Teacher Use of Curriculum Models Across Environments:

Content Taught and Student Outcomes

by

Tiffany Kloeppel

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved April 2011 by the
Graduate Supervisory Committee:

Pamela Hodges-Kulinna, Chair
Hans van der Mars
Eric Margolis

ARIZONA STATE UNIVERSITY

May 2011

ABSTRACT

Recently, much of the Physical Education literature has focused on confronting the challenges associated with the rising number of overweight children in America's schools. Physical Education programs are often looked to as intervention sites to remedy the current obesity epidemic. Teachers are often also not held accountable for curriculum adherence and student outcomes in Physical Education due to the lack of a common curriculum. Therefore, measuring teacher fidelity to specific Physical Education curricula is imperative to determine student outcomes when teachers follow the model as intended. In response to these issues, it has become increasingly important to measure student physical activity levels in Physical Education programs to determine moderate to vigorous physical activity (MVPA) levels and to learn about teachers' fidelity to curricular models. Thus, the purpose of this study was to investigate teacher fidelity to the Dynamic Physical Education (DPE) curricular model after having completed DPE methods courses at the university level, when teaching in a DPE supported or non-supported districts. A secondary purpose of this study was to measure students' physical activity (PA) outcomes in classes where the curricular model was used with various levels of district support. Data were collected using mixed methods including an observation instrument, field notes, informal interviews, document analysis, and direct observation of physical activity. Descriptive statistics and *t*-tests were run to investigate differences between teacher support groups and by teacher fidelity groups. Teachers from both teacher support groups were teaching the curricular model with moderate to high fidelity. Findings suggest that fidelity

levels were related to preparation on the DPE curricular model, ongoing professional development, and administrative support. Although the students were often standing (i.e., 40% of the lesson) and 30% of class time was spent in MVPA; teachers were frequently promoting physical activity both within (51%) and outside (50%) of Physical Education and the school day.

ACKNOWLEDGMENTS

Pam, thank you for your constant guidance. I am so thankful for everything you have done to help get me to this point and know I couldn't have done this without you. I look forward to continuing to work with you. Michalis, thank you for all your help! This wouldn't have been possible without you. To my amazing family, thank you for listening to me cry and complain the last several years. Your support helped me persevere. To my friends, thank you for listening and for making me laugh when I needed it the most.

TABLE OF CONTENTS

Page

LIST OF FIGURES

Figures Page

Chapter 1

INTRODUCTION

This paper is split into two different manuscripts. The first manuscript examines the need for moderate to vigorous physical activity in Physical Education, as well as physical activity levels of students in Physical Education classes. The second manuscript examines teacher fidelity to Physical Education curricular models by exploring: teacher socialization, fidelity to curricular models, and professional development opportunities.

Physical Activity Recommendations

The CDC (2009) and the Council on Sports Medicine and Fitness, & Council on School Health (2006) suggest that all children should be physically active daily as part of play, games, sports, work, transportation, recreation, Physical Education, or planned exercise, in the context of family, school, and community activities. Children should engage in 60 minutes or more of physical activity every day that require moderate to vigorous levels of aerobic exertion (Centers for Disease Control [CDC], 2010, National Association for Sport and Physical Education [NASPE], 2009). As part of their 60 or more minutes of daily physical activity, children and children should include muscle and bone strengthening physical activity at least 3 days of the week, as well as vigorous-intensity activity on 3 days a week (CDC, 2010; England Department of Health, 2004). Further, schools have been identified as ideal institutional settings for promoting the health of youth through physical activity promotion and the

prevention and treatment of childhood obesity (CDC, 2009; Luepker et al., 1995; Pate et al., 2006; Story, 1999).

Fