responsibility to carry out CSPAP within their school setting, many carried out implementation differently. Throughout the DPA training teachers were given the choice as to what component of the CSPAP they would like to integrate into their school setting. Many teachers did not make this decision right away. They took the information gathered, absorbed it, went back to their school and then made a decision on what would be best for their individual school settings (Field notes, October 2012; Field notes, January 2012).

For example, Lila decided that she wanted to implement brain breaks in the classroom setting as part of her action plan (Lila, artifact, August 2011). After the training she came back to her school and discussed with her administration how this might be possible. She was able to secure a session during the "back to school seminar" to train teachers on brain breaks that they could implement in their classrooms (Field notes, September 2011). Once she implemented the training, she tried to help support teachers by encouraging them to use the brain breaks in the classrooms as well as providing individual teachers ideas of how to tailor them to meet their individual classroom needs (Observational data, September 2011). Lila felt that brain breaks were the best option to implement in her school this year because "movement and academics go hand in hand. Any possible opportunity should be taken advantage of and any resources and support to get students moving throughout the day should be provided" (Lila, pre teacher interview, September 2011).

John on the other hand chose to implement organized recess as his action plan for the 2011-2012 school year (John, artifacts, August 2012). He designed stations that

students could use during recess, trained teachers and students how to play all of the activities and then trained them on how the equipment should be set up and taken down. John was able to implement this briefly at the beginning of the school year, however because of schedule changes and the cut of recess he had to re-structure his action plan mid-way through the year (Observational data, January 2012). He adjusted his action plan to take place during his supervision period, since the students were no longer getting recess during the day.

Rachel walked away from the training knowing,

she wanted to do something that gave them [the students] an activity to do after school. A lot of the kids here do not have a program like that and none of our kids take buses […] so our school is actually a really good school to use to do something like that because the parents have to pick the kids up anyway, or they have to walk home (Rachel, post personal interview, May 17th 2012).

She decided that she was going to start an after school running program and with the help of some other staff members at her school was able to obtain a local grant to help fund start-up costs of the running program.

As reported, many different forms (i.e. during school, before and after school, family and community involvement, and staff involvement) of the CSPAP were implemented within the school setting, depending on the individual characteristics and specific needs of each school. Although different areas of the CSPAP were chosen to be

146

implemented by the teachers and reported on the teachers' action plans, many similarities were found among other physical activity opportunities that were also being offered at these particular schools, many of which were established before the DPA training. Although most teachers were already implementing forms of CSPAP into their school culture, as part of the DPA training they expanded their knowledge and the physical activity opportunities offered for children. In fact, all teachers ended up implementing various forms of CSPAP throughout the year, adding an additional two to five opportunities for students to be physically active.

For example, John chose to not only implement his organized recess plan, but also exhibited active involvement and high amounts participation in his technology rich physical education class. John worked very hard to establish technology activities in his gymnasium that would peak the interest of his students and encourage them to obtain the maximum amount of physical activity as possible (Observation, January 2012). The researcher reiterates this with her field notes when she observed:

When I walked into the gymnasium there were carts in the middle of the gym and a big white screen hanging down. The children filed into the gym and went straight to their spots where they began to follow along to the technology displayed on the wall. Leaders took over and led a routine, followed by all of the students participating in games led on the Wii. I can tell that this is a practiced routine as the students are all participating watching the screen and switch controllers swiftly as to not waste any time of activity (Field notes, January 2012).

Although only implementing additional opportunities in two areas of the CSPAP (quality physical education and during school physical activity), John was focused on creating the best experience for his students.

Lila, unlike John, had many forms of CSPAP already established at her school before the DPA training. Although her action plan focused on implementing brain breaks into the classroom, she exhibited four other areas that were established as additional opportunities for students to be physically active within the school setting. Two of these opportunities were already in place before the DPA training. She provided a motor lab for individual classes to attend on a weekly basis. The motor lab allowed teachers to schedule an indoor physical activity break for their students in order to help them "get some wiggles out" and begin focusing on their next task (Observations, October 2011). There was also a before school running program at her school. The running program was designed to occur two days a week and allowed students to come to school early and accomplish as many laps as possible in the time allotted (Observations, October 2011). In addition to these two programs and as a result of the DPA training, Lila began to offer structured recess activities, and highly active and effective physical education classes. Although Lila and her school offered many additional opportunities for students to become physically active, most of her opportunities focused on two main components: before/after school and during the school day (Field notes, October 2011).

Winnie also exhibited many forms of CSPAP and additional opportunities for students to be physically active within her school setting. Her action plan focused on her

148

family fitness night, however she had previously established four other opportunities for students to be physically active during the school day. Opportunities offered for student's to be physically active in Winnie's school included a staff wellness activity labeled "the biggest loser", a healthy body field day, junk the junk, and an afternoon runners club (Field notes, May 2012).

As can be seen throughout this theme, teachers integrated many forms of physical activity opportunities depending on their situation. Some teachers focused on one component all year, while others teachers who already had opportunities established before the DPA training extended those offerings by integrating a variety of components of the CSPAP.

Theme Two: Seeking Acknowledged Status

The purpose of the NASPE DPA training was to add value to the role of the physical education teacher, by identifying him/her as the expert in the educational setting, who will facilitate implementation of the CSPAP. Advertisement materials also identify a list of specific skills (e.g., advocate for physical activity programming, effectively communicate and market physical activity programs, foster community collaborations, etc.). Although teachers primarily focused on providing physical activity opportunities, the teachers also acknowledged that the DPA training offered them the potential of additional status among their peers and within their local and professional communities. Sheralyn stated,

I think physical education and director of physical activity – in my mind for us as physical education people, it kind of goes together, but it also makes me think that I am more of an expert. The letters at the end of my name make me more credible. Like I could go to the YMCA and get a job like a program director or something like that (Sheralyn, pre personal interview, January 2012).

Similarly, Lexi stated:

I do look forward to having that DPA status – it will make me be a little more – you know it is just a little rewarding to have that status after how hard you work for your school and your community. You know it is kinda like getting a Masters degree, which you know I am not going to do that – so it is nice to have that extra little status as a proud moment (Lexi, pre personal interview, November, 2011).

In addition to status regarding the certification specifically, other teachers felt like the experience was rewarding and gave them additional responsibility and status within the physical education community. These teachers were not worried about the letters after their name (C-DPA) but were excited about the opportunity to engage in a professional development that was offered by a well-known national association and what that meant for them with implementation in their school building. Shelly stated, "I just really liked the whole idea of the certification process. You know, it's not something that many people are doing and it sets us apart from the rest that we have had the chance to be one

of the first groups to get the certification" (Shelly, post interview, May 2012). Wade had similar thoughts when he talked about what he enjoyed most about the certification process,

I think offering us a higher level of certification is really cool, saying that if you put the time in then you can get more out of it. Because when you become a PE teacher you are kinda done [. . .] there is nothing more to it that you can get out of it. It is cool to see people that take initiative could be a step above somebody else. There is almost tiering for PE teachers [. . .] that is I guess the thing that I really enjoy about participating in the certification process (Wade, post teacher interview, May 2012).

Offering teachers a professional development opportunity that increasing their status as a physical education teacher, seemed to be a key selling point as DPA participants explained what appealed to them about the DPA training.

Theme Three: Positive Experience Yet Barriers Exist

Previous themes discussed that the teachers believed it is important to offer additional physical activity opportunities for children. All teachers thought that the amount of work put forth for implementation was far overshadowed by the excitement and joy of their students who participated in their events. When asked if the work put forth and the frustrations encountered were worth the outcome, participants commented with the following,

151

It was a lot of work - I am not going to lie about that. However, it is so rewarding

to see the smile and the students faces when they are running around the track that

it makes it all worth it (Lila, post teacher interview, May 2011).

Cassidy reiterated Lila's comments when she stated,

I encountered a lot of frustration with implementing my action plan […] however

when it all comes down to it, if the kids are happy and smiling, then I am happy

and smiling. I just do it to make life better for them (Cassidy, post teacher

interview, May 2012).

Although positive thoughts about DPA training and CSPAP implementation

occurred overall, as stated in previous themes, there were barriers that existed in

implementing the CSPAP successfully within the school setting. The teachers disclosed

two main barriers to implementation, lack of support and technology.

Advocate for change. Four teachers became very frustrated with the certification

process and their action plan implementation as they ran into issues within their own

school setting, such as lack of support from administration. Those teachers who were

unable to gain support of their administration exhibited the most frustration about their

situations. Cassidy was a teacher who had a passion for improving the lives of her

152

students (Observations, May 2012). Her initial action plan looked to create a running

program after school for her students. However, the administration stepped in her way.

> First and foremost I think my main frustration has been … well we have a new
>
> administration at our school and this is their second year. Everything has been
>
> wonderful but my program has been stifled because we are not permitted to do
>
> activities before or after school hours. [. . .] I was planning on doing an
>
> afterschool running program year round, but obviously my administration said
>
> that I couldn't do that. I just feel like people should be open to things. I mean,
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> how can you say no if you don't even try something? Why even - I don't know I
>
> just feel like it is so unfair (Cassidy, post teacher interview, May 2012).

Cassidy almost stopped the certification process because she was so frustrated

with her administration (Field notes, May 2012). However, she decided to continue and

changed her action plan to create a wellness day at the school. She also ran into barriers

with her wellness day for her students and parents, as she discusses her frustrations here,

> I decided to do a wellness day […] but then I was told by administration that it
>
> had to be combined with career day. […] I guess I can see careers and wellness
>
> kinda going together because I think you have to be "well" to actually have some
>
> sort of career, but I decided to create a wellness day run during our wellness day -
>
> my administration really couldn't say no because they had agreed to the wellness

day. So in addition to bringing in Crossfit instructors, jump rope specialists, [an unnamed university] health and science department, as well as doctors, I decided to create a wellness run. The kids had to go three times around our campus. I had it coned off and everything […] we had water donated, we had fruit, all kinds of things for the kids. It was really fun because some of the kids, their parents came and ran with them as well (Cassidy, post personal interview, May 2012).

Even though Cassidy ran into barriers, she was able to adjust her action plan and provide an opportunity, that her students enjoyed, in order for them to be physically active.

Similar to Cassidy, John ran into administration support issues at his school. John had planned to implement organized recess during the school year. He created his entire plan and even trained teachers on how it would be implemented during the school year. However, administration decided that recess was no longer needed. They adjusted the master schedule so that students only had scheduled recess at the discretion of the teacher, if they personally wanted to take their students outside. John talks about the situation in the following excerpt,

The frustration was I was already to go with the implementation at the beginning of the year but then the schedule was changed and they [the administration] said they weren't going to be able to do it [recess games]. [. . .] It was frustrating because I had gone out myself and personally bought buckets. I made signs for stations and put them on the buckets. Everything was labeled and easy for the kids

154

to use. [. . .] It ended up that we [physical education staff] were assigned an extra period to teach which gave the teachers an extra planning time. So we did the organized recess during this time instead of having a formal physical education class. We figured the kids would like it since they didn't have the opportunity to have recess anymore (John, post teacher interview, May 2012).

Although an unsupportive administration placed barriers in the way of implementing additional opportunities for students to be physically active, teachers advocated for their programs, solved problems that arose within the construct of CSPAP, and created other ways for children to be physically active. Even though challenges like these occurred, teachers seemed to take it in stride, as if they had experienced this before, and found the next best thing for their students.

Technology. Throughout the observations and interviews with teachers, 54% teachers were categorized as not being technologically savvy, or those teachers who had basic word processing skills and limited Internet and email capacities. These teachers rarely used computers unless they were told by the school district submit grades and lesson plans. Experience with social media networks and online courseware was negligible. Two of the teachers expressed that they didn't like to use technology in physical education, because that teaching time should be reserved for movement activities and sports. The average number years of teaching experience of teachers who were deemed as technologically savvy was 10.2 years, while the non-tech savvy groups average was 16.5 years.

Struggles with technology emerged as a key issue among the teachers. Although the struggles did not hinder teacher implementation of additional physical activity opportunities, they did expose teacher frustration toward the DPA certification process. Lila for example shared her frustrations,

I was very frustrated with the Internet because I couldn't get my artifacts uploaded. Also, it is a little frustrating dealing with the online system because I am a person who can't put my thoughts on paper, so it has been hard for me - or a frustration because I'll have this idea but I don't know how to take it and translate it and put it on the paper (Lila, teacher interview post, November 2012).

John had similar experiences and shared his frustration with the website as well, when he stated,

The only thing that was hard, originally, and I still don't know if it is working correctly, is the website. I ended up just calling and Doris [a trainer] so that I could try to get things inputted and knowing where to go and what to do. I know just recently I tried to put up some things on the website and I have no idea if they posted or not because I could not figure out how to check it (John, post teacher interview, May 2012).

Molly, similar to other teachers, expressed issues with the website and uploading artifacts, but she also exhibited a problem of not having the proper technology to carry out the certification process. She stated, "the computer stuff I still haven't done a lot of because it is just time consuming and I don't have a computer at school, the school doesn't provide one to physical education - so that has made things very difficult (Molly, post teacher interview, May 2012).

Although some of the teachers who expressed concern about technological issues were comfortable with using technology in the physical education setting, this did not carry over to website and the online technologies. Lack of specific technology skills and inexperience played a role in the teacher's inability to navigate and utilize the features of the Moodle website.

The trainers also felt the stress that technology brought to the DPA certification process. Some of the trainers were directly involved with handling technology issues with teachers and were surprised at the teacher's lack of technology skills. The trainers felt that they had planned ahead for technological issues when developing the training process, but realized they had overestimated the technology skills of the teachers. Trainer number one expressed his frustration by stating the following,

> I think that we talked extensively about teacher comfort with technology and I
> think we were – we overestimated what teachers could do with technology and
> their comfort level, but we were also misled because we thought that we were
> going to get a little more support from NASPE to develop the website and

basically [another trainer] had to make something, that I thought was pretty darn

good, basically out of nothing, but because it was nothing some of the teachers

who were in-experienced with technology were exacerbated – or – because

unfortunately when the uploaded documents they were suppose to tell us what

type of a document it was and they couldn't figure out how to do that. So when

you go to follow up as a teacher, if they didn't know how they uploaded it, it

made it cumbersome for the trainers and frustrating for the participants (Trainer

one, trainer interview, August 2012).

The teachers seemed to struggle with basic technological skills that led to

adjustments the trainers had to make within the certification process itself. Artifacts and

documents that were supposed to be collected online were accepted as hard copies

because some teachers were unable to navigate the website and attach the documents

electronically. The inability to upload the action plans and artifacts led to some struggles

with implementation since the teachers were not able to receive feedback quickly on their

action plans and artifacts (Field notes, May 2012). However, due to the flexibility of the

trainers and the perseverance of the teachers the barrier of technology did not deter the

implementation of new physical activity opportunities for the students.

Theme Four: Three Keys to Successful Implementation

Throughout the empirical data analyses there were three key facilitators

mentioned by the teachers who successfully carried out their intended action plan. Most

of the teachers when asked, " what is the key to making your intervention work"

responded with at least one of the following facilitators: (a) action plan, (b) supportive administration, and (c) passion and dedication for the health of students.

Action plan. Eight teachers agreed that the action plan and artifacts really helped them get organized and carry out their new physical activity opportunity as planned. They felt that these items allowed them to systematize their thoughts on paper by forcing them to plan ahead and make sure that everything and everyone was prepared for the event. Winnie believed that if she did not make a plan she might not have committed to implementing her wellness night. When asked what was the key to making her intervention work she stated, "Well, I think you have to make a plan. I am the kind of person that if I make a plan I do it - so - I guess just making the plan holds you more accountable" (Winnie, post teacher interview, May 2012). Similar in nature, Nathan talked about how he would not have been able to carry out his action plan if he had not planned ahead. He stated,

> You need to catch them [administration] early and there was a potential to have wait to long and miss the window for planning things and getting them on the calendar - because everyone gets busy and it is not their primary focus. No, I think just being organized and getting on the agenda early really helped (Nathan, post teacher interview, May 2012).

Sheralyn's action plan called for a wellness night at the school, which incorporated both the art and music department. Sheralyn was in charge of the event and

thought that her action plan helped her keep on track with everything that needed to get done. She even took her action plan a step further and used it to help keep the art and music teachers on track as well.

> It [the artifacts] helped me get the intervention done. I mean in just you know, the action plan - I would have done something like that anyway, but you know the other teacher was behind a step and I had already put my action plan together so I knew what I was suppose to be doing - I was telling her - you had to be contacting these people - and kinda keeping them on track because I had myself on track because of the action plan. The artifacts - step by step thing was pretty important I think, in helping get the thing [wellness night] done. I'm not sure how I could do something like this without those little step by steps (Sheralyn, post teacher interview, May 2012).

The planning the teachers did had an effect on the physical activity opportunities that they offered. Those teachers who had extensive action plans and had laid out every step on paper, exhibited success during their chosen activity. These are the teachers who had record numbers of attendees show up to their wellness night and made decisions to turn away students from their running clubs (Observations, May 2012; Field notes, May 2012).

Supportive administration. In addition to the action plans playing a pivotal role in the teachers' interventions, supportive administration was also praised as being a

fundamental player in the success of the physical activity opportunities offered. As talked about in *theme two: positive support yet barriers exist* a non-supportive administration could cause frustration and hardship to the teacher. As expected, a supportive administration could do just the opposite. It gave teachers the confidence and support they needed to carry out implementation and provide more opportunities for students to be physically active.

Teachers were asked what were key facilitators to their successful implementation and over 90% reported administration as playing a pivotal role. Molly talks about how supportive her administration has been in the following excerpt,

I'm really lucky to have a principal who thinks PE, physical activity, afterschool events are really important for the kids and the community. She has really helped with getting money donated for our outdoor facilities and she has helped get kids involved in the running club. She has even come out to run with the kids a couple of times. She also did a 5k with the students and the school - so it is things like that - she is really involved - she believes that it is something that we should have, so it has been really good and really easy - I have been really lucky (Molly, post teacher interview, May 2012).

Molly goes on to talk about how she actually had too many students show up to participate in her after-school running club and she had to figure something out to accommodate everyone that was interested. She states,

When we had kids sign up we found out that they were very interested. We left

registration open and we got 270 kids signed up to participate in the running club.

I ended up having to limit it to 100 in the spring because of supervision purposes

(Molly, post teacher interview, May 2012).

Although Molly's experience was unique in the sense that her administrator was

supportive of the idea and an advocate to make the running program happen, other

teachers discussed how an administrators that "just said yes" and allowed new things to

happen should still be considered as an supportive administration.

My administration was very supportive; they even pushed for my event. They

wanted it. My principal, anything you go to him with and you want to do it, he

doesn't care. But of course your have to do it yourself and you have to find the

money to do it (William, post teacher interview, May 2012).

Similar to William, Noah had a principal that did not say "No" to his ideas. His

principal was not against the idea of hosting additional physical activity opportunities, so

they showed support by approving it. Noah points this out as important because the

administration could have simply said "No". He states,

Really my administration has just given approval. I don't ask them to do to awful

much as far as planning or showing up, or participating. I am prepared to do

everything myself and on my own. Really they just want to be kept abreast of

what you are going to do and make sure that all of the ifs are covered. […] If they

were to say "No", I don't know if I would have been able to carry my action plan

out. Either that or it would have had to be a stealth operation (Noah, post teacher

interview, May 2012).

If administration is unwilling to allow a teacher to try new things, such as

implementing additional physical activity opportunities, it could lead to teacher

frustration. However, if administrators allow physical education teachers to be creative

and implement new ideas, teachers feel supported and are excited about implementing the

new activities.

Passion. The third key facilitator that emerged from the data included passion and

dedication to children's health. Teachers were quick to talk about how important they

thought implementing additional opportunities of physical activity was to the overall

picture of student health. Many believed that students do not get enough time to be

physically active or have access to facilities that allow them to do so. The physical

education teachers believed that it was their job to help facilitate these opportunities in

order to help kids become more "fit" and "healthy".

Laura verifies this when she talks about the importance of the CSPAP and the

keys to making her intervention work,

To me the CSPAP is important because a lot of our parents don't give the kids

what they need at home… so me, I like to do everything that I can to help the kids

[…] I think that it is me that really makes my intervention work, isn't that

horrible. My enthusiasm, excitement, my desire for them to be fit, my

encouragement, you know. I do a lot of different encouraging to get them to want

to do it and to be excited about it. I guess it is me and my whole program is

because of me. I don't go out.. I don't do it because I want to be recognized but it

is because I consider those kids my babies… I want to make them strong and

healthy (Laura, post teacher interview, May 2012).

Although other teachers did not come out and state that success was because of

the passion they had for making it happen, it was evident in observations and present in

the researchers observational notes that all of the teachers participating in the research

project were passionate about making a difference in children's lives. This is evidenced

by some excerpts from observational logs,

When I walked into the gym you could just feel the excitement and passion in the

air. The gym culture was amazing - there was stuff everywhere. Posters,

interactive bulletin boards, award walls, encouraging phrases are plastered all

over the wall. This is very different from other gyms that I have observed in the

last week. This building is just different. After speaking to the PE teacher I know

why the feel of the school culture is different here. She has such a passion for

physical activity, but also for her students. She believes they are her own and that

it is her job to help them obtain the tools needed in life, with physical activity

being one of them (Researcher field notes, 2012).

Another observational log exhibited similar characteristics:

This school was very intimidating walking into. Everything is under lock and key.

The school is surrounded by a big metal fence, similar to a prison, and the only

way in or out is through the front door. As I walked into the front of the building I

am just not sure what to expect [. . .] The atmosphere in the gym was amazing.

There were posters and motivational statements hanging everywhere for the

children to see. There were even reminders about how to be physically active

hanging up in the gym. It is nice to see that even in such a tough school

atmosphere, the gymnasium can be a welcoming place where teachers are

passionate about students being physically active (Researchers field notes, 2012).

Overall, results indicated that although barriers existed when attempting to

reshape the role and responsibilities of the physical educator to include the

implementation of CSPAP there were three key things (i.e. action plan, support, and

passion) that emerged in order to help teachers successfully facilitate change. The

following section will discuss the third research question of the present study.

PART 3: RESEARCH QUESTION THREE

Research question three examined how Community of Practice (CoP) facilitates reshaping the role of the physical educator to include the responsibilities of the DPA. It was hypothesized through the implementation of CSPAP and the DPA certification process that teachers would develop a community of practice among colleagues and DPA participants in order to gain ideas and support.

Given these hypotheses, the data emerged into the following two themes: (a) Social media's place within a community of practice, and (b) the need for structure.

Theme One: Social Media's Place Within a Community Of Practice

Within this research study, different forms of communication and networking were set in place by the researcher and DPA trainers to help create an online community of practice among teachers. When first told about the social media sites, most teachers were excited and said that they were excited to join and become a part of the DPA community (Field notes, January 2012). They expressed their eagerness to talk to other people across the country about their experiences with the DPA certification process (Field notes, May 2012). Contrary to the hypothesis of the researcher, and even though the tools for an online community of practice were available, teachers refrained from participating in the online forums that included a private Facebook group and an online blogsite called *Moodle*. Of the eleven teachers who participated in the study, only one teacher joined the private Facebook group, while zero teachers participated in the *Moodle* discussion board (e-learning websites, May 2012). The teacher who joined the Facebook group did not communicate to any other DPA members or introduce herself on the DPA

166

page (e-learning websites, May 2012). All teachers were prompted mid-year by the DPA training team and even then there was no additional action on the social networking sites (E-learning, May 2012).

There were two main reasons why teachers stated that they chose not to communicate using Facebook or *Moodle*, (a) keeping work and personal life separate, and (b) they did not use or know how to use social media networking sites. Five teachers expressed concern of social media in relation to their personal lives. When asked what was the reason they chose not to participate in the social networking provided, they stated to keep separation in their life. Nathan stated, " I like to keep my personal and professional life separate" (Nathan, post teacher interview, May 2012). When reassured that it was a private page, he reiterated "he does not socialize with people in his school building and district, so there would be no need to add them on the social networking site" (Nathan, post teacher interview, May 2012). William also felt that it was necessary to keep a barrier between his personal and social life, "I'm not a big social media fan – I don't use it that often – but if I did I wouldn't use it for school purposes, only for personal" (William, post teacher interview, May 2012).

Other teachers stated that they liked to keep work and personal lives separate but occasionally make a few exceptions. They included DPA as an exception, but went on to say that they were unable to use it at school because of time restraints and website restrictions. Furthermore, they were unwilling to take personal time to log on for DPA purposes. Laura states,

I have a Facebook account, but I normally don't have time to use it. There is a lot

on Facebook that I don't do because as a teacher I have been told to not do it. I

don't really take the time to log on at home unless it is to see pictures of my

grandchildren. If I could get on at school I would, but I can't access it (Laura, post

teacher interview, May 2012).

Winnie was similar to Laura in that she felt the time restraints of the school day hindered

her ability to participate in the online networks. She stated,

I didn't use the social media networks mainly because of time. I might use them

now that the summer is coming. I was really planning on utilizing time during the

school day to focus on DPA stuff, but you know your 45 minute planning period

just isn't enough with everything else that is going on that you have to do. It's just

not enough – then I work afterschool for my other job, so I can't do it then either

(Winnie, post teacher interview, May 2012).

While some teachers expressed mixing personal and school as their reason for not

participating in the social media networking sites, other teachers (four teachers)

suggested that their technology skills did not encompass the use of such platforms.

Similar to technology struggles that were mentioned previously, teachers struggled to

understand how to use the social media sites and therefore did not use them for

networking purposes. Sheralyn states this clearly in the following statement, "I guess I

am just not a social media network kind of person. The technology and the.. its just not me.. I just don't" (Sheralyn, post teacher interview, May 2012).

John claimed that he tried to get into the DPA Facebook cite, but couldn't figure out why he was unable to get it to work.

I tried to get in but I don't know what happened – because I do have Facebook – so I tried to get in – went into it – and for whatever reason I could never get it to pull up. Then I got frustrated and just said forget it! I chose just to communicate with the trainers by email and that was that (John, post teacher interview, 2012).

Among the teachers participating in the DPA certification program, there was a disconnect when attempting to develop a CoP within the realm of social media sites either because of a personal preference or lack of technology skills. However, even with a disconnect present, teachers expressed interest in networking with others but had specific ideas of how it might work best as is discussed in the next theme.

Theme Two: The Need for Structure

Although many of the teachers who went through the DPA training did not use the social media networks provided to network with others, they did express the desire to network and communicate with other DPA participants. Some teachers took it upon themselves to network with teachers using other forms of communication, but expressed a need for more formal lines of communication set up by the district of the DPA training. Laura discusses this in the following excerpt,

We didn't talk much at the training. I think if I could have you do something else – it would be nice if we could have a focus group once a month. You know with or without you [the DPA trainer] but just so we could exchange ideas. Sheralyn [another DPA participant] and I exchange a lot of ideas, but a lot of the other people I never get a chance to talk to until we got together mid-year for our in-service and we were allowed to gather as a DPA group. I thought that if we could have talked it over [DPA related topics] and maybe even had small group work where we could exchange our ideas – that would have been something good as well [. . .] Maybe have the district plan something where we are given a time to get together. I know teachers would say that they would want a time during school [to be let out to meet with other DPA people], but for myself I would say to find a time before or after school. You know – to me – if you are going to make the commitment to get the certification you should be willing to meet outside of school hours. I don't like to leave my classes (Laura, post teacher interview, May 2012).

Lexi also felt the need for a network to communicate with, but like Laura wanted a reminder or a set meeting to help encourage her and remind her about the network that was available. She states,

I kinda feel like there could be a good network of people, if we had more

communication and you know – were encouraged a little to talk and share ideas

with other people. Sometimes you forget that the support system is there for you

unless you are reminded constantly it is kinda like you forget there are other

physical education teachers in the district with you unless you see them all the

time. So I think the main thing is that reminders would be helpful to help me

remember that these people are there and that they could create a good network if

we aren't shy about sharing and working together (Lexi, post teacher interview,

May 2012).

Of the informal networks that were formed among the DPA participants, many

teachers gravitated to those teachers who were in their own districts. They felt a need to

communicate with people who were familiar, worked with similar students in a similar

environment, and knew the nuances of their own district. Lila shares her networking

experience in the following statement,

I have tried to network with people going through the DPA process – a lot more

with the teachers from my own district. Some of them have responded and some

of them – just – you know. It's kinda cool because there was another teacher

whose action plan was similar to mine and we have been able to bounce a lot of

ideas off of each other and back and forth and have been able to make a lot of

progress (Lila, post teacher interview, 2012).

Although Lila was excited about the network that she has created in her district she acknowledges the potential of a bigger network of DPA participants,

> I feel like there is a support system out there that we forget about a lot. That we are not – even though we are on the front line and in the trenches day to day – there are people there to support us and encourage us and remind us to help enforce things. It is a voice – but we just forget to utilize it (Lila, post teacher interview, May 2012).

Similar to Lila, Rachel chose to network with people inside her own district. She utilized her friends and colleagues to discuss and share things about the DPA certification process along with her action plan.

> I tried to use both Facebook and *Moodle* and I was deterred from that. But I did not use any of the blog features on *Moodle*. I joined Facebook , however I am more stuck to my network here locally. Just because our elementary and our middle schools have been doing community events and different things [. . .] I kinda stuck to my localized people because they have been a part of the community. They have tried – you know I try to get with them more. I was able to use them [the people I know in my district] more than the social network [. . .] My friends and colleagues locally have given me feedback on what I have done in the

172

past and we kinda used it [our own district] group as a little forum to shoot emails

back and forth of what our action plans were looking like – how we were coming

along – did their plan take off – did it crash and burn. Overall I thought that I had

a pretty good positive interaction with them. It wasn't anything negative and it

was continuous throughout the whole entire year (Rachel, post teacher interview,

May 2012).

Molly also talked about her networking encounter with colleagues and social networking

sites. She felt that her need to communicate with others was filled locally through district

meetings.

I just really kinda forgot about it [social networking] to be honest and then just

didn't get on it to use it. I think that at our meetings I was able to talk to people,

we had district trainings so we would talk about it there – so I never really needed

it (Molly, post teacher interview, May 2012).

Although she didn't use the social media websites, when asked if she felt she had created

a network of people she could talk to she responded,

Yes. Especially with this being my second year – it was kinda a smaller group in

our whole big physical education group [district physical education teachers] and

so just knowing that they are doing this too – but then also just finding out about

physical education in general has been really nice because it is only my second

year – so that has been really nice to have them [fellow DPA participants] to talk

to and to see what everyone has done – because a lot of them that have been doing

DPA have been in the district for a while, so it has been really nice to

communicate about physical education or the programs that they have started or

they have started in the past and are deciding to change now (Molly, post teacher

interview, May 2012).

Although an online community of practice did not evolve as intended, teachers

expressed the need for a community of practice among DPA participants. Many stated

that they tried to network with other physical education teachers within their district with

some success. The teachers were willing to invest in creating a CoP, but mostly with

known colleagues whom they trusted to reciprocate. In addition there was a need for

structure to help them participate in a CoP. Whether it was schedule meetings or

reminders that there was a network present, teachers felt that the extra accountability was

something that would have been helpful in establishing a more active CoP.

PART 4: TEACHER VIGNETTES

In addition to the thematic analysis reported, there were three teacher profiles that

emerged from these data: The Advocate, Novice Techsters, and the Local Community of

Practice Member. These teacher profiles are revealed in the form of three separate

vignettes. A vignette is described as a story about individuals and situations, which make

reference to important points within a particular study (Hughes, 1998). Vignettes are

generated from a range of sources including the sources of multiple participants (Carlson, 1996; McKeganey, et al., 1995) in order to provide a systematic, structured approach that provides personal meaning for the reader (Miles, 1990). Vignettes were chosen to reveal how common themes were present within the context of the current research, and to provide a vivid picture of the common experiences participants had throughout the DPA certification process. The three vignettes presented in this study represent a compilation of multiple participants in the study. The person represented in each vignette is a composite of multiple participants' and their perspectives. Drawing on the commonalities across individual cases, whether they were negative cases or emerging themes, the patterns of teacher behaviors formed a story about a portion or small group of participants. The number of participants represented by a vignette will be introduced in each section.

Vignette One: The Teacher as the Advocate

An advocate is someone who supports, speaks out, and promotes those issues they believe in, which in this context is in relationship to children's physical activity and health. With regard to the training centered around implementation of the CSPAP and the assumption of the role of DPA, the teacher advocate was someone who, prior to training, had already begun to implement at least one component of the CSPAP and got their administration on board by presenting stories of success within the current context. There were five teachers who this vignette drew upon. These teachers were able to convey positive experiences throughout the DPA certification process, attributed to their ability

175

to advocate within their school environment. Through the eyes of the teachers, this was what an advocate represented.

As I walked into the training, I was so excited to be experiencing something new and "cutting edge." I have so many things going on within my school and I cannot wait to learn what others are doing in the realm of physical activity throughout the school day. Prominent professors in the field of physical education greeted me as I entered the training, and I just knew it was going to be a good day. I could feel the good vibes and the "PE buzz" throughout the room. There were lots more teachers than I had expected. Most of them looked like people from my district, however I did see a few groups of others who I did not recognize.

As the DPA training proceeded I learned a lot of new things. One of the things I learned was how to advocate to people within my school about the importance of physical activity. All of the "brain stuff" presented was awesome and I thought it would be very beneficial for me to use as leverage in the future. Another thing that stuck out to me was the idea that I was not alone. I tended to do things on my own because I wanted it to be done right the first time, but sometimes this becomes overwhelming and burdensome.

The trainers really stressed the fact that I needed to facilitate the process of change within my school, not necessarily do everything myself. Although this was not a novel concept, it really hit me that if I wanted to sustain the changes I had in

mind I would have to incorporate other people into the equation. The coolest part about the whole training was that it made me feel good about what I was already accomplishing within my school building; reaffirming the fact that I was on the "right track" with the new ideas I had already implemented.

When I left the training I was excited to proceed with my "action plan". I was not exactly sure what I was going to do yet, but I knew I wanted to improve the physical activity opportunities for my students as well as increase opportunities for my fellow staff members.

At the end of the summer I had decided that for my action plan I was going to create an afterschool running club for my students. This would give them an opportunity to be physically active outside of school. In order to make this work, I contacted my principal right away. I discussed my action plan with her and she was all about it. She thought that it would provide an excellent service for our students and parents within the community. Not only would children have the opportunity to be physically active outside of school, they would also have a safe place after school to stay for free until their parents arrived to pick them up.

Now it was time to make it happen. We scheduled the dates of the running club around afterschool tutoring, so the children would not have to miss out if they needed to attend their tutoring after school. Then I began to recruit teachers, parents, and other faculty members to help me with the running club. I needed someone to hand out "lap markers" and others to help monitor all the children that would be attending.

To my surprise I had a few volunteers that were committed to helping over the entire year. Never in a million years would I have imagined all of the support I received to make my physical activity opportunity happen.

Next, was advertising the running club to my students. First, I sent out a letter to all the parents of our 3rd, 4th, and 5th grade students, as this was my targeted population. Then, I began advertising the club around the school building by hanging up signs, posters, and I even created a separate bulletin board within my gymnasium. I tried to encourage all of my students to come and even told them about incentives that I had planned based on their attendance. For each five miles completed, students would earn a foot token to signify their participation. The foot tokens allowed the students to display, on a key chain or necklace, to their friends and families how many miles they had completed in running club.

On the first day of running club the students showed up and were ready to go. We had over 100 students present and some even brought their parents and siblings. There was so much enthusiasm at the beginning, but after time went by, the number of students attending running club started to dwindle. Some changes were necessary, so I decided that the club needed to participate in an event to help motivate students to keep coming to running club. So, I advocated to a local business to pay for the students in our running club to attend and participate in the local 5k. To my surprise the business said yes!

This gave the students something to look forward to and more began coming back to running club. By the end of the year students were asking about when running club was going to start the following year, and students who were too young to participate this year were so excited that they would have the chance next year.

All in all, creating a running club was an amazing experience. Although it took a lot of work up front, the students really enjoyed it. Previous experience implementing new physical activity opportunities (i.e. family fitness nights, fun runs, classroom PA breaks) led to events being organized and carried out by myself. My administration and other teachers were supportive of the implementation, but the events turned out to be very burdensome. It is amazing what can happen when you ask for help and allow others to use their strengths and abilities to enhance your ideas. I knew that my school had supported the things I had done in the past, but I never would have dreamed that a running club would have been possible. Thanks to all the help and support from students, parents, teachers, and staff – It was!!

Vignette Two: Novice Techsters

A novice techster was someone who experienced challenges with the use of technology. Sometimes the struggles were internal; they chose or consciously decided that they did not want to participate in technological endeavors. Other times the struggle was external; they attempted to use technology to communicate with others and turn in assignments, but had trouble successfully navigating the use of the technology itself. The technological resistant teacher had a hard time navigating online systems and finding a useful means for the technology offered. This vignette is a drawing together the profiles of six teachers who participated in the DPA training. It represents an accumulation of the struggles they encountered using technology, or the choices that they chose to make centered around the use of technology in the classroom. The vignette that follows represents the use of technology during the DPA process as seen from the novice techsters' perspective.

Walking into the DPA training, I was excited and interested to see what was in store for me. The night before my spirits had been dampened a little because I found out I had to complete this giant, online survey. The survey had been sitting in my email for a week, but it's summer and I don't really check my email very often.

When I went to sign on and log in to the survey, I did not understand what I was supposed to do and my anxiety went up.

Apparently, I did not do it right because when I arrived at the training in the morning I was told that I had not submitted it. I had to sit down and complete the entire 150-question survey by hand; I wish they had mailed it to me in the first place.

Once the training started, I began to understand that it was a really neat concept that we were going to learn about. There were teachers from different districts within the state as well as professors who came from all over the U.S. We experience a lot of professional development in our district, but this one was really fun and refreshing. It was different because it was a national initiative that we were able to attend, but also was very relevant to our profession and tangible to integrate into the school setting.

During the training, I learned all kinds of new things to implement with my students during the school day. We were taught about the benefits physical activity has on the brain and on student learning. The trainers also discussed how physical activity should not only be integrated during the school day, but before and after school as well as with our faculty and administration. I especially liked the session about active recess; it was interactive and I learned a lot of new activities that I wanted to try to incorporate into my physical education classes in order for my students to be more active at recess. I think all of the stuff presented is extremely important for my students.

These are opportunities they need, but are not necessarily getting from home. It is my duty as a physical education teacher to make sure they have as many physical activity opportunities and experiences as possible, just like I tried to provide for my own children.

At the end of the training we were presented with a list of things to accomplish. The first thing on the list was called an action plan. I was excited to get started on my action plan as I had so many ideas that I wanted to implement into my school environment. It was also explained that there would be a set of online modules to complete and we were expected to submit a bunch of stuff online in order to receive our certification. I wanted to start that as soon as possible so I could get it out of the way before school started. I knew once school started things would get hectic and I wouldn't have time to complete tasks outside of my duties at school.

That night when I returned home from training, I started to read about all of the stuff I needed to complete. I decided that I would get started the following Monday, as school was going to be starting soon and I didn't want to get busy and then not be able to get certified.

Monday morning came and I logged into what I thought was the DPA website. However, it was actually the NASPE website, not DPA;

it talked about DPA but I couldn't find anything that I needed to complete on it. Now I was confused. I contacted the head trainer by email and she gave me the correct site that I needed to log in to. So I did, but it was so confusing. It wasn't like anything I had ever seen before. It definitely did not look like my email system. There were all kinds of links to the side and stuff that I was "supposed" to look at. As I sat there staring blankly at my screen I sent another email off to the head trainer. What was I suppose to do on this website. It says that I am supposed to attach and submit my action plan as well as view modules. But where were the modules located? I had no clue; I felt helpless and confused.

In the second email response from the trainer I received a step-by-step guide of how to complete everything in Moodle (what the website was called). All I could think to myself was Yipee!! I finally had a guide to walk me through what I needed to complete. As I started to go through the directions, I just couldn't follow along. I figured out some parts of the website (i.e. going through each module PowerPoint), but I just could not figure out how to attach my action plan. I finally just decided that I would start enacting my action plan and worry about submitting it later. It was not making sense for me to spend so much time trying to figure out how to submit it.

About three months after the training I received an email that someone was going to come to our district professional development and talk to us about the DPA certification process. I thought to myself, "Oh No!" I haven't submitted anything for that; I completely forgot.

So, I frantically tried to log onto the website, however I couldn't get it to work!

The next day I expressed my concerns about the website to the trainer. I told her how much trouble I had with it and how I was no longer able to sign in. As I began to share my woes I was surprised that other teachers began to chime in about their technology issues with the website. It just seemed like the DPA certification process should allow us to mail in all the stuff they needed, or at least email it to them because the website they were using was just too complicated. Luckily, the trainer was able to work with me very closely and ended up accepting all of my documents by hand. Phew, I'm so thankful I did not have to try and figure out that website.

Vignette Three: Local Community of Practice Member

A member of a community of practice has responsibilities for the other group members, but the community must also support its members in ways that are meaningful and relevant. The community of practice that was put into place for the DPA teacher participants was a technology based discussion board and a social media website. These communities were set up so that the teachers could communicate, share ideas, and give advice to each other. The community of practice member was a teacher who expressed interest in a virtual CoP, but did not participate in the pre-designed forums. This teacher represents the voices of those who expressed the need for a local CoP, or formed their

own CoP within their individual district. This particular vignette is a representation of seven teachers who completed the DPA certification process. These teachers yearned to be connected with people who could help them become successful in implementing CSPAP within their school, as well as shared effective strategies that worked in their own school with others in their district. By looking through their eyes, this teacher represented how a community of practice could be most effective for them.

> I did not recognize a lot of people when I entered the room where the DPA training was being held. I arrived with a couple other people from my district, so we grabbed a seat in the auditorium and waited for the training to begin. While I was waiting I observed numerous people walking in and sitting down; this was unexpected because even though we did not know how many people were actually invited to the DPA training there were more than we had thought.
>
> During the training we were asked to do some icebreaker activities so we could get to know one another, including people from other districts. This was really great since I was able to meet and observe people from other districts around the state and hear about all of the neat things they were doing within their individual school settings. There were a lot of opportunities for us to mingle with one another and learn more about other districts within the state. As the training came to an end, we all got into our cars and went our separate ways.

I did not really feel the need to exchange contact information with anyone that I had met, as I just wasn't thinking about needing to communicate with the other participants in the future. As the group I came with drove home, we discussed the training, the events of the day, and talked about what our goals were and then went our separate ways.

Then we began getting emails about the DPA certification process and the training I had just attended. In these emails the trainers began to talk about communicating with other DPA participants online through Moodle and a private Facebook page. Although I saw what was available online I chose not to participate. There were a couple reasons why I felt this way. First, I don't like to mix my private life and my school life. I tend to stay away from social media in regards to school. Besides that, it is really hard to use these types of websites at school because most of the sites are either blocked from the school server or their use is frowned upon by administration. Second, I don't have time during school to get on the computer. Most of my time is spent prepping for classes, supervising, and teaching. There just isn't time to log on to the computer and talk to other people about DPA. The third reason why I chose not to use the social media sites to keep me connected to other people within the DPA was that I just felt like the people in my district could help me the most. They taught in a similar area as myself, had similar students, and understood the woes of our district and therefore could provide me the most support. Sharing and communicating with others about DPA was a great idea, however I just wanted to

communicate with my district peers rather than communicating with those outside.

I tried to communicate with people from my district as much as possible. In the first couple months after the training, I facilitated emails back and forth with those who attended the DPA trainings. My emails mainly focused on what other people were doing and how they were implementing their action plans. Overtime, people started to communicate with each other through email. These conversations centered on asking and answering specific questions about what we had to hand in for certification, and the progress or lack thereof that we were making in implementing our action plans. Although these brief emails were helpful, what I found most useful is when we were able to get together at a planned professional development and talk about what we had accomplished on our own with DPA. Although it wasn't designated "DPA time", our district coordinator allowed the DPA group time at the professional development to collaborate, and I was so happy that she did. It was a space that allowed us to hear all the exciting things that others were doing, gain and share our own ideas, and think about how we could improve our own school environment. There were some people that had some really neat things going on at their schools such as family fitness nights, running clubs, and staff wellness events. We discussed our accomplishments and the challenges we were experiencing in trying to affect change in our schools. These conversations were extremely helpful because I realized that I wasn't the only one who had roadblocks to overcome as I implemented my action plan. Hearing others' experiences and how

they worked through and around any issues as they arose was very helpful in thinking about my own school environment.   I wish that we had more opportunities to get together with the DPA participants in our district. I really enjoyed the conversations we were able to have and I think the district should facilitate this as part of the DPA training experience. Ideally, it would be awesome if the district allowed us release time to help facilitate change in our buildings and allow these conversations to happen amongst people within our district on a monthly basis. Not only would I as a teacher benefit from this given time but I truly believe it would benefit our students the most in the long run because it will allow teachers to collaborate with one another, figure out what works, and apply it within the school setting.

CHAPTER FIVE: DISCUSSION

The primary aim of this research study was to determine physical education teachers' perceptions and self-efficacy regarding their roles and responsibilities related to the implementation of the Comprehensive School Physical Activity Program (CSPAP) model, before, and as they progressed through the National Association for Sport and Physical Education (NASPE) Director of Physical Activity (DPA) certification process. Specifically, it was the intention of the researcher to gain baseline understanding of current physical education teacher practice and to determine the feasibility and effectiveness of the NASPE DPA training on modifying the practice of those teachers who wished to implement the CSPAP model in their school setting.

INTERPRETATION OF FINDINGS

Given the current health status of children in the United States, it is necessary that children and adolescents be presented with more opportunities to be physically active throughout the day in order to meet the recommended minutes and ensure the health benefits. Findings from this dissertation revealed that most teachers who participated in the DPA certification process were already redefining their role as a physical education teacher, by moving beyond the traditional stereotyped roles and responsibilities such as offering team sport game play and offering students more opportunities to be physically active. Previous research has suggested that teachers already have a high workload and may not be able or willing to handle additional responsibilities because they already have so much that they are responsible for doing within the school environment (Ballet & Kelchtermans, 2009; Easthope & Easthope, 2000). Additional responsibilities, like developing a new recess program or organizing a community-based wellness event, could lead to teacher burnout (Burke & Greenglass, 1993; Koustelios & Tsigilis, 2005). A substantial finding in this study was that teachers within the field of physical education were already exhibiting signs of CSPAP implementation in their school environments, thus corroborating previous pilot studies (Centeio, 2011). Specifically, without any prompting from professional development, some physical education teachers reported that they already provided additional physical activity opportunities for their students to enjoy as part of their physical education employment. Overall, the new opportunities implemented by teachers predominantly focused on physical activity within the classroom as well as providing physical activities for families and community members.

Interviews revealed that physical education teachers perceived their role as already including responsibilities that reached far beyond simply providing physical education lessons. Many teachers believed the rise in childhood obesity and the frequency of sedentary behavior during the school day, made it imperative to offer physical activity opportunities, if normal growth and development were to transpire. Further, teachers felt responsible for implementing physical activity throughout the school day because it was their job to preserve any possible outlet that would get children to be more physically active. This is clearly evident within the first theme that emerged, *Ready to Lead the Charge*, as many teachers believed if they did not take the lead and offer more physical activity opportunities, then no one would. As the self-identified expert on physical activity in the school setting, they sensed that it was indeed part of their job description (although not explicitly stated) to facilitate physical activity engagement.

Both attendees and non-attendees of the DPA professional development agreed that is the responsibility of the physical education teacher to facilitate and offer a multitude of opportunities to participate in physical activity. The DPA professional development was a significant predictor of number of opportunities that were provided because it assisted the teachers by increasing efficacy and supplying much need strategies for targeted intervention.

Traditionally, when physical education specific professional development was offered, which is not always possible, it typically only focused on physical education instruction. However, over the last decade, some scholars have started to suggest that the

physical education teachers' responsibilities should include targeting leisure and community time. Ennis (2006) suggests that reduction in physical education time to accommodate core subjects such as reading and math is one such reason why physical education teacher should make connections to the community resources and opportunities. Specifically, Ennis discusses a program called "Physical Education in the Park" which allows students to use a local parks and recreation department to gain safe access to walk and bike trails, rock climbing walls, in-line skating and skateboard venues, as well as the opportunity to play on safe, manicured fields. Further, Ennis asserts that the promotion of safe community based opportunities should be provided to students and families as a responsibility of the physical education teacher, because this is what is best for children. Since there is little time to integrate community resources such as swimming pools, recreation centers, and hiking trails into physical education lessons, the teacher must instruct students on how to utilize these facilities on his/her own time. Because parent involvement and support is a necessary element when considering student health as well as success in school, engagement in community-based physical activity has merit. All of the teachers in this present study acknowledged these ideas and thoughts, and a few carried out its development. As such, the inclusion of the family and community component of the CSPAP was deemed both justified and feasible by the findings in this study.

As a continued call to involve schools to provide physical activity for health promotion and disease prevention, McKenzie (2007) profiles how the role of the physical education teacher should be redesigned to include opportunities for physical activity

191

throughout the school day. Specifically, McKenzie envisioned teachers who reprioritized the content of physical education to be more health- over sport-oriented. This idea is significant as it is calling for physical education teachers to make change in the school environment and increase physical activity opportunities both during the school day and within the greater community (McKenzie, 2007). Teachers within the present study embraced the idea of redesigning their role as a physical education teacher to include offering opportunities for children to be physically active outside of the physical education classroom. Specifically, teachers chose to implement activities within four components of the CSPAP and were able to significantly increase the amount of opportunities offered. Consequently, encouraging the physical education teacher to restructure the school day to include less sedentary time is warranted and achievable.

Implications for Physical Education Teachers

The results provided in chapter four of this dissertation are significant to physical education teachers for several reasons, such as the novelty of the research, the need for continued education, and necessity to help teachers to overcome imposed barriers to instruction and the provision of physical activity opportunities. To the best of the knowledge of the researcher, this is the first research to examine the perceptions of physical education teachers regarding the reshaping of their roles and responsibilities to include providing additional physical activity opportunities outside of the physical education lessons. Although many scholars have suggested and deemed it necessary in realm of children's public health (Beighle et al., 2009; Castelli & Beighle, 2007; Rink, 2012; McKenzie, 2007; Ennis, 2006), it was not until now that we begin to understand

the feasibility and potential of physical education teachers. Given the current public health concerns and needs of today's students, it is apparent that physical education teachers have reshaped their roles to involve tasks that they were initially and formally trained to deliver. The DPA certification program helped physical education teachers to modify their role in addressing public health issues related to the sedentary behaviors of children, by increasing their efficacy toward some physical activity opportunities, providing them implementation strategies, and "ideas" for overcoming barriers.

Professional development. The outlined purpose of the professional development focused on preparing teachers to implement the CSPAP model, which if accomplished, would therefore provide a chance for children, educational personnel, family and community members to be more physical active. The significant increase in the number of physical activity opportunities provided by trained verses untrained teachers, suggest that with training, physical education teachers are capable of serving in the capacity of a DPA and of implementing the CSPAP as intended. Further, the DPA training was a significant predictor of the number of opportunities that would be offered by a given teacher, within a given school context.

A secondary, but important intention of the professional development was to increase teacher self-efficacy related to providing physical activity at five different points of intervention. Although the professional development alone did not significantly increase teacher self-efficacy for providing all physical activity opportunities at all points of intervention, teacher efficacy was also a significant predictor of the number of physical activity opportunities that were provided before and after school, for families and

community members, and that centered around staff wellness. Just as important, was that the professional development was equally effective across years of teaching experience and gender. Findings suggest that experienced and inexperienced teachers can equally benefit from this professional development.

Current literature is critical of professional development workshops that are only offered once with little to no follow-up, as they seem to be unsuccessful in deeming change in behavior or the environment (Locke, 2006; Darling Hammond, 1998; Ball & Cohen, 1999). It was important to the developers of the DPA professional development was physical education content specific and that this professional development experience include follow-up training that would hold teachers accountable (Desimone 2009; 2011). Quality professional development is necessary to facilitate school reform and establish a culture of physical activity within the school setting. Given the state of physical education in school and the lack of time contributing to the recommended level of physical activity for children, content specific professional development is needed to help teachers facilitate the changes needed to provide additional opportunities for students to be physically active as well as to help teacher overcome barriers such as limited time and resources.

Facilitators and inhibitors. Although experiences within the DPA certification process helped to enhance physical activity opportunities for children, there were still barriers that existed when teachers worked to achieve additional opportunities for physical activity throughout the school day, including administration, time, funding, and lack of understanding technology. Follow up support, even a second training day, may be

a valuable addition to consider adding to the current structure of the professional development series to better assist teachers in overcoming barriers.

First, results indicated the primary inhibitor/facilitator within the DPA certification program was technology. Teachers struggled with the use of technology in various parts of the DPA certification process. Despite the belief that all teachers were familiar with the elements of online courseware such as Moodle (e.g., uploading documents, participating in chats and forums, and downloading materials such as power points) this study revealed that in fact only a few of the teachers possessed these skills. Technology training needs to be included in teacher preparation programs, school district level professional developments, and the DPA training when preparing teachers to take on the roles and responsibilities of a DPA.

In addition to technology, results indicated that a supportive administration was important in the role of creating change within the school environment, because they were the gatekeepers of daily schedules, budgets, and facilities. It was evident that teachers, who had administrative support while assuming the role of becoming a DPA, found themselves facing fewer barriers to overcome than those who did not have the initial support of their administration. Through interviews and informal conversations, some teachers expressed concern about the lack of support from their administration and felt that they were continually fighting for every change that they wanted to make related to offering additional physical activity opportunities for their students. Those teachers who felt supported reported fewer barriers and perceived that they were able to implement changes with ease. Scholars, such as Castelli and Rink (2002) discussed the

importance of a supportive administration in leading to educational change and defined

administration as both and inhibitor and facilitator of educational change. Similarly,

Castelli and Ward (2012) stated the importance of administrator support in creating

school change and accordingly encouraged a DPA to record share physical activity,

fitness, and academic achievement data with an administrator so they would understand

the perceived benefits of engagement. When sharing these benefits, teachers should focus

on how physical activity engagement is directly related to academic learning time and

academic achievement.

Researchers identified seven characteristics of an administration that is supportive

to the physical education teacher, school change, and student health; (a) trusting, (b)

values professional development, (c) hands-on, (d) supportive to the teachers needs, (e)

keeps teachers informed, (f) follows through on promises, and (g) is a good problem

solver (Butler & Mergardt, 1994). Findings from this research study suggest that

teachers need more specific strategies to encourage administrators to support such

innovations as the CSPAP. More information could be given to the DPA certification

participants as to how they might go about advocating to their administration about the

importance of CSPAP in the school setting. It would also be beneficial for teachers to

understand the characteristics of a supportive administration so that they might be able to

target their advocating to certain aspects of support. It remains unclear how much

discussion and what type of instruction may be best for achieving this outcome, as further

study is warranted.

Another identified facilitator/inhibitor was planning time and implementation time. Teachers had to not only plan in advance to establish the time in which they wanted to offer opportunities for physical activity, but many were asked to plan around already established programs such as latch-key programs and tutoring options that traditionally took place after the school day had ended. In many instances, teachers were asked to provide opportunities before the school day began or on days when other after-school activities did not occur. For example, one teacher developed a running club to implement as an after school program, because she felt her students needed a chance to be active right when school let out. She also believed that it would be a good opportunity for parents who would normally pick their children up from school to have the option to participate in the running club as well. As she entered the planning phase she was told that she could not implement anything after school because of tutoring and latchkey programs, fearing that the children would skip the other programs for a chance to be physically active. The teacher was forced to either choose a separate physical activity opportunity, or carry out her plan in the morning instead of in the afternoon. Ultimately, she chose to continue offering a running club, but instead host it before school. This became a great point of intervention for her school as many students and families participated in the morning club. Similarly, a second teacher was denied an opportunity to create a daily afterschool, physical activity program and was given the ultimatum of Friday after school or nothing at all. She also decided to carry the program out every Friday and in turn overcame her barrier with a successful Friday running club.

In addition to the barrier of time to implement opportunities, teachers also perceived the lack of planning time as a barrier. Although teachers felt that this was a barrier in the implementation process, it is important to understand that teachers still planned and implemented the additional physical activity opportunities because they felt that it was extremely important in the school environment. During the interviews, teachers expressed the desire to obtain paid professional development time to network, develop, and plan occasions for children to be physically active as well as have additional time to plan for DPA responsibilities (e.g., one preparation period to organize physical activities across the curriculum, or a planned day of professional development with a substitute for classes). The teachers had plenty of innovative ideas and seemed motivated to carry out the steps necessary for implementation, but expressed feelings of a lack of preparation time to do so. Although teachers expressed this need for additional planning time, few teachers discussed expressing this need to their administration or district physical education coordinators. This barrier could be overcome through online modules or additional training where teachers could be encouraged and taught how to advocate for their specific planning needs.

Long term planning is a skill that all teachers are prepared to conduct; however, with some teachers in this study, it appeared to be more of an inhibitor than a facilitator. In addition to the barriers listed above, teachers also had to compete for time with other activities going on throughout the school year, whereby the event must be included on the annual calendar, if facilities were needed. Several teachers discussed the importance of planning ahead to assure the inclusion of specific school-wide events. Several teachers

198

conveyed the urgency of planning all physical activity opportunities at the beginning of the school year. One teacher discussed in his interview how the school calendar filled up unusually fast and how administration liked to be informed of planned events as early as possible. The teacher expressed that if he had not been "on the ball" and had everything planned before the school year started, he would have never been able to secure a night for his family fun night. Another teacher who struggled with securing time for students to be active afterschool due to organized sports and other clubs that are offered also identified this barrier. Planning around organized sport activities was "doable" but a challenge in the planning phase to make sure that everyone in the school was receiving an equivalent opportunity to be physically active.

Discovering time was a barrier is nothing new, as several research studies have corroborated this finding (Boyle, Jones, & Walters, 2008; Hammerschmidt, Tackett, Golzynski, & Golzynski, 2011). Time was reported as the number one barrier to physical activity in a research study conducted by Boyle, Jones, & Walters (2008), and concluded this was mainly due to the undervaluing and low prioritization of physical activity set by administration and staff, given the trivial number of physical activity opportunities (e.g., physical one day per week, no recess, etc.). Another study that focused specifically on classroom teachers' integration of physical activity and nutritional habits throughout the school day also found time to be a major barrier in implementation (Hammerschmidt et al., 2011). Hammerschmidt, Tackett, Golazynski, & Golzynski (2011) interviewed 91 classroom teachers and administrators about barriers and facilitators that surrounded the implementation of nutrition programming and additional physical activity throughout the

school day. It was reported that an overwhelming amount of teachers and administrators

(84% K-8, 54% 9-12) felt time was a major barrier to implementation by stating that

designating time to promote activities outside of academics was extremely difficult given

the push for academic success. In summary, teachers consistently report time as a barrier

to physical activity opportunities felt that it could be overcome with strategic lesson

planning and dedication to implementation (Boyle, Jones, & Walters, 2008;

Hammerschmidt et al., 2011).

Despite the comprehensive nature of this research and the support from other

research, it remains unclear specifically why time continues to be a barrier and how it can

best be overcome. For example, did the teachers ask administration for planning time and

were denied or did the teachers just assume that they would not get the planning time

they needed? Did the teacher get denied because they are always asking for planning or

were they denied because of a contractual constraint that states that all teachers have to

receive equal planning time? Further, were the teacher requests reasonable (e.g.,

requesting one paid work day or professional day to carry out the implementation plan for

the new program)? Further research targeting teacher perceived inhibitors and barriers is

warranted.

The final facilitator/inhibitor was access to financial resources. Teachers

participating in the DPA certification program were highly creative in providing

additional opportunities for children, despite a limited access to resources and materials.

Teachers did not receive financial backing outside of their physical education budget to

implement additional responsibilities, therefore new programs or physical activity

200

opportunities were created at little to no expense. It was the intention of the CSPAP trainers to foster implementation strategies at low or no cost to the district, as a means of directly overcoming financial barriers. In this current economic climate, cost-effective programming is necessary element of educational reform, as schools are continually burdened by another unfunded mandate. Although this lack of funding did not hinder teachers from implementing additional opportunities, many expressed that to change the culture to include physical activity in the school setting, more financial support might be needed.

Lack of funding to provide physical activity for children is a common challenge in research that has been conducted on barriers related to physical education and physical activity in the school setting (Barroso, McCullum-Gomez, Hoelscher, Kelder, & Murray, 2005; Boyle, Jones, & Walters, 2008; Hammerchmidt et al., 2011). Hammerschmidt et al. (2011) reported cost as a top hindrance in implementation of quality physical education and physical activity into the school environment. While the teachers thought that funding was a major obstacle, similar to teachers who participated in the DPA certification program, they believed there were ways to expand the integration of physical activity into the school environment, despite of the lack of funding. Even though schools did not support implementation with monetary funds, some teachers took it upon themselves to find financial support within the community to help implement activities for the children.

Despite the presence of some inhibitors, teachers perceive themselves as the ones within the school environment who should be the Director of Physical Activity, because

they possess the necessary expertise to provide such opportunities. Each of the teachers in this study faced at least one inhibitor and corresponding developed a strategy to overcome the said barrier. Some teachers have to dramatically revise their implementation plan and intensions, while others, simply had to convince their principal or gain access to facilities. Although not overtly stated by the teachers, it was observed by the researcher that advocacy was a valuable and essential skill for teachers, when conquering inhibitors.

Implications for Professional Development

Despite the addition of 51 additional physical activity opportunities for children, families, community members and school staff, in just 13 schools in the Southwest, the DPA training was ineffective in some areas. The hope is that by modifying some elements of the DPA certification program that more teachers will be able to facilitate comprehensive implementation of the CSPAP. Several specific suggestions emerged among the data.

From these data it is clear that the DPA certification program effectively increases the number of physical activity opportunities for individuals within and beyond the physical education setting. However, since this is a new program, it is only fair to scrutinize its effectiveness and reconsider the format of delivery. First, it is highly evident that the one-workshop is effective and an impactful experience, as evidenced by multiple data sources and teacher actions (e.g., "its like church camp"). However, the initial workshop should be expanded to include specific technology skills that teachers will need to know in order to successfully complete the DPA certification program. For example,

trainers should provide a hands on website training where DPA participants learn how to submit artifacts, locate additional resources, modules, and forums within the Moodle DPA site, and log into the DPA social media web services. In reality, the DPA training might be more effective if it was offered over a period of two days where the first day would remain as is, but a second day was included where teachers come back and have a hands-on training with the website. This will hopefully allow teachers to feel less anxious about potential technology problems and help them feel more comfortable with the DPA process as a whole. It would also be beneficial during the second day of the training to introduce teachers to the social media sites where communication is able to take place in a private setting. This might encourage more use of networking with the social media domain. With training in technology and the strategies associated with the implementation of the CSPAP model, teachers are ready and willing to embrace the DPA as a responsibility of their employment. Although, beyond the scope of this research, given the current context of schools and needs of today's students, a comprehensive study of the facilitators and inhibitors to physical activity opportunities is necessary.

Second, teacher efficacy toward working with families, community members, and students in before and after school settings is increased through this program and is a significant predictor of number of physical activity opportunities provided and therefore this should remain a focal point. To sustain the momentum of the initial workshop a follow-up or "booster" workshop should be added to the process. This would not only foster efficacy, but more importantly it would potentially help teachers overcome barriers, and possibly even address issues related to the implementation. This follow-up

workshop should be regional, bringing together professionals who work in similar contexts (e.g., urban versus rural) and should take place about three to four months after the initial DPA professional development. Furthermore, this regional meeting should be facilitated by a NASPE representative, who has been professionally trained to assume the role of facilitator.

The third and final suggestion for improvement includes encouraging physical education teachers to meet with someone in his or her district who is a policy maker. This could include assistant principals, principals, deans, board of education members, or superintendents, etc. The meeting should be designed to allow the teacher to practice their advocating skills and discuss the changes that they have implemented or are planning on implementing within the school setting. Authentic practicing of advocacy skills is one of the ways that teachers will begin to refine their skills. Since advocacy skills are important in re-structuring the school day to include additional physical activity opportunities for children, it is essential that teachers have ample time to practice and refine their abilities. If the previous mentioned improvements are made within the certification program, it is the belief of the researcher that physical education teachers will be provided with the ultimate experience to help them successfully complete the DPA certification program and be able to confidently implement additional opportunities for children to be physically active.

Implication for Physical Education Teacher Education (PETE)

This research provides insight as to the skills that future physical education teachers will need to effectively assume the evolving roles and responsibilities of a

modern physical education teacher. If physical education teachers are not prepared to take on this role within the school environment, other professionals such as classroom teachers, doctors, nurses, and those specializes in public and community health will be called in to fill the void. Since the physical educators in this study positively perceived change in responsibilities these findings should inform teacher educator as they make choices about what content, pedagogical knowledge, and learning experiences are offered during K-12 physical education teacher certification process. Specifically, pre-service teachers should be prepared with the skills and knowledge to successfully implement CSPAP components within the school environment. This researcher believes that teacher educators should focus on three key areas to help teachers integrate CSPAP within their school environments: (a) introduction to CSPAP and implementation strategies, (b) field experience requiring planning and delivery, and (c) advocacy training.

Introduction to CSPAP and implementation strategies. Similar to the DPA training, pre-service teachers need to be introduced to the five components of CSPAP. Without an awareness of the CSPAP model and its components, pre-service teachers might mistakenly believe that CSPAP is a replacement of physical education. It is important that PETE professionals stress the importance of a quality physical education program within the CSPAP as this is where students will formally learn the knowledge and skill to be physically active for a lifetime. Further, pre-service teacher should understand the unique characteristics and implementation strategies affiliated with CSPAP component. Because the strategies are empirically-based, pre-service teachers should comprehend the supporting literature. Of particular importance is preparing pre-

service teachers to understand the short and long term benefits of physical activity on children's physical and cognitive health as a byproduct of both physical education programming and the implementation of the CSPAP model. Without this knowledge future teachers might overlook the importance of physical activity within the school environment.

Introduction to the CSPAP could be delivered as its own stand-alone class and embedded field experience or the teacher educator who is a NASPE certified trainer could offer certification through a series of course organized as specialization. Ideally, CSPAP can be immediately integrated into the existing pedagogical scope and sequence. Each class should touch on the components of CSPAP and begin to relate the content into physical activity throughout the school day. In order to achieve the national physical education content standards, physical education teachers already need to think in terms of providing additional positive physical activity experiences. Collectively, it is believed that these early career experiences help pre-service teachers to adopt CSPAP as part of the physical education teachers' responsibility instead of looking at it as an additional responsibility to take on.

Field experience requiring planning and delivery. In addition to having the knowledge of CSPAP, working knowledge of empirically-based best practice, and an understanding of CSPAP implementation strategies future physical education teachers should be prepared to plan and implement each component of a comprehensive physical activity plan. Pre-service teachers, as part of their field experience hours should be given the opportunity to design, plan, and implement a physical activity opportunity for K-12

206

students outside of physical education class. Included in the early field experiences, after the pre-service teachers have an understanding of physical education pedagogical experiences students should be provided with the opportunity to implement one component of CSPAP in an educational setting. The development and integration of such learning experiences requires planning and collaboration. Specifically, planning time may be necessary to secure additional facilities that will allow students to come in and provide content related brain breaks, begin morning wellness assemblies, provide organized recess, start an afternoon running club, or even host a wellness night that is open to parents and the community. Once students have had the chance to plan and implement additional physical activity opportunities they should reflect on what made the program successful and how it could be improved for future use. Arming pre-service teachers with these types of experiences seems intuitively invaluable, as efficacy will be increased by authentically implementing CSPAP in the school environment.

Advocacy training. Throughout the DPA certification process, teachers faced many inhibitors in relation to CSPAP implementation. In order to overcome these barriers within the school setting teachers need to learn how to advocate for themselves, their students, as well as for physical education and physical activity. Preparing pre-service teachers to be advocates of physical education and physical activity is an important part of PETE programs' responsibility. Not only do teachers need the skills to communicate the needs of their students, but they also need to be prepared to express the importance of physical education and physical activity. Knowing how physical activity benefits children including the physical and mental benefits is one aspect, but

207

understanding how to communicate these important points with other teachers, principals, and parents is also a key concept that often goes untouched. Refinement of advocacy skills only comes with practice.

Advocacy is promoted within the field of physical education (Tappe & Burgeson, 2004) but few talk about advocacy in relation to learning it from experiences within PETE programs. McKenzie (2007) discusses the importance of pre-service teachers learning advocacy skills such as collaboration and communication that will allow them to develop interactive skills and help teachers feel comfortable having conversations with people who make decisions such as administrators, superintendents, school boards, and state and national level policy makers. Physical education teachers can make a major impact on the physical activity level of children within their physical education classroom, however without effective communication and promotion skills they will not be able to successfully share the importance of children's physical activity outside of the physical education setting.

THEORETICAL AND PRACTICAL IMPLICATIONS

This research was grounded in a theoretical framework that centered on the development of Communities of Practice (CoP) and teacher self-efficacy. This framework permitted the researcher to compare the desired learning objectives of the professional development with the artifacts generated over a one-year period through the implementation of CSPAP's. Data from this study have far reaching implications for the establishment of CoP and how self-efficacy may be enhanced among physical education teachers.

Community of Practice

Emerging literature suggests that learning communities can support professional development and help address issues of school reform (Wegner, 1998). In an attempt to support school reform to include additional physical activity opportunities for children, this study attempted to use social media as an interface to help foster a community of practice (CoP) among DPA participants. A critical finding in this research study was that teachers were open to the development and commitment to a CoP, however in this particular instance teachers did not use social media as a forum for their CoP and suggested the DPA certification program provide other means for a CoP to occur.

A CoP relies on the principle that learning is a social process and should be placed in the context of lived experiences (Wegner, 1998). CoP only exist if three integral parts are present, (a) the domain, (b) the community, and (c) the practice. In an attempt to increase the likelihood of school reform from individual teachers, venues for a CoP were put into place to help facilitate the social process for teachers. However, given the online nature of the designated communities many flaws were present in the formation of a true CoP.

First, although *the domain* was designated as the DPA, many teachers struggled with *the domain* because they perceived the CoP discussions as not applicable to their specific school setting. Teachers liked and encouraged the idea of forming a CoP about the CSPAP implementation and evolution into the DPA, but wanted for it to be within their own school district because they thought it would be more applicable to their own students. Because teachers felt the ideas from others outside their district would fail, the

purposefully designed and orchestrated CoP was a non-facilitator. A lack of a shared

domain inhibited "buy in" to the community. Teachers feared failure of ideas that came

from teachers in districts other than their own because these teachers were unfamiliar

with each other's teaching situations and student populations. Teachers seemed as though

they were more efficacious about students within their own district and became less

efficacious when others who were not familiar made suggestions. Teacher efficacy is

often content specific and in this instance teachers were only confident implementing

suggested physical activity opportunities if it had previously been successful in a similar

setting with a similar population.

The second essential part to a CoP is *the community,* which also struggled to form

successfully within the DPA certification program. *The community* within a CoP is the

relationship built among participants. Although online communities were set up and

designated for DPA certification participants, teachers really desired a face-to-face

interaction. Most teachers were able to fill this void by gathering with other DPA

participants within their own district, which successfully created a local CoP, but was

unsuccessful in reaching out to participants outside of the district. These findings are

similar to other CoP research conducted by Kimble and Hildreth (2005) where they found

that creating an online CoP was dependent on the development of relationships in the

physical environment through face-to-face meetings which allowed participant

relationships to transfer to the online CoP. The researchers that created the online CoP

did not meet the need for relationships, which are more easily fostered in face-to-face

environments. Since relationship are built over time, individuals need to continually revisit one another to develop a sense of community.

In this study, the underdeveloped sense of community also affected the third component of a CoP called *the practice*, which is not just shared interests that people have in common, instead it is interests that are developed, accepted, and continuously refined among participants. To develop a CoP, members must engage in a contributory reflective process. Unlike this DPA Moodle website with the multiple resources for the teachers to "take" as needed, the CoP requires contributions and "buy in" if practice is to be reshaped. Within the DPA certification program, *the practice* was seen in small communities within districts, but never really developed as an overall DPA group, because of the minimal buy in and sharing of resources and ideas among the teachers.

In order for a CoP to be successful among all of the DPA participants, teachers need to be provided with additional face-to-face time, such as additional workshop days or regional conferences, to develop a sense of community and trust in other DPA participants. In order to help facilitate this, the DPA certification program should be communicating and advocating to the individual districts and administrators associated with participants who attend the DPA certification program. Providing districts and administrators with knowledge about the certification program might result in additional time off to participate in a CoP or additional professional development opportunities for the physical education teacher. Even if the DPA certification program targeted local CoP's and required monthly or bi-monthly gatherings to help teachers gather outside of the school setting to begin to form these much needed social relationships. Helping to

211

facilitate these initial gatherings might help jumpstart *the community* and *the practice* portions of the CoP, leading to more complete outcomes of school reform.

Teacher Efficacy

How confident a teacher is in delivering a specific learning task, influences student academic achievement (Bandura, 1977). Because efficacy is specific to a task or a context, it was unclear whether or not physical education teachers were efficacious about providing physical activity opportunities for students, staff, and family and community members on school grounds. This was the first study to secure empirical evidence of teachers efficacy related to the implementation of the CSPAP. The findings of this study suggested participation in the professional development and teacher efficacy were significant predictors of the number of physical activity opportunities offered. Yet, teacher efficacy was only significant for three of the four components measured (e.g. physical activity opportunities before and after school, family and community, and staff wellness opportunities).

While the control group self-efficacy declined over the year, the self-efficacy of teachers who completed the professional development rose, but were not significantly different. Specifically, teacher efficacy was significantly higher than the control group teachers for the most novel responsibilities and points of intervention. The number of inhibitors within the context may also have influenced teacher efficacy, as initially efficacy rose, but the reality of having an unsupportive administrator diminished the effects. Other research that focuses on teacher efficacy, suggests that a lack of an increase in efficacy over an intervention period could be due to a high level of teaching efficacy

that had been gained over previous years of implementing the given task. For example, Bandura (1997) discusses teacher efficacy and cautioned that positive changes in self-efficacy may only come through "compelling feedback that forcefully disrupts the pre-existing disbelief in one's capabilities" (p.82). This would signify that in order for teacher efficacy toward CSPAP to significantly change, teachers would have had to believe that they were unable to implement changes within their school environment.

Observation and interview data revealed many characteristics that are common in teachers who are highly efficacious including teachers ability to employ effective problem solving skills, development of strategies to be more effective in implementing physical activity opportunities, the ability to manage emotions well, and extreme persistence in the face of failure (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

Given the nature of this study, one of the benefits of the DPA certification process could have been to provide sufficient motivation to act on the teachers' existing levels of efficacy, this is consistent with findings in other research areas on self-efficacy (Bartholomew, Miller, Ciccolo, Atwood, & Gottlieb, 2008; Uys et al., 2009). Specifically, Bartholomew et al. (2008) studied efficacy among other variables when implementing a fruits and vegetable intervention in a special population of women. They determined that self-efficacy levels did not rise throughout the intervention and contributed this lack of change to high baseline levels of efficacy that could have in turn had an effect on their motivation to eat fruits and vegetables. In summary, if a teacher had a preexisting belief that CSPAP implementation was possible, self-efficacy may not increase with professional development or the corresponding implementation.

Furthermore, if teachers were already emotionally attached to providing physical activity opportunities to students then it is likely that these emotions had a positive influence on their self-efficacy toward physical activity from the beginning.

<center>**DE-LIMITATIONS AND LIMITATIONS**</center>

It is important to acknowledge the de-limitations and limitations that were present in this research study. Among the de-limitations are: a) region of country, b) lack of random sampling, and c) lack of specific efficacy scale, while the limitations included, a) sample size, b) lack of random sampling, and c) lack of cultural diversity among participants.

De-Limitations

First, state mandates and policies that in place within the state where the DPA training and implementation occurred were deemed as a de-limitation. Given the novelty of the first-ever DPA training, teachers who participated in the DPA certification process were located in a state that already had a high level of physical activity opportunities offered within the school environment, due to state mandates such as the required implementation of Coordinated School Health, 135 minutes of physical activity per week, and a School Health Advisory Committee. Due to the mandates set by the state, schools and their SHAC had an initial involvement in physical activity within their school environment. The second delimitation was the lack of random sampling of participants. Teachers who attended the training were "higher level" physical educators, as they were recommended and identified by their district as being the best and therefore recommended to the national organization to attend the initial training. Given the "high

<center>214</center>

quality" status attributed to teachers who attended the DPA training this could limit generalizability of the current study. Finally, the last delimitation of this research study was the lack of efficacy scale to explicitly look at teacher efficacy toward implementing physical activity throughout the school day. Although some of the questions on the efficacy scale used encompassed physical activity, results might have been clearer surrounding teacher efficacy if a scale existed measuring specifically efficacy toward physical activity throughout the school day. The researcher hopes to create a scale in the near future to address this delimitation.

Limitations

First, sample size was tremendously reduced from the beginning of the study to the end of the study. This drop in participation is attributed to participants having a lack of knowledge of the initial DPA training and certification process. Because participants were selected to participate in the initial DPA training, they had the choice of whether or not they continued on for certification. Due to various reasons this choice resulted in a significant drop in treatment participants from pre to post. Furthermore, lack of a randomized sampling is also a limitation. A third limitation to this research study included the lack of cultural diversity among the participants. Although the schools in which the participants taught were extremely diverse in nature, the population of teachers represented in this study was predominantly Caucasian. While this is consistent among the teaching force in physical education it is important to look at the implementation of CSPAP among a diverse population of teachers.

Given the previously mentioned delimitations and limitations presented, the researcher cautions generalizability to other regions of the United States and other countries. However, despite the delimitations and limitations addressed here, given the novelty of this research study it provides unique insight into the roles and responsibilities as well as the thoughts and perceptions of physical education teachers regarding the reshaping of their role to include CSPAP within the school environment.

RECOMMENDATIONS FOR FUTURE RESEARCH

The present study yields informative knowledge about CSPAP's and is a catalyst of future research to explore unanswered questions about the role of the physical educator in implementing CSPAP's. Although one could target the limitations in the research design and methodological approaches, the researcher is convinced that the implications of this research have set a new field of investigation in motion. Suggestions for future research include, but are not limited to: (a) follow up investigation of sustainability, (b) impact of CSPAP implementation on children's MVPA, (c) compare level of MVPA produced among components, (d) impact of CSPAP among students of color, (e) determine how administrators perceive CSPAP, (f) examine the relationship of CSPAP as a tool for differentiated learning, (g) analyze effective CoP within the physical education setting, (h), explore how CSPAP is taught in physical education teacher education programs, and (i) examine successful strategies to address facilitators/inhibitors.

a. Follow up investigation of sustainability is warranted in order to determining the long-term effects that the DPA certification process has on increasing physical activity opportunities for students.

b. Examine the impact of CSPAP on the MVPA levels of children. This will help to determine the level of impact these additional opportunities have on the health outcomes of children.

c. Explore which component of CSPAP contributes to the most MVPA for children in order to efficiently help children accomplish their goal of 60-min/day.

d. Compare different implementation areas, as well as the effect that CSPAP implementation has on the MVPA levels of students of color.

e. Determine how administrators perceive CSPAP in their school setting. This is important because it will help to address facilitators and inhibitors that are specifically related to administrative support.

f. Examine the relationship of CSPAP as a tool for differentiated learning. Specifically, how it might be used as an option to meet different students' needs (physically handicapped, obese students, learning disabled, specific cultural needs).

g. Analyze the use of CoP within the physical education setting to determine most effective implementation strategies as well as examine how physical education teachers' perceive the usefulness of a CoP within the physical education community.

h. Explore how DPA and the implementation of CSPAP within the school environment is integrated into the curricula of PETE programs.

i. Examine successful strategies to address facilitators/inhibitors within the CSPAP implementation process.

CONCLUSIONS

Positively impacting and reversing trends in childhood obesity is at the forefront of the health industry. Schools have been identified as a logical place to impact childhood obesity factors, however for this to transpire physical education teachers must continue to reshape and redefine their roles through professional development and advocacy. As stated by Basch (2011), student and teacher health must be embedded in school reform efforts, because an unhealthy child is not ready to learn.

The present study explored the feasibility of reshaping the roles and responsibilities of the physical education teacher to include DPA responsibilities. Findings indicated that physical education teachers are ready to assume the responsibilities of the DPA in the school setting. Teachers feel that it is their duty to combat childhood obesity both inside and outside the physical education classroom. Furthermore, it was discovered that teacher efficacy was a significant predictor in determining the amount of physical activity opportunities offered within the school setting. Given the need for reducing trends of childhood obesity coupled with the availability of children within the school setting, schools and physical education teachers should embrace the ideas of implementing CSPAP in their school setting with a DPA. This study represents multiple cases in which the CSPAP had been successfully implemented, the task now becomes one of generalization to schools in others state where mandates may not be as supportive.

Table 1. Eight Components of Coordinated School Health Programs

Component	Description
Health Education	Includes a K-12 curriculum that addresses the physical, mental, emotional, and social dimensions of health, while teaching children how to improve their personal health, reduce health-related risk behaviors, and prevent disease
Physical Education	Includes a K-12 curriculum that addresses psychomotor, cognitive, and affective domains of physical activity, while exposing children to a variety of physical activities to promote students' physical, mental, emotional, and social development; teaches students to enjoy and live an active and healthy lifestyle
Health Services	Intended to "foster appropriate use of primary health care services, prevent and control communicable disease and other health problems, provide emergency care for illness or injury, promote and provide optimum sanitary conditions for a safe school facility and school environment, and provide educational and counseling opportunities for promoting and maintaining individual, family, and community health" (NCCDPHP, 2008)
Nutrition Services	Includes the meals that are served in school cafeterias, which should meet the U.S. Dietary Guidelines for Americans; offers a 'learning laboratory' for classroom nutrition and health education, giving students the opportunity to put their knowledge into practice
Counseling, Psychological, & Social Services	Services to improve students' mental, emotional, and social health; includes individual and group assessments, interventions, and referrals
Healthy School Environment	Encompasses the physical and aesthetic surroundings, the psychosocial climate, and the culture of the school
Health Promotion for Staff	Provides opportunities to encourage staff to pursue a healthy lifestyle
Family/Community Involvement	Family and community involvement in advisory committees, coalitions, and services to enhance the health of students

Table 2. Tasks Completed by the Teachers for Certification

Tasks Completed by Teachers for Certification
1. Complete the CSPAP index
2. Participate in the one-day workshop
3. Complete the E-learning modules
• Physical Education
• Physical Activity During the School Day
• Physical Activity Before and After School
4. Implement the CSPAP and submit artifacts
5. Participate in the social networks and discussion forums
6. Pass the certification exam
7. Complete the CSPAP post – index

Note: The format of the E-learning modules permits the teachers to access materials and resources at their own pace and convenience, therefore these tasks do not need to be completed in a linear, sequential manner.

Table 3. Teacher and School Characteristics

Name	Gender	Ethnicity	Teaching Experience	School Size	Level Taught	Primary School Ethnicity	Percentage of Economically Disadvantaged Students
John	M	Caucasian	27	804	Elem.	Hispanic (82.3%)	88.1%
Cassidy	F	Caucasian	24	626	Elem.	Hispanic (94.7%)	91.1%
Sheralyn	F	Caucasian	19	788	Elem.	Caucasian (45.4%)	46.3%
Molly	F	Caucasian	1	893	Elem.	Hispanic (89.9%)	84.4%
Laura	F	Caucasian	28	823	Elem.	Hispanic (96.5%)	91.3%
William	M	Caucasian	3	438	Elem.	African American (75.8%)	89%
Nathan	M	Caucasian	4	786	Elem.	Hispanic (86.3%)	87.7%
Winnie	F	Caucasian	22	263	Elem.	Caucasian (58.2%)	81.4%
Rachel	F	Caucasian	6	2,457	Sec.	Hispanic (57.6%)	45.4%
Lexi	F	Caucasian	7	657	Elem.	Hispanic (49.8%)	69.4%
Lila	F	Caucasian	9	964	Elem.	Caucasian (45.9%)	5.5%

Table 4. Pre and Post Test Variable Descriptive Statistics and Range Values by Group

| | Pre Test | | | | | | Post Test | | | | | |
| | Treatment | | | Control | | | Treatment | | | Control | | |
Variable	M	SD	Range	M	SD	Range	M	SD	Range	M	SD	Range
1. Gender	1.70	.48	1-2	1.71	.47	1-2	1.69	.48	1-2	1.72	.46	1-2
2. Ethnicity	1.00	0	1-5	1.76	1.30	1-5	1.00	0	1-5	1.61	1.24	1-5
3. Teacher Experience	12.46	9.29	1-40	19.35	13.13	1-40	13.54	9.41	1-40	19.4	13.13	1-40
4. T.E. Student	17.85	1.81	4-20	16.29	4.46	4-20	18.46	1.45	4-20	15.1	4.4	4-20
5. T.E. Space	11.31	3.50	4-20	12.59	4.77	4-20	10.15	1.99	4-20	11.7	5.20	4-20
6. T.E. Time	12.30	4.27	4-20	12.29	4.51	4-20	11.15	3.05	4-20	11.9	3.87	4-20
7. T.E. Institution	14.07	3.25	4-20	15.17	4.11	4-20	14.46	2.87	4-20	14.8	3.68	4-20
8. T.E. PA During	20.16	2.61	5-25	19.47	5.76	5-25	21.46	2.60	5-25	19.1	5.3	5-25
9. Opportunities During School	4.00	1.63	0-17	4.42	2.55	0-17	4.69	1.84	0-17	4.72	2.63	0-17
10. Opportunities Before and After	3.31	1.54	0-13	3.88	1.73	0-13	3.46	1.61	0-13	3.17	2.2	0-13
11. Opportunities Family and Community	3.00	1.53	0-10	2.88	1.69	0-10	3.77	2.12	0-10	2.83	1.72	0-10
12. Opportunities Staff	2.23	1.01	0-8	1.94	1.52	0-8	3.23	1.69	0-8	1.89	1.4	0-8

Note. *p<.05, **p<.01; This table represents both pre and post variable descriptive statistics and range. Teacher Experience = years of teaching experience, T.E = teacher efficacy

Table 5. Variable Descriptive Statistics, Range, and Internal Consistency Values

	Pre Test				Post Test			
Variable	*M*	*SD*	*Range*	*α*	*M*	*SD*	*Range*	*α*
1. Group	1.43	.50	1-2	-	1.43	.50	1-2	-
2. Gender	1.70	.47	1-2	-	1.70	.47	1-2	-
3. Ethnicity	1.43	1.04	1-5	-	1.43	1.04	1-5	-
4 Teacher Experience	16.87	11.80	1-40	-	16.87	11.80	1-40	-
5. T.E. Student Pre/Post	16.97	3.61	4-20	.78	16.43	3.83	4-20	.79
6. T.E. Space Pre/Post	12.03	4.25	4-20	.78	10.87	4.15	4-20	.79
7. T.E. Time Pre/Post	12.30	4.33	4-20	.88	11.73	3.47	4-20	.85
8. T.E. Institution Pre/Post	14.70	3.74	4-20	.78	14.80	3.31	4-20	.78
9. T.E. PA During Pre/Post	20.20	4.67	5-25	.77	20.03	4.53	5-25	.77
10. Opp. During School Pre/Post	4.23	2.18	0-17	-	4.83	2.23	0-17	-
11. Opp. Before and After Pre/Post	3.63	1.65	0-13	-	3.37	1.94	0-13	-
12. Opp. Family and Community Pre/Post	2.93	1.60	0-10	-	3.27	1.95	0-10	-
13. Opp. Staff Pre/Post	2.07	1.31	0-8	-	2.50	1.66	0-8	-

Note. $*p<.05$, $**p<.01$; This table represents both pre and post variable descriptive statistics, range, and internal consistency values. Group = intervention and non-intervention, Teacher Experience = years of teaching experience, T.E = teacher efficacy, Opp. = Opportunities

Table 6. Treatment Group Variable Intercorrelations Values

Pre Test											
Variable	1	2	3	4	5	6	7	8	9	10	11
1. Gender	-	.15	.23	-.24	.21	.12	-.03	.11	.25	.68*	.16
2. Ethnicity	-	-	-	-	-	-	-	-	-	-	-
3. Teacher Experience	.17	-	.56*	-.25	-.49	-.06	-.03	.11	.02	-.08	.71*
4. T.E. Student Pre/Post	.22	.49	-	-.12	-.31	-.24	.68*	.34	-.16	-.03	.43
5. T.E. Space Pre/Post	.32	.26	.23	-	.32	.24	.64*	-.63*	-.27	-.05	-.12
6. T.E. Time Pre/Post	.26	-.38	-.06	.02	-	.44	.02	-.53	.27	.40	-.56*
7. T.E. Institution Pre/Post	.29	.05	.07	.42	.45	-	-.52	-.64*	-.44	.29	-.06
8. T.E. PA During Pre/Post	.12	.68*	.78**	.29	-.46	.07	-	.29	-.36	-.15	.55*
9. Opp. During School Pre/Post	-.12	-.01	.18	.01	-.26	-.13	.03	-	.40	.07	.40
10. Opp. Before and After Pre/Post	.52	.04	.12	.11	-.15	-.18	.08	.58*	-	.25	-.05
11. Opp. Family and Community Pre/Post	.58*	-.13	-.13	.05	.26	.36	-.09	.24	.54	-	.11
12. Opp. Staff Pre/Post	.40	.26	.29	.34	-.09	.27	.45	.35	.57*	.71*	-
Post Test											

Note. *p<.05, **p<.01; This table represents both pre and post variable intercorrelations. Correlations for the baseline variables begin in the top right corner of the table, whereas post data begin in the bottom left corner of the table; Teacher Experience = years of teaching experience, T.E = teacher efficacy, Opp. = Opportunities

Table 7. Control Group Variable Intercorrelations Values

	Pre Test											
Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	-	.08	.14	.49*	.25	.01	.16	.26	.32	-.12	-.05	.15
2. Ethnicity	.01	-	.06	.01	-.34	.24	-.07	-.12	.05	-.07	-.35	-.26
3. Teacher Experience	.19	.11	-	.49*	.53*	-.01	.65*	.50*	.25	-.15	.37	.10
4. T.E. Student Pre/Post	.26	-17	.37	-	.79**	-.55*	.74**	.93**	.37	.30	.44	.39
5. T.E. Space Pre/Post	.28	-.35	.52*	.59*	-	-.58*	.78**	.85**	.49*	.21	.67**	.48
6. T.E. Time Pre/Post	-.19	.09	-.04	-.31	-.17	-	-.33	-.51*	-.04	-.44	-.57*	.44
7. T.E. Institution Pre/Post	.01	-.11	.52*	.48*	.68**	.03	-	.82**	.52	.13	.66**	.52*
8. T.E. PA During Pre/Post	.23	-.23	.53*	.87*	.70**	-.33	.70**	-	.45	.33	.50*	.43
9. Opp. During School Pre/Post	.22	.04	.26	.39	.40	-.04	.71**	.54*	-	-.03	.39	.43
10. Opp. Before and After Pre/Post	-.07	-.04	.03	08	.05	.15	.33	.07	.46	-	.32	.47
11. Opp. Family and Community Pre/Post	.09	-.09	.04	.14	.35	-.03	.64**	.38	.68**	.61**	-	.78*
12. Opp. Staff Pre/Post	-.23	-.09	.23	.19	.26	-.05	.68**	.38	.48*	.69**	.72**	-
	Post Test											

Note. *p<.05, **p<.01; This table represents both pre and post variable intercorrelations. Correlations for the baseline variables begin in the top right corner of the table, whereas post data begin in the bottom left corner of the table; Teacher Experience = years of teaching experience, T.E = teacher efficacy, Opp. = Opportunities

Table 8. Variable Intercorrelations Values

Pre Test

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Group	-	-.02	-.37*	-.25	.22	-.15	.00	-.15	.18	-.10	-.18	.04	.11
2. Gender	-.02	-	.06	.15	.38*	.08	.10	.14	.17	.24	.03	.25	.15
3. Ethnicity	-.37*	.06	-	.14	-.07	-.21	.17	-.00	-.17	.08	.02	-.27	-.25
4 Teacher Experience	-.25	.15	.14	-	.41*	.35	-.15	.46*	.46*	.26	-.05	.22	.22
5. T.E. Student Pre/Post	.47**	.17	-.25	.15	-	.55*	-.46*	.48**	.90**	.33	.14	.32	.40*
6. T.E. Space Pre/Post	-.15	.25	.11	.39*	.39*	-	-.27	.62**	.63**	.20	.08	.42*	.30
7. T.E. Time Pre/Post	-.15	.01	.07	-.06	-.25	-.06	-	-.05	-.48**	-.18	-.16	-.19	-.47**
8. T.E. Institution Pre/Post	-.09	.14	.01	.36	.38*	.68**	.12	-	.57**	.21	-.04	.52**	.33
9. T.E. PA During Pre/Post	.28	.17	-.24	.39*	.86**	.57**	-.36	.55**	-	.39*	.12	.34	.45*
10. Opp. During School Pre/Post	-.06	.15	.05	.21	.38*	.42*	-.19	.46*	.47*	-	.11	.28	.41*
11. Opp. Before and After Pre/Post	.04	.16	-.12	.06	.15	.09	.01	.14	.11	.45*	-	.28	.28
12. Opp. Family and Community Pre/Post	.23	.32	-.11	-.10	.19	.22	.03	.47**	.47**	.46**	.56**	-	.56**
13. Opp. Staff Pre/Post	.39**	.07	-.21	.11	.37*	.19	-.14	.42*	.42*	.35	.59**	.73**	-

Post Test

Note. *p<.05, **p<.01; This table represents both pre and post variable intercorrelations. Correlations for the baseline variables begin in the top right corner of the table, whereas post data begin in the bottom left corner of the table; Group = intervention and non-intervention, Teacher Experience = years of teaching experience, T.E = teacher efficacy, Opp. = Opportunities

Table 9. Multivariate and Univariate Analysis of Variance for Baseline Teacher Efficacy Measures

| Source | Multivariate | Univariate | | | | |
	F^a	TE Student[b]	TE Space[b]	TE Time[b]	TE Institution[b]	TE PA DS[b]
Group	2.46	3.80	.79	.01	.07	2.42
MSE		35.40	13.06	.13	.88	40.71

Note. Multivariate *F* ratios were generated from Wilks's criterion. TE_Student = teacher efficacy student subscale; TE_Space = teacher efficacy space subscale; TE_Time = teacher efficacy time subscale; TE_Institution = teacher efficacy institution subscale; TE_PA DS = teacher efficacy physical activity during school subscale.
a. Multivariate *df* = 5, 21
b. Univariate *df* = 1, 25

Table 10. Multivariate and Univariate Analysis of Variance for Baseline
Physical Activity Opportunities Provided

	Multivariate	Univariate			
Source	F^a	Opp. for PA During School[b]	Opp. for PA Before/After School[b]	Opp. for PA Fam. and Comm.[b]	Opp. for PA Staff Inv.[b]
Group	.412	.01	1.06	.01	.20
MSE		.034	3.20	.02	.33

Note. Multivariate *F* ratios were generated from Wilks's criterion; Opp. for PA
during school = opportunities provided for physical activity during the school day;
Opp. for PA before/after school = opportunities provided for physical activity
before or after the school day; Opp for PA fam. and comm. = opportunities
provided for families and community; Opp. for PA staff inv. = Opportunities for
physical activity for staff involvement.
a. Multivariate *df* = 4, 22
b. Univariate *df* = 1, 25

Table 11. Means, Standard Deviations, and Bivariate Correlations for Regression Analyses Dependent Variables

Variable	M	SD	1	2	3	4	5	6	7	8
PA Opp. During School	.60	1.92	.04	-.03	-.12	.05	.01	-.10	-.41*	-.06
1. Group	1.43	.50	-	.41*	.01	-.18	.11	.17	-.10	-.25
2. Δ TE Student	-.53	2.49		-	.11	-.02	.17	.47*	-.27	-.37*
3. Δ TE Space	-1.17	3.50			-	-.04	.39*	.12	.25	.04
4. Δ TE Time	-.57	2.91				-	-.10	-.21	.24	.16
5. Δ TE Inst	.10	2.27					-	.31	-.05	-.24
6. Δ TE PA During	-.17	2.51						-	-.21	-.15
7. Opp During School (Pre)	4.23	2.17							-	.26
8. Teaching Experience	16.87	11.8								-
PA Opp. Before and After School	-.27	1.39	.27	-.30*	-.03	-.07	.01	-.50**	-.20	.14
1. Group	1.43	.50	-	.41*	.01	-.18	.11	.17	-.18	-.25
2. Δ TE Student	-.53	2.49		-	.11	-.02	.17	.47**	-.01	-.37*
3. Δ TE Space	-1.17	3.50			-	-.04	.39*	.12	.11	.04
4. Δ TE Time	-.57	2.91				-	-.10	-.21	.27	.16
5. Δ TE Inst	.10	2.28					-	.31	.29	-.24
6. Δ TE PA During	-.17	2.51						-	.01	-.15
7. Opp Before/After (Pretest)	3.63	1.67							-	-.05
8. Teaching Experience	16.87	11.8								-

Note. Table continued on next page.

Table 11. (Continued). Means, Standard Deviations, and Bivariate Correlations for Regression Analyses Dependent Variables

Variable	M	SD	1	2	3	4	5	6	7	8
PA Opp. Family and Community	.33	1.50	.26	-.17	.06	-.09	.41*	-.14	-.21	-.36
1. Group	1.43	.50	-	.41*	.01	-.18	.11	.17	.04	-.25
2. Δ TE Student	-.53	2.49		-	.11	-.02	.17	.47**	-.08	-.37*
3. Δ TE Space	-1.17	3.5			-	-.04	.39*	.12	.11	.04
4. Δ TE Time	-.57	2.91				-	-.10	-.21	.02	.16
5. Δ TE Inst	.10	2.28					-	.31	-.04	-.24
6. Δ TE PA During	-.17	2.51						-	.21	-.15
7. Opp Fam and Com (Pretest)	2.93	1.60							-	.22
8. Teaching Experience	16.87	11.8								-
PA Opportunities for Staff	.43	1.57	.32	-.04	-.07	-.22	.49**	.05	-.35	-.06
1. Group	1.4	.50	-	.41*	.01	-.18	.11	.17	.11	-.25
2. Δ TE Student	-.53	2.49		-	.11	-.02	.17	.47**	-.03	-.37*
3. Δ TE Space	-1.17	3.50			-	-.04	.39*	.12	.22	.04
4. Δ TE Time	-.57	2.91				-	-.10	-.21	.25	.16
5. Δ TE Inst	.10	2.28					-	.31	-.00	-.24
6. Δ TE PA During	-.17	2.51						-	.07	-.15
7. Opportunities Staff (Pretest)	2.10	1.31							-	,22
8. Teaching Experience	16.87	11.8								-

Note. * $p<.05$, ** $p<.01$; PA opp. during school day = physical activities offered during the school day; PA opp. before and after school = physical activities offered before and after the school day; PA opp. during school day = physical activities offered during the school day; PA opp staff = physical activities offered for staff involvement; Group = treatment or control group; Δ TE student = change in teacher efficacy student subscale between pre and post; Δ TE space = change in teacher efficacy space subscale between pre and post; Δ TE time= change in teacher efficacy time subscale between pre and post; Δ TE institution = change in teacher efficacy institution subscale between pre and post; Δ TE PA during = change in teacher efficacy physical activity during the school day subscale between pre and post; PA opp staff (pretest) = number of physical activity opportunities offered for staff involvement at the beginning of the study; teaching experience = number of years of teaching experience.

Table 12. Regression Analysis Summary for the Variables Predicting Change
Within Each Dependent Variable

Variable	R^2	B	SEB	β
Δ PA Opp. During the School Day	-.05			
Group		.41	.82	.11
Δ TE Student		-.12	.20	-.16
Δ TE Space		.02	.12	.04
Δ TE Time		.11	.14	.17
Δ TE Inst		.03	.19	.04
Δ TE PA During		-.10	.18	-.14
Opp During School (Pretest)		-.46*	.19*	-.52*
Teaching Experience		.01	.04	.01
Δ PA Opp. Before/After School	.31*			
Group		1.14*	.49*	.41*
Δ TE Student		-.11	.11	-.20
Δ TE Space		-.01	.07	-.04
Δ TE Time		-.04	.08	-.08
Δ TE Inst		.15	.12	.25
Δ TE PA During		-.30**	.10**	-.54**
Opp Before/After School (Pretest)		-.13	.15	-.16
Teaching Experience		.02	.02	.15
Δ PA Opp. Offered for Families and Communities	.31*			
Group		1.05*	.52*	.35*
Δ TE Student		-.28*	.13*	-.47*
Δ TE Space		.00	.07	.00
Δ TE Time		.02	.09	.04
Δ TE Inst		.26*	.12*	.40*
Δ TE PA During		-.07	.12	-.12
Opp Family and Com (Pretest)		-.14	.16	-.14
Teaching Experience		-.04	.02	-.34
Δ PA Opp. Offered for Staff	.44**			
Group		1.36*	.51*	.44*
Δ TE Student		-.13	.12	-.21
Δ TE Space		-.09	.07	-.20
Δ TE Time		-.02	.08	-.04
Δ TE Inst		.42**	.11**	.61**
Δ TE PA During		-.30	.11	-.05
Opp Staff (Pretest)		-.47*	.19*	-.39*
Teaching Experience		.03	.02	.21

Group = treatment or control group; Δ TE student = change in teacher efficacy student subscale between pre and post; Δ TE space = change in teacher efficacy space subscale between pre and post; Δ TE time= change in teacher efficacy time subscale between pre and post; Δ TE institution = change in teacher efficacy institution subscale between pre and post; Δ TE PA during = change in teacher efficacy physical activity during the school day subscale between pre and post; PA opp staff (pretest) = number of physical activity opportunities offered for staff involvement at the beginning of the study; teaching experience = number of years of teaching experience.

231

Table 13. Teacher Strategies for Implementation of CSPAP Components

During School Physical Activity Opportunities	Before and After School Physical Activity Opportunities	Family and Community Involvement	Staff Wellness

• Organized Recess
  o Equipment bags
  o Activity cards
  o Painted playgrounds
  o Active supervision
  o Recess carts
  o Activity zones
 	
• Brain Breaks
  o Creation of own videos for classroom teachers
  o Use of Jammin' Minutes
  o Written brain breaks for teachers
  o Classroom activity cards
	• Morning or afternoon running club
	
	• Morning physical activity assemblies
	
	• Physical activity broadcasts
	
	• Open gyms
	
	• Intramural activities
		• Community 5K walk/run
		
		• Wellness nights
		
		• Fitness nights
		
		• Physical education showcases
		
		• Health and wellness field days
		
		• Healthy cooking showcase
			• Walking and jogging clubs
			
			• Lunchtime activity breaks
			
			• Boot camp
			
			• *Biggest Loser* activities

Figure 1. Let's Move in School

APPENDIX A

The following information about the school districts was gathered from the Texas Educational Association (TEA) website http://www.tea.state.tx.us/.

Fowlerville District

The vast majority of study participants were employed by a large North Texas urban school district with student population demographics of 61% Hispanic, 25% African American, 13% White, and 2% other. This district was comprised of a student population that was 75.3% economically disadvantaged and 39.5% English Language Learners. Among the teaching staff in this district, 65% were minority, with 41% of the staff having less than five years of teaching experience. Thirty-one teachers from this district participated in the one-day training after being identified and invited by the district's physical education curriculum coordinator. Those teachers who participated were not a represented sample of the district, with only 14% of the teachers being minority and having an average of 12 years teaching experience. Of the 31 teachers who participated in the training, ten volunteered to be part of the in-depth study. These participants were predominantly White (100%), female (70%), taught at the elementary level (90%), and had an average of 14 years of teaching experience.

Ruper District

An expanding district located in the central hill country of Texas employed a number of the teachers who attended the DPA training. This school district had a student population with the majority white (51%), followed by 26% Hispanic, 11% African

234

American, and 12% other. Of the total district student population, 28.7% of the students were economically disadvantaged and 8% were English Language Learners. The staff in this district reflected the student population with 25% being in the minority and 36.7% of the teachers having less than five years of experience. However, the teachers who participated in this workshop did not represent these demographics. Ten teachers from this district participated in the one-day training. Of those ten teachers, 100% were white and the mean of teaching experience was 18 years. There was one teacher in this district who volunteered to be part of the in-depth study. She was a white female who taught elementary physical education and had eight years of teaching experience.

Armadillo District

A small number of teachers from a large district in Central Texas were also accounted for at the DPA training. This urban district's students were majority Hispanic (59%), 26% white, 11% African American, and 4% other. Of the students who attended this district, 63% were economically disadvantaged and 39% were English Language Learners. Close to 39% of the teachers in this district had less than five years of teaching experience and 36% of the teachers were minority. Five teachers from this district participated in the one-day training after being identified by their physical education curriculum coordinator. Of those five teachers, all were female, 75% were white, and they had an average teaching experience of 19 years. One teacher volunteered to be part of the in-depth study. She was a white female who taught elementary physical education and had six years of teaching experience.

235

Pacifica District

Several teachers from a suburban district in North East Texas also participated in the DPA training. This suburban district was majority white (49%) with 19% Hispanic, 11% African American, and 21% other. Of the students who attended this district, 23% came from economically disadvantaged homes and 12% were English Language Learners. The teachers within this district were 18% minority and 37% had less than five years of teaching experience. Eight teachers from this district participated in the one-day training; 90% were white and had an average teaching experience of 17 years. Of those teachers who participated in the training, one was a middle school teacher, one was an administrator, and eight were elementary physical education teachers. There were no teachers from this district who agreed to participate in the in-depth portion of the study.

APPENDIX B

NASPE Director of Physical Activity training participant:

Welcome! This certification program is designed to add value to your role as a physical education teacher, by identifying you as the expert in the educational setting, who will facilitate implementation of the Comprehensive School Physical Activity Program (CSPAP) model. In order to receive your certification you will need to complete the following tasks over the next year.
1. Participate in the one-day workshop, including completion of the CSPAP index
2. Successfully complete the online certification exam (scoring 80% or higher)
3. Develop and submit an action plan
4. Complete four online modules
5. Contribute to community forums and social networks
6. Upload artifacts evidencing successful implementation of your action plan.
7. Compete the CSPAP index a second time

In order to determine the effectiveness of this program we are inviting you to be a participant in a research study that permits us to analyze the materials that you will have submitted as part of this process. The purpose of this study is to investigate teacher perceptions, emotions, and acceptance of the DPA professional development, as well as efficacy toward implementing the CSPAP model. The researchers believe that the NASPE DPA certification process will benefit both you and the cohorts that follow because you will have a better understanding of the CSPAP model and be aware of how to best overcome potential barriers to its implementation. *You are not required to participate in the research study as part of the NASPE DPA certification process.*

This research is being conducted by Dr. Darla Castelli, who is also a co-chair of the NASPE DPA task force; however, she will not know until after the certification process if you are participating in the research study or not. During the certification process, which may take up to a year to complete only Erin Centeio, a graduate student at the University of Texas at Austin, who is not a member of the NASPE DPA task force will know if the you are part of the research study and will serve as the main contact for answering questions. However, when deciding whether or not to participate in this research study you may contact Darla Castelli or the IRB director Dr. Jody Jensen directly.

As part of the DPA training, you will be required to complete the following items. These items will be/were discussed in detail during the one-day workshop.
- Pre/Post CSPAP Index
- One day training workshop
- Action plans

- Certification test
- Online modules
- Artifact submission

In addition to analyzing documents, we would like to fully understand how teachers think and feel about the DPA training. You may also being asked to participate in a series of interviews (up to three total) to aid in this understanding. Participation in the interviews will contribute to a better understanding of CSPAP model.

Your answers are important in assisting us to provide better training for current teachers that are interested is CSPAP as well as preservice teachers. Further, you will learn about the CSPAP model and its components and your attitude toward each component, which will help you to maximizing your teaching efforts. There is a slight emotional risk to completing the CSPAP index in that you may help uncomfortable about discussing your level of confidence about each of the CSPAP components. There could be the highly rarely occurrence of the loss of confidentiality.

The following steps will be taken to ensure your confidentiality as a research participant:
- Only the research assistant, Erin Centeio, will know which participants have agreed to be in the study. You will be assigned a number that will be used to identify you in the research. You may withdraw your participation at any time without consequence or penalty.
- Data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within in this consent form. In these cases, the data will contain no identifying information that would associate you with it.
- The records from this study will be stored securely and kept confidential. Authorized person from the University of Texas at Austin, members of the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. All publication will exclude any information that will make it possible to identify you as a subject.

If you have any questions about the please ask by using the contact information of the investigators listed at the beginning of this email. If you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Jody Jensen, PhD, Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685 or the Office of Research Support at (512) 471-8871 or email orsc@uts.cc.utexas.edu.

IRB Approval Number: _____
I, the undersigned, hereby consent to participate in the research project. Please type/sign you name in the box.

I, the undersigned, am willing to be contacted about participating in interviews. Please type/sign you name in the box.

Sincerely,

Darla M Castelli

Darla M. Castelli
Associate Professor
Department of Kinesiology & Health Education
Physical Education Teacher Education
Anna Hiss Gym 103, A2000
The University of Texas at Austin
Austin, TX   78712
Office: 512.232.7636

You are invited to participate in a research study entitled, "Director of Physical Activity Professional Development Outcomes." The study is being conducted by Darla Castelli and Erin Centeio from the department of Kinesiology and Health Education at The University of Texas at Austin.
The purpose of this survey is to collect physical education teacher's perceptions regarding the Comprehensive Physical Activity Program (CSPAP) model and as a teacher, how and when you facilitate physical activity opportunities. According to NASPE, a CSPAP encompasses activity programming before, during, and after the school day.

Your participation in the survey will contribute to a better understanding of Comprehensive School Physical Activity Programs. Your answers are important because it can assist us in providing better training for current teachers that are interested in CSPAP. You will be asked to complete the survey at two time points during the year and we estimate that it will take approximately 20-30 minutes each time, totaling one hour of your time.

For your participation in this study your time will be compensated with a $25 dollar Visa gift card.
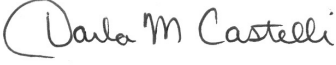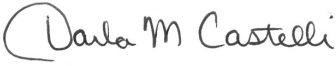
Email addresses will be kept during the data collection phase for tracking purposes only. These data will be deidentified and stored on the researcher's password protected computer and secure filing cabinet. The information gathered will be used in the research and future presentations, but will not be linked to any specific names. A limited number of research team members will have access to these data collection.

If you have any questions or would like us to update your email address, please contact Erin Centeio at (512) 417-3832 or send an email to erin.centeio@gmail.com. You may also request a hard copy of the survey and results of this study using this information.

This study has been reviewed and approved by The University of Texas at Austin Institutional Review Board. If you have questions about your rights as a study participant, or have concerns with any aspect of this study, you may contact – anonymously, if you wish – the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

If you agree to participate in the please type your name in the box.

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Sincerely,

Darla M. Castelli
Associate Professor
Department of Kinesiology & Health Education
Physical Education Teacher Education
Anna Hiss Gym 103, A2000
The University of Texas at Austin
Austin, TX   78712
Office: 512.232.7636

APPENDIX D

Dear DPA Trainer,

You are invited to participate in a research study entitled, "Director of Physical Activity Professional Development Outcomes." The study is being conducted by Darla Castelli and Erin Centeio from the department of Kinesiology and Health Education at The University of Texas at Austin.
The purpose of this study is to collect physical education teacher's perceptions regarding the Comprehensive Physical Activity Program (CSPAP) model and as a teacher, how and when you facilitate physical activity opportunities. According to NASPE, a CSPAP encompasses activity programming before, during, and after the school day.

Your participation in this research study as a trainer will contribute to a better understanding of Comprehensive School Physical Activity Programs in relation to the DPA training. Your answers are important because it can assist us in providing better training for current teachers that are interested in CSPAP. You will be asked to participate in a 30 minute phone interview that will discuss your experience as a trainer throughout the DPA certification process. This interview will be recorded, later transcribed and sent to you for review.

Email addresses will be kept during the data collection phase for tracking purposes only. These data will be deidentified and stored on the researcher's password protected computer and secure filing cabinet. The information gathered will be used in the research and future presentations, but will not be linked to any specific names. A limited number of research team members will have access to these data collection.

If you have any questions or would like us to update your email address, please contact Erin Centeio at (512) 417-3832 or send an email to erin.centeio@gmail.com. You may also request a hard copy of the interview questions or results of this study using this information.

This study has been reviewed and approved by The University of Texas at Austin Institutional Review Board. If you have questions about your rights as a study participant, or have concerns with any aspect of this study, you may contact – anonymously, if you wish – the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

If you agree to participate please respond to this email, or sign your name in the box and return to the address below

[   ]

Sincerely,

Darla M Castelli

Darla M. Castelli
Associate Professor
Department of Kinesiology & Health Education
Physical Education Teacher Education
Anna Hiss Gym 103, A2000
The University of Texas at Austin
Austin, TX   78712
Office: 512.232.7636

Interview Participants
Director of Physical Activity Professional Development Outcomes

Research Conducted by:	**Located at The University of Texas at Austin:**
Darla Castelli, PhD	Kinesiology and Health Education
Erin Centeio, MS	College of Education

Contact Information: Anna Hiss Gym 103/13/15, Wichita St.
Email: dcastelli@mail.utexas.edu 1 University Station
Email: erin.centeio@gmail.com   Mail code: A2000
Phone: (512) 232-7636 (Dr. Castelli's office)   Austin, TX 78712
Phone: (512) 417-3832 (Erin Centeio's office)

NASPE Director of Physical Activity training participant:

Welcome! This certification program is designed to add value to your role as a physical education teacher, by identifying you as the expert in the educational setting who will facilitate the implementation of the Comprehensive School Physical Activity Program (CSPAP) model. In order to receive your certification you will need to complete the following tasks over the next year.
1. Participate in the one-day workshop, including completion of the CSPAP index
2. Successfully complete the online certification exam (scoring 80% or higher)
3. Develop and submit an action plan
4. Complete four online modules
5. Contribute to community forums and social networks
6. Upload artifacts evidencing successful implementation of your action plan
7. Compete the CSPAP index a second time

The purpose of this study: In order to determine the effectiveness of this program we are inviting you to be a participant in a research study that permits us to analyze the materials that you will have submitted as part of this process. The purpose of this study is to investigate teacher perceptions, emotions, and acceptance of the DPA professional development, as well as efficacy toward implementing the CSPAP model. The researchers believe that the NASPE DPA certification process will benefit both you and the cohorts that follow because you will have a better understanding of the CSPAP model and be aware of how to best overcome potential barriers to its implementation. *You are not required to participate in the research study as part of the NASPE DPA certification process.*

This research is being conducted by Dr. Darla Castelli, who is also a co-chair of the NASPE DPA task force; however, she will not know until after the certification process if you are participating in the research study or not. During the certification process, which may take up to a year to complete only Erin Centeio, a graduate student at the University of Texas at Austin, who is not a member of the NASPE DPA task force will know if you are part of the research study and will serve as the main contact for answering questions. However, when deciding whether or not to participate in this research study you may contact Darla Castelli or the IRB director Dr. Jody Jensen directly.

Your participation in this research study:

In addition to analyzing the documents that you submit to the NASPE website or Survey Monkey, we would like to fully understand what you think and feel about the DPA training, therefore, you may also being asked to participate in a series of interviews (up to three total). The format and anticipated time commitment of the three interviews are as follows:
1. Informal interview at DPA training (5 minutes)
2. Phone interview following DPA training (20 minutes)
3. Site visit and interview (up to 90 minutes)

Your total time commitment to the research project will not exceed five hours. The interviews will be audiotaped and the tapes will be coded so that no personal identifying information is visible. The tapes/audio files will be kept in a locked filing cabinet in room 13/15 in AHG and will be used only for research purpose. Once the tapes have been transcribed, you will be sent a copy for your approval. Upon approval of the transcript, the original audiotape and corresponding audio files will be destroyed.

Potential benefits: Your answers are important in assisting us to provide better training for current teachers and preservice teachers who are interested in CSPAP. Further, you will learn about the CSPAP model and its components and your attitude, which will help you to maximize your teaching efforts. In addition to the educational benefits, you will receive a $50 Visa gift card for compensation of your time.

Potential risks: There is a slight emotional risk to completing the CSPAP index in that you may feel uncomfortable discussing your level of confidence about each of the CSPAP components. There could be the highly rare occurrence of the loss of confidentiality.

Confidentiality and Privacy Protections:
- Only the research assistant, Erin Centeio, will know which participants have agreed to be in the study. Participating teachers will be assigned a number that

will be used to identify you in the research. You may withdraw your participation at any time without consequence or penalty.

- Data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within in this consent form. In these cases, the data will contain no identifying information that would associate you with it.
- The records from this study will be stored securely and kept confidential. Authorized persons from the University of Texas at Austin, members of the Institutional Review Board have the legal right to review your research records and will protect the **confidentiality** of those records to the extent permitted by law. All publications will exclude any information that will make it possible to identify you as a subject.

Contacts and Questions:

If you have any questions about the study please ask by using the contact information of the investigators listed at the beginning of this email. If you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Jody Jensen, PhD, Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685 or the Office of Research Support at (512) 471-8871 or email orsc@uts.cc.utexas.edu.

Your participation in the additional interviews is voluntary and will not be required as part of the certification process. You may decline to answer any question, have the right to refuse or withdraw from participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision to participate will have no effect on your relationship with NASPE, UT Austin, or your school. If you wish to withdraw from the study or have any questions, contact the investigators listed above. Your signature below indicates that you have read the information provided above and would like to participate in the described study.

IRB Approval Number: _____

I, the undersigned, hereby consent to participate in the research project. Please type/sign you name in the box.

┌─────────────────────────────┐
│   │
│   │
└─────────────────────────────┘

I, the undersigned, hereby consent to participating the interviews and having them audiotaped as part of the research project. Please type/sign you name in the box.
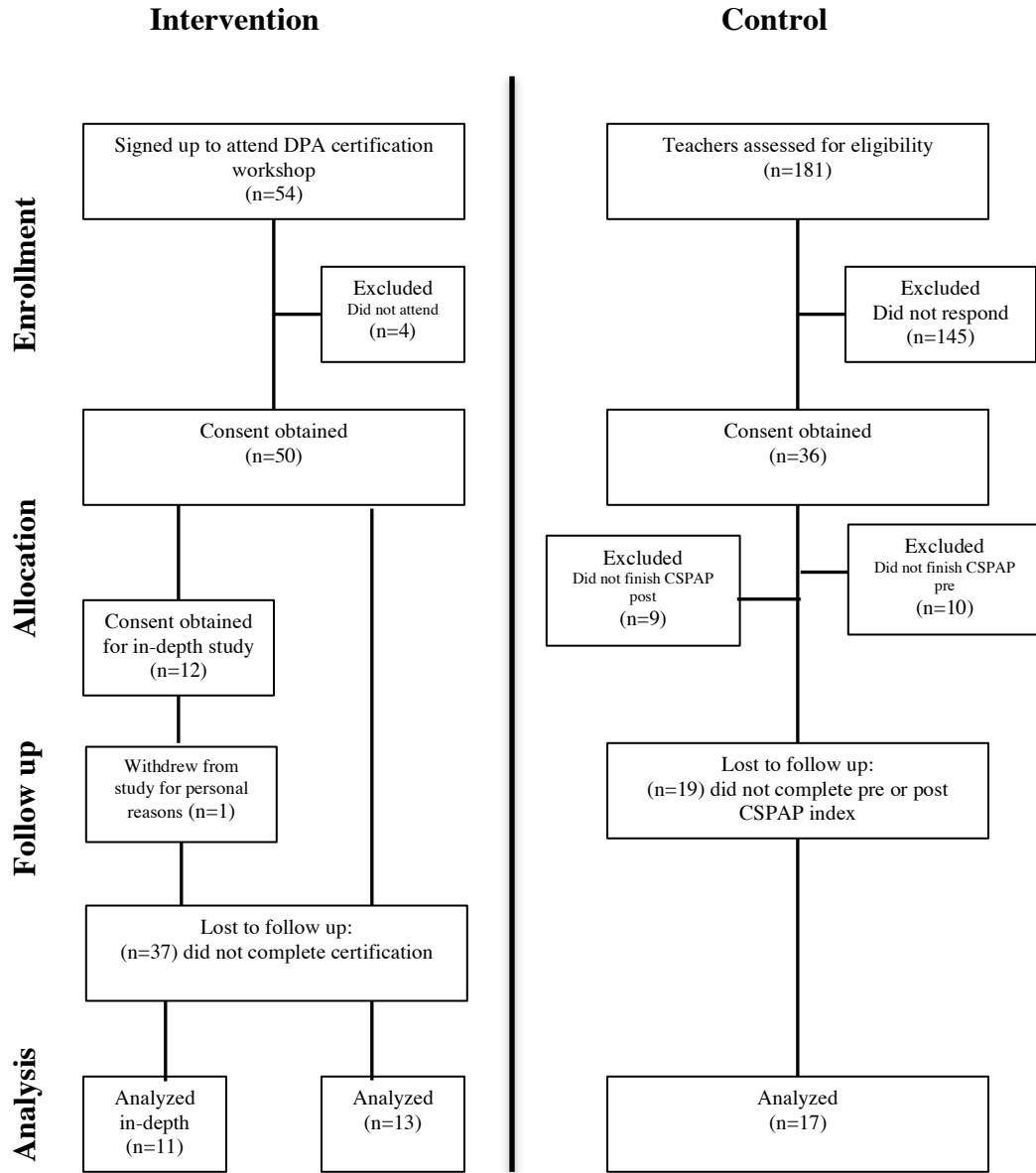
┌─────────────────────────────┐
│   │
│   │
└─────────────────────────────┘

May we contact you by phone for the second interview, if so, what number should we call?

┌─────────────────────────────┐
│   │
│   │
└─────────────────────────────┘

Sincerely,

Darla M. Castelli
Associate Professor
Department of Kinesiology & Health Education
Physical Education Teacher Education
Anna Hiss Gym 103, A2000
The University of Texas at Austin
Austin, TX   78712
Office: 512.232.7636

APPENDIX F

Consort Diagram

Intervention   **Control**

Enrollment

| Signed up to attend DPA certification workshop (n=54) |

| Excluded Did not attend (n=4) |

| Teachers assessed for eligibility (n=181) |

| Excluded Did not respond (n=145) |

Allocation

| Consent obtained (n=50) |

| Consent obtained (n=36) |

| Consent obtained for in-depth study (n=12) |

| Excluded Did not finish CSPAP post (n=9) |

| Excluded Did not finish CSPAP pre (n=10) |

Follow up

| Withdrew from study for personal reasons (n=1) |

| Lost to follow up: (n=19) did not complete pre or post CSPAP index |

| Lost to follow up: (n=37) did not complete certification |

Analysis

| Analyzed in-depth (n=11) |

| Analyzed (n=13) |

| Analyzed (n=17) |

248

Comprehensive School Physical Activity Program Index

1. BACKGROUND AND GENERAL INFORMATION

Comprehensive School Physical Activity Program Index

Reasons why the trainers are requesting completion of this index:

1. To help the Director of Physical Activity trainers to understand your situation.

2. To assist you with the implementation of the Comprehensive School Physical Activity Program (CSPAP).

3. To identify things that you might want to change as part of the certification process.

4. To form groups of trainees who are teaching under similar conditions.

5. To track the effectiveness of the training.

1. Please enter your name.

2. Please enter your current email address:

Comprehensive School Physical Activity Program Index

3. Have you ever won a teaching or coaching award?

- [ ] No - I have not yet won a teaching award
- [ ] Yes - I have won a teaching award
- [ ] Yes - I have won a coaching award
- [ ] Other (Please specify)

4. Gender:

- ( ) Male
- ( ) Female

5. What is your ethnicity?

- ( ) African American
- ( ) Native American
- ( ) Asian American
- ( ) Caucasian American
- ( ) Hispanic American
- ( ) Pacific Islander
- ( ) Biracial American
- ( ) Other (Please specify)

6. How many years have you been teaching?

7. What is your primary responsibility at school?

- [ ] Physical education specialist
- [ ] Health/wellness specialist
- [ ] Principal
- [ ] Assistant principal
- [ ] Other (Please specify)

8. How long have you worked in this position at this school?

Comprehensive School Physical Activity Program Index

9. What type of institution sponsors your employment?

◯ Public

◯ Private

◯ Other (Please specify)

[   ]

10. What grade levels are taught at your school? (check all that apply)

☐ preK

☐ K

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

☐ 8

☐ 9

☐ 10

☐ 11

☐ 12

☐ Other (Please specify)

[   ]

Comprehensive School Physical Activity Program Index

11. What grade levels receive physical education at your school? (Check all that apply)

- ☐ preK
- ☐ K
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ Other (Please specify)

12. What grade levels do you teach? (Check all that apply)

- ☐ Elementary School
- ☐ Middle School
- ☐ High School
- ☐ Other (please specify)

13. How many students attend your school?

14. What percentage of students are eligible for free or reduced school meals in your school?

252

Comprehensive School Physical Activity Program Index

15. This question asks about facilities available for physical activity at your school. Check the boxes to identify if the following facilities are typically available for physical education and for before and after school physical activity programs at your school. (Check all that apply.)

	Physical education	Before school	After school
Gymnasium	☐	☐	☐
Multipurpose room/cafeteria	☐	☐	☐
Blacktop area	☐	☐	☐
Grassy Field (Football/Soccer)	☐	☐	☐
Playground	☐	☐	☐
Regular classroom for indoor physical education	☐	☐	☐
Trailers or mobile building for indoor physical education	☐	☐	☐

2. Physical Education - Part 1

Formal Physical Education Policies

16. Does your school district have a written policy that requires schools to follow specific physical education standards or guidelines? (e.g., NASPE)

○ Yes

○ No

○ Don't know

17. Does your school have a written policy that requires your school's physical education program to follow specific physical education standards or guidelines? (e.g., NASPE)

○ Yes

○ No

○ Don't know

18. Does your school district have a written policy that requires a specific number of minutes per week or a specific number of days per week that students will have physical education?

○ Yes

○ No

○ Don't know

19. If yes, how many minutes?

[   ]

20. Does your school have a written policy that requires a specific number of minutes per week or a specific number of days per week that students will have physical education?

○ Yes

○ No

○ Don't Know

Comprehensive School Physical Activity Program Index

21. Does your school district have a written policy that specifies the maximum student-to-teacher ratio for physical education?

○ Yes

○ No

○ Don't Know

22. If yes, what is the ratio? _____ students to 1 teacher

[   ]

23. Does your school have a written policy that specifies the maximum student-to-teacher ratio for physical education?

○ Yes

○ No

○ Don't Know

24. If yes, what is the ratio? _____students to 1 teacher

[   ]

25. Does your school district have a written policy that requires elementary school physical education programs to test students' fitness levels?

○ Yes

○ No

○ Don't Know

26. If yes, what fitness test do you use? (check all that you use)

☐ Local/district test

☐ President's Challenge

☐ FITNESSGRAM

☐ Other (please specify)

[   ]

27. Does your school have a written policy that requires your physical education program to test students' fitness levels?

○ Yes

○ No

○ Don't Know

28. If yes, what fitness test do you use?

☐ Local/district

☐ President's Challenge

☐ FITNESSGRAM

☐ Other (please specify)

[   ]

29. Does your school district have a written policy that teachers must assign student grades for physical education?

◯ Yes

◯ No

◯ Don't Know

30. If yes, are grades assigned by:

☐ Percentages

☐ Letters (A, B, C, etc.)

☐ Pass/fail or Satisfactory/Unsatisfactory

☐ Other (please specify)

[   ]

31. Does your school have a written policy that teachers must assign student grades for physical education?

◯ Yes

◯ No

◯ Don't Know

32. If yes, are grades assigned by:

☐ Percentages

☐ Letters (A, B, C, etc.)

☐ Pas/fail or Satisfactory/Unsatisfactory

☐ Other (please specify)

[   ]

256

33. Is the grading policy for physical education the same as it is for other core subject areas?

◯ Yes

◯ No

◯ Don't Know

34. Excluding teacher evaluations, does your school district have a written policy that requires your physical education program to be evaluated annually?

◯ Yes

◯ No

◯ Don't Know

35. Excluding teacher evaluations, does your school have a written policy that requires the physical education program to be evaluated annually?

◯ Yes

◯ No

◯ Don't Know

257

Comprehensive School Physical Activity Program Index

3. Physical Education - Part 2

General Profile of School Physical Education

36. How many physical education classes per week do students receive? (Provide an average)

☐ 1 day per week

☐ 2 days per week

☐ 3 days per week

☐ 4 days per week

☐ 5 days per week

Comments: (e.g., block schedule, if students only take PE for a semester; please clarify)

37. What is the scheduled length of a typical physical education class period?
_____scheduled minutes

38. Considering that scheduled time may be lost due to students' late arrival, how many actual minutes are students in the physical education setting? (Provide an average)
_____ actual minutes

39. How many total minutes per week of physical education do students receive? (Provide an average). Add comments, if necessary.

40. What is a typical number of students in physical education class at your school? (provide the average class size)
_____ students

41. What percentage of the physical education program is taught by: (Must add up to 100%)

_____% Certified physical education teachers

_____% Classroom teachers

_____% Instructional aides

_____% Other (Please specify)

42. Are physical education teachers required to attend staff development sessions at least once per year?

◯ Yes

◯ No

◯ Don't Know

43. How many hours of staff development do physical education teachers participate in yearly that are specifically dedicated for physical education? (provide an average)

[   ]

44. Of those staff development sessions specifically allocated to physical education (see time in the previous question), what portion of the time focuses SPECIFICALLY on the promotion of physical activity for students?

◯ 0%-25%

◯ 26%-50%

◯ 51%-75%

◯ 76%-100%

45. Does your school district provide financial support for physical education teacher's professional development?

☐ Yes

☐ No

☐ Don't Know

46. If yes, which of the following expenses are covered? (Check all that apply)

☐ Registration for conferences

☐ Travel to conferences

☐ CEU registration

☐ Other (please specify)

[   ]

47. Does your school have a budget allocation for physical education equipment and supplies?

◯ Yes

◯ No

◯ Don't Know

48. If yes, on average how much does the school spend on physical education equipment per year?

$_____

Comprehensive School Physical Activity Program Index

4. Physical Education - Part 3

Physical Education Content, Curriculum, and Delivery at Your School

49. Are those who teach physical education provided with:

	No	Partially	Yes
Goals, objectives, and expected outcomes for their classes?	☐	☐	☐
A physical education curriculum?	☐	☐	☐
A chart describing the scope and sequence of instruction?	☐	☐	☐
Specific lessons?	☐	☐	☐
Plans on how to assess or evaluate students?	☐	☐	☐

50. Are those who teach physical education required to use a specific curriculum? (e.g., SPARK, CATCH)

◯ Yes

◯ No

◯ Don't Know

51. In general, how frequently does physical education address each of the following categories?

	Rarely	Sometimes	Often
Physical/motor skill development	☐	☐	☐
Understanding movement concepts, principles, strategies and tactics	☐	☐	☐
Expressive movement patterns (e.g., dance, creativity)	☐	☐	☐
Promoting active participation in physical activity	☐	☐	☐
Physical fitness development	☐	☐	☐
Responsible, personal, and social behavior development	☐	☐	☐
Valuing physical activity for health benefits beyond physical education	☐	☐	☐

52. During physical education, how often are students required to do extra physical activity for disciplinary reasons (e.g., run laps for being late; do push-ups for off task or bad behavior)?

○ Rarely

○ Sometimes

○ Often

53. How often do classroom teachers/counselors withhold individual students from physical education to fulfill other academic requirements?

○ Rarely

○ Sometimes

○ Often

54. How often do classroom teachers withhold individual students from physical education for disciplinary reason?

○ Rarely

○ Sometimes

○ Often

Comprehensive School Physical Activity Program Index

55. How often is the delivery of physical education compromised because of competing demands for physical education space (e.g., for pictures, assemblies)?

○ Rarely

○ Sometimes

○ Often

56. How many days during a semester are physical education classes cancelled (e.g., for inclement weather, gym not available, assemblies, etc.)? (Provide the average)

[   ]

57. During inclement weather, is there a space for students to be physically active during physical education?

○ Yes

○ No

○ Sometimes

58. Relative to other subject matter areas, the number of students in physical education class is typically:

○ Similar

○ Smaller

○ Larger

59. Describe how the physical education program is evaluated (Do not include teacher evaluations)

[   ]

Comprehensive School Physical Activity Program Index

5. Physical Education - Part 4

Physical Education Time Relative to Physical Activity

60. How do you promote physical activity engagement during physical education? (Check all that apply)

☐ Teach recess games

☐ Spend 50% of the time in MVPA

☐ Promote physical activity in the home

☐ Have guest presenters from the community provide physical activity opportunities

☐ Other (please specify)

[ ]

61. To what degree do you promote physical activity engagement during physical education?

○ Rarely

○ Sometimes

○ Often

62. How important is physical activity during physical education?

○ Not very important

○ Somewhat important

○ Important

○ Very important

63. What role do you think a physical educator should play in providing activity opportunities during physical education?

[ ]

Comprehensive School Physical Activity Program Index

6. Physical Activity During School

Active Recess, Physical Activity Breaks, Active Classrooms, and Drop in Activities

64. How do you promote physical activity engagement during school? (Check all that apply)

- [ ] Active recess
- [ ] Recess before lunch
- [ ] Classroom physical activity breaks
- [ ] Classroom physical activity lessons
- [ ] Wellness day/week
- [ ] Use decision prompts in schools (e.g., Time to Play!, Got steps?)
- [ ] Provide equipment bags for recess
- [ ] Painted playgrounds
- [ ] Recess curriculum (e.g., Peaceful Playgrounds, Play on!)
- [ ] Lunch hour physical activity opportunities
- [ ] Morning physical activity assemblies
- [ ] Active gaming room
- [ ] Mobile physical activity lab
- [ ] Physical activity equipment in the classrooms (e.g., stationary bikes, physio balls, tread desks)
- [ ] During wait time, teacher use physical activity cards
- [ ] Drop in physical activity sessions (e.g., secondary student go to a supervised fitness center, play frisbee at lunch, open gym)

Other (please specify)

[   ]

65. To what degree do you promote physical activity engagement during the school day?

- ( ) Rarely
- ( ) Sometimes
- ( ) Often

Comprehensive School Physical Activity Program Index

66. How important is physical activity during school?

◯ Not very important

◯ Somewhat important

◯ Important

◯ Very important

67. What role do you think a physical educator should play in providing activity opportunities during school?

[text box]

Physical Activity Breaks, Including Recess

68. Does your school provide all students with scheduled recess daily?

◯ Yes

◯ No

◯ Don't Know

69. IF YOU TEACH GRADES K-2:
Not including lunch time recess, on average how many recess sessions per day do individual students receive?
Primary K-2 _____ sessions

[text box]

70. On average, how many total minutes per day does a student receive recess? (Do not include time for lunch when students are eating and are not physically active)

◯ Less than 15 minutes of recess per day

◯ 15 to 20 minutes of recess per day

◯ Over 21 minutes per day

◯ Other (please specify)

[text box]

71. IF YOU TEACH GRADES 3-5:
Not including lunch time recess, on average how many recess sessions per day do individual students receive?
Intermediate _____ sessions

[text box]

266

72. On average, how many total minutes per day does a student receive recess? (Do not include time for lunch when students are eating and are not physically active)

○ Less than 15 minutes of recess per day

○ 15 to 20 minutes of recess per day

○ Over 21 minutes per day

○ Other (please specify)

[   ]

73. IF YOU TEACH MIDDLE SCHOOL:

Not including physical education, on average how many physical activity breaks per day do individual students receive?

Middle School _____ physical activity breaks (sometimes still called recess at this level)

[   ]

74. On average, how many total minutes per day does a student receive for physical activity breaks? (Do not include time for lunch when students are eating and are not physically active)

[   ]

75. IF YOU TEACH HIGH SCHOOL:

Not including physical education, on average how many physical activity breaks per day do individual students receive?

High School _____ physical activity breaks

[   ]

76. On average, how many total minutes per day does a student receive for physical activity breaks? (Do not include time for lunch when students are eating and are not physically active)

[   ]

77. How often do classroom teachers/counselors keep individual students from recess/physical activity breaks to fulfill academic requirements?

○ Rarely

○ Sometimes

○ Very Often

Comments:

[   ]

78. During inclement weather, can students be physically active during recess/physical activity breaks?

◯ Yes

◯ No

◯ Don't Know

Comments:

79. Are teachers permitted to withhold scheduled recess/physical activity breaks from students for academic reasons?

◯ Yes

◯ No

◯ Don't Know

Comments:

80. Are teachers permitted to withhold scheduled recess/physical activity breaks from students for disciplinary reasons?

◯ Yes

◯ No

◯ Don't Know

Comments:

81. Is loose equipment (e.g., balls, jump ropes, frisbees, etc.) available for children to play with during recess/physical activity breaks?

◯ Yes

◯ No

◯ Don't Know

Comments:

Comprehensive School Physical Activity Program Index

82. In addition to physical education classes, recess, and scheduled physical activity breaks, do classroom teacher provide regular physical activity breaks during the school day? (e.g., "Take 10!" program)

○ Yes, School wide

○ Yes, Individual teachers

○ No

○ Don't Know

83. If yes, check which grade levels provide regular physical activity breaks? (Check all that apply)

☐ K-2

☐ 3-5

☐ 6-8

☐ 9-12

☐ Other (please specify)

[   ]

84. Does your school encourage classroom teachers to promote physical activity with their students?

○ Yes

○ No

○ Don't Know

85. Does your school recruit volunteers to help in: (Check all that apply)

☐ Physical education

☐ Recess

☐ Physical activity breaks during the school day

☐ Classroom physical activities

☐ Class parties that involve physical activity

☐ Field trips that involve physical activity

☐ Physical activity clubs (e.g., runner club)

☐ Before school physical activity programs

☐ After school physical activity programs

☐ Other (please specify)

[   ]

269

Comprehensive School Physical Activity Program Index

7. Physical Activity Before and After School

Active Transportation, Physical Activity Clubs, Active Child Care, etc.

86. How do you promote physical activity engagement before/after school? (Check all that apply)

- [ ] Walking school bus
- [ ] Walk to school program
- [ ] Crossing guards are available
- [ ] Bike to school program
- [ ] Bike racks, storage area available
- [ ] Open gym
- [ ] Before school or zero hour physical education
- [ ] Before school intramurals
- [ ] Athletics
- [ ] Activity clubs (e.g., outing club, adventure club, Fit Kids program, fitness fanatics, dance clubs)
- [ ] Facilities dedicated for student and staff wellness (outside of athletics)
- [ ] After school physical activity programs
- [ ] Work with child care provider to promote physical activity
- [ ] Other (please specify)

87. To what degree do you promote physical activity engagement before school?

- ○ Rarely
- ○ Sometimes
- ○ Often

88. To what degree do you promote physical activity engagement after school?

- ○ Rarely
- ○ Sometimes
- ○ Often

89. What role do you think a physical educator should play in providing activity opportunities before school?

90. What role do you think a physical educator should play in providing activity opportunities after school?

NOTES: Intramurals refer to organized sport competitions that are offered only to students who are enrolled in your school. Interscholastic sports refer to organized sport competitions which your school competes against another school.

91. Please identity whether or not: (a) your school provides specific physical activity programs, (b) if a separate fee is required of students to participate in them, and (c) whether your school provides special transportation for these these programs. In making your decisions, include school sponsored programs only. DO NOT INCLUDE PROGRAMS THAT ARE PROVIDED BY OUTSIDE AGENCIES.

	Offered	Fee Required	Transportation Provided
Intramural sports	☐	☐	☐
Interscholastic sports	☐	☐	☐
Physical activity clubs (e.g., running, dancing, outing)	☐	☐	☐
Special activity events (e.g., field days, Jump Rope for Heart)	☐	☐	☐

92. Are the opportunities for students to participate in your school's physical activity programs communicated to parents/guardians?

◯ Yes

◯ No

◯ Don't Know

271

93. If yes, check all communication methods used.

☐ Materials distributed to families

☐ Available on school/district website

☐ Student handbook

☐ Student orientation

☐ Open house

☐ Newsletters

☐ Automated phone calls

☐ Electronic means (e.g., email)

☐ Other (please specify)

Comprehensive School Physical Activity Program Index

8. Family and Community Involvement

Fitness Fun or Healthy Cooking Nights, Family Jumprope or Hoops for Heart, Family Nutrition Plans, Sharing Facilities with Community Members, Community Physical Activity Provider Services Families at the School Facilities

94. How do you promote physical activity among families and community members? (Check all that apply)

☐ Family fun nights (e.g., fitness, cooking, etc.)

☐ Extend physical activity into the home environment

☐ Community wellness night

☐ Collaborations with Parks and Recreation departments

☐ Collaborations with local businesses

☐ Physical activity homework assignments

☐ Parent volunteers work in the CSPAP

☐ School sponsored community events (e.g., 5K run, dances, etc.)

☐ Community sponsored physical activity events focused on youth (e.g., marathon kids, Walk for the Cure, bike rodeo's, etc.)

Other (please specify)

[   ]

95. To what degree do you promote physical activity engagement for families and community members?

○ Rarely

○ Sometimes

○ Often

96. What role do you think a physical educator should play in providing activity opportunities for families and community members?

[   ]

Comprehensive School Physical Activity Program Index

9. Staff Involvement

Involving Key Personnel, Staff Wellness

97. How do you promote physical activity among families and community members? (Check all that apply)

- [ ] Supportive administration
- [ ] Administration models
- [ ] Walking or jogging groups for staff
- [ ] Incentives for staff engaging in physical activity
- [ ] School website hosts potential places to be physically active
- [ ] School staff led activities (e.g., staff intramurals, bike to school, etc.)
- [ ] Physical activity is in the school mission statement or strategic plan

Other (please specify)

_____

98. To what degree do you promote physical activity engagement for staff members?

- ( ) Rarely
- ( ) Sometimes
- ( ) Often

99. What role do you think a physical educator should play in providing activity opportunities for staff members?

_____

Comprehensive School Physical Activity Program Index

10. Leading Physical Activity and Implementing CSPAP

Select the level of agreement for each statement.

100. My students do not enjoy spending large amounts of class time being physically active.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

101. My students are not concerned with being physically active.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

102. My students do not highly value physical education.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

103. My students do not enjoy being physically active during physical education class.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

Comprehensive School Physical Activity Program Index

104. My activity space is used for other purposes.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

105. I have too many students in my physical education classes.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

106. I do not have enough space for all of the students in my physical education class.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

107. More than one class shares the gymnasium (activity facility).

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

108. My class sessions are too short in duration.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

Comprehensive School Physical Activity Program Index

109. My physical education classes do not meet enough times per week.

◯ Strongly Disagree

◯ Disagree

◯ Neutral

◯ Agree

◯ Strongly Agree

110. I have too little contact time with my students.

◯ Strongly Disagree

◯ Disagree

◯ Neutral

◯ Agree

◯ Strongly Agree

111. I do not have enough time in the semester.

◯ Strongly Disagree

◯ Disagree

◯ Neutral

◯ Agree

◯ Strongly Agree

112. Other teachers at my school do not highly value physical education.

◯ Strongly Disagree

◯ Disagree

◯ Neutral

◯ Agree

◯ Strongly Agree

113. My principal or athletic director does not provide adequate support for physical education.

◯ Strongly Disagree

◯ Disagree

◯ Neutral

◯ Agree

◯ Strongly Agree

Comprehensive School Physical Activity Program Index

114. I do not have enough equipment for all of my students to be active at once.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

115. Administrators frequently cancel my class.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

116. My students do not enjoy spending large amounts of time during the school day being physically active.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

117. My students do not highly value physical activity.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

118. My students do not enjoy being physically active during classroom time.

○ Strongly Disagree

○ Disagree

○ Neutral

○ Agree

○ Strongly Agree

Comprehensive School Physical Activity Program Index

119. My students do not enjoy being physically active during recess.

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly Agree

120. My students do not enjoy being physically active before school.

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly Agree

Thank you for completing this index.

NASPE Director of Physical Activity Certification
Action Plan

Name: _____   School: _____

What would you like to do?	What CSPAP component will it address?	What resources do you need?	Who will help you do it?	When will it be done?	What artifacts will you collect?
EXAMPLE Create a school running club	**EXAMPLE** Family involvement	**EXAMPLE** *Incentives (tokens, prizes) *Supervision *Gym/track	**EXAMPLE** PTA Parents volunteers PE teachers	**EXAMPLE** Spring 2012	**EXAMPLE** Race entry Sign in Flier Mileage log
Your action plan:					
Step 1:					
Step 2:					
Step 3:					
Step 4:					
Step 5:					

Comments:

Physical Education Teacher

Interview #1

Hello! My name is _____ and I would like to interview you about your thoughts and experiences at the DPA training that you attended recently. Are you willing to participate in this brief interview?

This is just a reminder that this interview is being conducted for research purposes. Your responses will be kept anonymous and reported only by pseudonym. We will transcribe your responses into a text document, and then ask you to read its contents in order to confirm its accuracy at a later date. Do you have any questions before we start?

1. What made you decided to go to the DPA training?

2. When you hear the Director of Physical Activity what does it make you think of?

3. How do you feel about reshaping the role of the physical educator to include DPA responsibilities?

4. How do you feel about the network of teachers that was formed at the DPA professional development

5. How ready are you to assume the role of a DPA?

6. If we had a social media network affiliated with DPA, would you use it? And if so Why?

7. What types of interactions have you had with other people who attended the DPA training?   How have those interactions have been supportive?
8. How do you feel about what you experienced at the DPA training?

9. What are your feelings about implementing PA throughout the school day?

10. How did the DPA training contribute to your confidence in being a physical activity champion?

11. On a scale from 1-10 how excited are you about assuming the role of a DPA? How anxious are you?

12. How did you feel after attending the Director of Physical Activity (DPA) training?

a. What excites you and what concerns you about going back to your school to begin implementation of your action plan?

13. Who did you socialize with while you were at the DPA training? a. Were they from inside or outside your district?

14.. How do you see yourself interacting with people from the DPA training now that the training is finished?

15. What are your intentions to utilize the social networking site that has been set up for DPA's?

16. Do you feel that your expectations of the training were fulfilled? Why or Why not?

17. How do you feel about reshaping the role of the physical educator?

18. At the end of the training you were asked to develop an action plan to implement a part of CSPAP into your school setting. How confident are you that you will be able to actually make your action plan happen?

19. How does your teaching schedule, school demographics, and the circumstance under which you teach, impact your perceived success of the program?

20. What portion of the professional development do you believe you will utilize the most?

21. How do you feel the DPA training will affect you as a physical education teacher?

22. How ready are you to assume the role as a DPA?

APPENDIX J

E-learning *Moodle* Online Modules

Module #1: Physical Education

Module #2: Physical Activity During the School Day

Module #3: Physical Activity Before and After School

APPENDIX K

Physical Education Teacher

Interview #2 Protocol

The interviewer talking into the tape recorder…
Today is _____ and I am here with _____. They are the
          Date   Teacher's First Name
physical education teacher in (identify his/her district).

This is just a reminder that this interview is being conducted for research purposes. Your responses will be kept anonymous and reported only by pseudonym. We will transcribe your responses into a text document, and then ask you to read its contents in order to confirm its accuracy at a later date. Do you have any questions before we start?

1. To date, what have your enjoyed the most about this DPA certification process? The least? Why?

2. How did the professional development provided during the DPA process assist you in making physical activity changes within your school environment?

3. How did the interaction with the DPA training and the people surrounding the training effect you?

4. Did you use the social media network provided?
       a. If yes, how did you feel it aided or deterred implementation of your program?
       b. If No, Why did you decide not to utilize this avenue?

5. Outside of the social media network, you also had online forums. In what ways did you contribute to the online forums? Do you feel that you gained new ideas and knowledge?

6. How would you describe your interaction with other teachers going through the DPA process?
       a. In what ways did you interact with individuals after the training? How did you interact with them?

7. Do you feel that you have created a network of people that you can communicate with during the process of becoming a DPA? If yes, in what ways do you plan to utilize this network?

8. Lets talk a little bit about what you tried to accomplish this year. According to your action plan, you were planned to XXX. How did you do?

9. How did collecting artifacts aid with the implementation of your program?

10. What changes have you personally made to the physical activity environment at your school, since attending the DPA training?

       (Prompts, if necessary)
       a. Any changes regarding the curriculum?...equipment?...your style of instruction?
       b. Any changes the format of a typical school day?
       c. How you assess the level of PA?
       d. How did you motivate students?

11. Have you had trouble recruiting your target audience or support resources needed for implementation?

12. What facilitators/barriers did you encounter with the implementation?
(Researcher: Select one anf prompt for explanation)

13. What or whom has facilitated (helped you) to make changes in the physical activity environment at your school?

14. What has inhibited (stood in your way) to making changes in the physical activity environment at your school?

15. How have the students responded to the changes that you have made?
       a. How aware are the students of the changes? What evidence to you have of their awareness?
       b. Have the changes influenced student attitudes? …level of engagement?...enthusiasm?...motor performance?...physical activity?...physical fitness?
       c. What evidence do you have that student performance has improved since making these changes?

16. Do you think the students enjoy participating in your "intervention"? How do you know?

17. Do you know if students continue doing these activities outside of school because of what you did in your intervention?

18. In your opinion, how have the parents responded to these changes?

   a.   What is the parental awareness of changes? What evidence do you have of these changes?

   b.   Have the changes influenced parent attitudes?

   c.   What evidence from your interactions with the parents do you have that student engagement has improved since making these changes?

19. Do you think it's important to have forms of CSPAP in your school? What benefits do students get? Teacher benefits? Parental benefits?

20. What role has administration played in creating these changes at your school?

21. How do you feel the changes that have taken place in your school have affected the thoughts and perceptions of fellow teachers and administrators?

22. What are your next steps with regard to improving the physical activity engagement at your school?

23. What do you believe makes your intervention work? What makes it not work?

24. If you could make any changes to your program, what would they be?

25. If you could give advice to a teacher at another school about implementing an action plan, what advice would you give them?

26. Is there anything else that you would like to add about your progress in attempting to implement Comprehensive School Physical Activity Programs at your school?

Thank you very much for your time.

APPENDIX L

DPA Trainers Interview

Interview #3

Hello! My name is _____ and I would like to interview you about your thoughts and experiences about the DPA certification program. Are you willing to participate in this brief interview?

This is just a reminder that this interview is being conducted for research purposes. Your responses will be kept anonymous and reported only by pseudonym. We will transcribe your responses into a text document, and then ask you to read its contents in order to confirm its accuracy at a later date. Do you have any questions before we start?

1. What was your experience as a DPA trainer?

2. Do you feel that most teachers who went through the DPA training process are ready to assume the role as a DPA? Please explain why you feel the way you do.

3. What do you feel were barriers that teachers experienced while becoming a certified DPA? What were some facilitators?

4. Describe your communication with teachers who were going through the DPA process. Did you have any communication with teachers after the one day training?

5. What do you believe makes a successful DPA?

Data Analysis Plan

Prepare Database:

1. Create variables:

   ▪ CSPAP index

      ▪ Prepare database to enter into SPSS (intervention and control)

      ▪ Create a codebook

         o The first step in creating the codebook will be to download all of the data from SurveyMonkey. The data downloaded from SurveyMonkey automatically enters as "text" into the excel spreadsheet. For example, if White was checked for ethnicity then the word "White" is entered in the cell within the excel spreadsheet.

         o Once all the data is entered into excel, the second step is to transform all of the "text" in each cell into a corresponding number. Transformation of specific variables is explained below, but will vary for the different types of questions that are located within the CSPAP index. All transformations will be documented in the codebook. There are three types of questions (multiple choice, checklists, open-ended) and transformation will be explained for each type below.

            ▪ Multiple choice Questions:

               • Each answer choice on the multiple choice will be designated a number. The corresponding number assigned to each text option will be recorded in the

excel database and the transformation will be recorded
in the codebook.

- Example 1:
  - Text entered into excel: Male/Female
    - Transformation: Male = 1, Female = 2
    - Codebook record entry:
      - Male = 1
      - Female = 2
- Example 2: What grade level do you teach?
  - Text entered into excel: Elementary, Middle, Secondary, Other
    - Transformation:
      - Elementary = 1
      - Middle = 2
      - Secondary = 3
      - Other = 4

- Checklists Questions
  - The checklist questions ask the participant to check all possible answers that apply to their situation (see APPENDIX B). The answers in this section will each be given a one and then added together to determine a total number of answers listed for each question.
  - Example: This question asks about facilities available for physical activity at your school. Check the boxes to identify if the following facilities are typically available

before school, after school, and during physical education.

- o A total number of facilities for each teacher will be created for each area listed (physical education, before school, after school)
    - Physical education – 7 facilities
    - Before school – 6 facilities
    - After school – 5 facilities
- o This will be calculated for each teacher and then amount of facilities available can be compared across teachers.
- o If needed the researcher can go back and also determine what facilities are most commonly available and also which are least available during these designated time periods.

- Open Ended: There are a number of open-ended questions within the CSPAP index and will vary by type within the data analysis
    - If a question in an open-ended question labeled other, it will be given a numerical code as other and entered into the codebook
        - o Example: Which fitness test does your school use?
            - Choices: Local/district, Fitnessgram, Presidential Challenge, or Other

291

- Transformation:
  - Local/district = 1
  - Fitnessgram = 2
  - Presidents Challenge = 3
  - Other = 4
- If a question is open-ended but requires a number to be entered
  - This question will keep the original number entered
  - Example: How many total minutes of physical activity do physical education students receive per week, on average?
- If a question is an "essay form" open-ended question
  - Example: Describe how the physical education program is evaluated.
  - This question will be kept as text and entered into a separate excel database.
  - It will be analyzed through a thematic analysis individually and collectively

- I have thus far explained in general how transformation of variables will take place, however this section will discuss in detail specific variables needed for data analysis and how they were be transformed within the database.
  - CSPAP_ Self-Efficacy

- Existent values will be transformed into the factors of Self-Efficacy (student, space, institution, time, and physical activity throughout the school day) by summing the values for each question to create a value for each factor

- Any negative or reverse worded values will be addressed at this time

  o For example: My students do NOT enjoy to be physically active during recess

  o Answer options: Strongly disagree, disagree, neutral, agree, strongly agree

  o Data entered in codebook with 5 being the students enjoying physical activity the most

    ▪ Strongly disagree = 5

    ▪ Disagree = 4

    ▪ Neutral = 3

    ▪ Agree = 2

    ▪ Strongly agree = 1

- The values for each question within the CSPAP self-efficacy portion of the survey will create an efficacy value

  o Because reverse worded questions will be handled, the higher sum on each factor will represent a higher level of efficacy

    ▪ Student – sum questions #100-#104

293

- Space – sum questions #105-#108
- Time – sum questions #109-#112
- Institution – sum questions #113-#116
- Physical Activity throughout the school day – sum questions #117-#120

- CSPAP_ specific component variables: Within the CSPAP index there are questions that address each of the five components of the CSPAP.
  - Example: How do you promote physical activity engagement during the school day? (Please check all that apply)
  - For these questions the researcher will calculate a total number of for the opportunities presented. The researcher will also provide information about the most common opportunities provided among all of the teachers.
    - If a teacher check 7 boxes in this category then a 7 would be placed in the excel worksheet
    - The first option listed for this question is active recess, the researcher would also compile a total for those teachers that provide active recess
  - This will take place for all five components of CSPAP
    - Staff involvement opportunities
    - During the school day opportunities
    - Before and after school activities

- o Physical education opportunities
- o Community and family wellness opportunities
- Another type of question that is specific to CSPAP components are those questions that address the availability of facilities
  - o Example: This question asks about facilities available for physical activity at your school. Check the boxes to identify if the following facilities are typically available for physical education and for before and after school physical activity programs at your school. (Check all that apply.)
  - o Each area (physical education, before school, and afterschool) will be calculate separately
  - o A total number will be calculated for the opportunities available
    - If teachers identified that 7 facilities are available during physical education, 5 available before school, and 4 available after school these numbers would be inserted into the excel database
- For each component there are also questions about how important the teacher believes physical activity should promoted

295

- o For example: How important is physical activity during physical education?
  - ▪ This question will be transformed similar to a multiple choice question
    - • Not very important = 1
    - • Somewhat important = 2
    - • Important = 3
    - • Very important = 4
- ▪ CSPAP index: Policy questions
  - • Throughout the CSPAP index there are certain questions that related to physical activity and physical education policy within the school, district, and state levels
  - • The researcher will create individual codes for each policy question
    - o Example: Does your school district have a written policy that specifies the maximum student-to-teacher ratio for physical education?
      - ▪ Answer choices: Yes, No, Don't know
      - ▪ Code transformation
        - • Don't know = 1
        - • No = 2
        - • Yes = 3
  - • A total number of policies will also be calculated

- o All policy questions will be combined to determine the total number of policies for each teach who filled out the CSPAP index
  - Example: Teacher A answered "Yes" for 7 policy questions, "No" for 3, and "Don't know" for 2
  - The total number of policies will be calculated for data analysis
- CSPAP index: Quality physical education
  - A portion of the index is designated specifically to quality physical education
    - o Individual questions specifically address variables within the physical education setting. These questions will all be transformed as explained above in the previous section
      - Days/week
      - Grading
      - How many minutes students are active in PE
      - Class size
      - Taught by a certified physical education teacher
      - Staff development
      - Budget for PE
      - Goals and objectives provided

297

- Curriculum

- Scope and sequence

- Provided with lessons

- Assessment plans

- How often categories are taught (motor skills, each standard, etc.)

- PA for discipline

- Evaluation

- How many meet national recommendations

2. Input database into SPSS

   o Once all variables have been transformed within the excel database and the codebook has been created the variables that were created will be put into SPSS.

3. Confirmation and Reduction within the SPSS Database

   o All variables will be code and value cleaned

   - This means that the researcher will run frequency codes to make sure that all of the codes present are suppose to be there. For example, if Males are coded 1 and Females are coded 2, if there is a 3 in the database this code is incorrect

     • All values that are found incorrect will be replaced with the proper code.

     • If missing values occur, all missing values will be replaced with 99, signifying that it is a missing value

     • If the code is confirmed correct, but seems like it is an outlier, it will be left, but noted, until univariate and multivariate outliers are accounted for.

   o Using descriptive statistics and frequencies in SPSS the following will be run:

   - Frequencies

- Check for normality
  - Skewness and kurtosis
    - Between 1 and -1
  - Histograms
    - Looking for normal distribution (bell shaped curve)
  - Stem & Leaf plots
  - Shapiro Wilks test
    - Looking for normal distribution
- If data is found to be in violation of normality transformations will be run
  - Specifically, either Log10 or a Sqrt transformation will be used
- Univariate outliers
  - Box Plots
  - Z-scores (cut point used will be 2.5)
    - All z-scores that fall out of a +/- 3.2 range will be considered for possible deletion
- Multivariate outliers
  - Checked with Mahalonobis Distance
    - Will use the Chi-square distribution with a stringent alpha level of .001
    - Again, outliers will be approached with caution of true value orientation
- Linearity
  - Bivariate scatter plots
  - If violation in linearity occurs a transformation will be conducted
    - Specifically, a square transformation will be conducted
- Missing values

- If missing values are found data will be searched for patterns among the missing data.
- If the missing data is more than 5% a statistician will be consulted for further review of the data and will be asked the best steps to take to proceed. Currently, the following procedure is deemed as the best option:
  - Analyze patterns
    - This will provide descriptive patterns of the missing values in the data, and will be used as an exploratory step before data imputation
    - Multiple imputation (IM) will be performed through SPSS 19
    - The pooled estimates dataset will show in the results along with the original dataset with the missing values
  - Once all data has been cleaned all assumptions for appropriate data analysis will be run
    - Homoscedasticity will be check for MANOVA's using Box's M
    - Levene's test will be used within the ANOVA's
4. Data analysis will be conducted by research question
  - Research question one: What were teacher perceptions of and efficacy toward providing physical activity opportunities for children?
  - Calculate teachers' efficacy toward implementing physical activity opportunities within their physical education classroom and during the school day.
    - Calculate differences in efficacy between the teachers who participated in the intervention and those teachers who did not. Also, determine how gender and years of teaching experience relate to efficacy among professional development participants and non-participants

- Conduct correlations
- Conduct MANOVA #1
  - Five factors of efficacy
  - Gender and years teaching
  - Control Pre and Post
- Conduct MANOVA #2
  - Five factors of efficacy
  - Gender and years teaching
  - Intervention Pre and Post
- Conduct MANOVA #3
  - Five factors of efficacy
  - Gender and years teaching
  - Control and Intervention (Pre and Post)

- Calculate changes in teachers implementation and policy from pre-post
  - Using the CSPAP Index and variables that were developed during the database development stage, each variable will be analyzed for pre-post differences in the control and treatment group
    - Conduct a series of repeated measure ANOVA's for each question for both treatment and control group
      - If significant differences are found across assessment points, significant F values will be used to analyze Bonferonni-adjusted *post hoc* comparisons
- Artifact data collected will be analyzed to determine implementation of the CSPAP

- Artifact data could include anything that the teachers turned in for proof of implementation of their program. Some of this material may require descriptive statistics to be reported. If this is the case, the following will occur:
  - Data from artifacts will be coded based on the following criteria:
    - Frequency (e.g., number of children participating in event)
    - Time (e.g., amount of activity minutes pertaining to the event)
    - Type (e.g., family fun day) of allocated physical activity opportunities
  - This data will then be used to show changes in implementation that took place during the intervention period
- Perceptions of the teachers will be measured for this interview question using interviews conducted by the researcher
  - Question aligning with this research question will be transcribed and then sent to the participants for member checking
  - Each question will be coded looking for common themes throughout each individual case
  - Once themes are determined among each individual case, an overall thematic analysis will be conducted and themes will be determined
  - These themes will then be triangulated with other data sources to confirm that themes hold true
  - A peer review will be conducted to confirm themes within the database
- Research question number two:
- What were the teacher perceptions of and attitudes and feelings toward the implementation of CSPAP?

302

- Interviews, artifacts, E-learning opportunities, and on-site observations will be analyzed to determine teachers' perception of implementing CSPAP
  - All data sources will be analyzed separately by case
    - Interviews will be transcribed and member checked. Once this has been done interviews will be coded for themes
    - Artifacts will be coded for information about how implementation occurred within the setting
    - E-learning tools will be analyzed for participation to determine how often these tools were used and if it added or deterred implementation of the CSPAP
    - On-site observations by the researcher will be coded and analyzed for themes among each case
  - Once data sources are analyzed separately all individual cases will be analyzed for themes across the data sources
  - Once themes have been determined for individual themes an overall thematic analysis will be conducted
  - A peer review will then be conducted to confirm thematic analysis
- Research question number three:
- How do communities of practice facilitate reshaping the role of the physical educator to include responsibilities of the DPA?
  - Teacher interviews, trainer interviews, artifacts, E-learning opportunities, and on-site observations will be analyzed to determine if there were examples of learning and support within a social context
    - All data sources will be analyzed separately by case

- o Teacher interviews will be transcribed and member checked. Once this has been done interviews will be coded for themes

- o Trainer interviews will be transcribed and member checked. A thematic analysis will be conducted for each trainer case and will be

- o Artifacts will be coded for information about how communities of practice facilitate or did not facilitate the process of becoming a DPA

- o E-learning tools will be analyzed for participation to determine how often these tools were used. The *Facebook*, Q&A section of *Moodle*, and emails to the trainers and researchers will be used to determine if there was support and learning in a social context. All data points will be coded and a thematic analysis will be conducted for each case.

- o On-site observations by the researcher will be coded and analyzed for themes among each case

- Once data sources are analyzed separately all individual cases will be analyzed for themes across the data sources

- Once themes have been determined for individual themes an overall thematic analysis will be conducted

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331

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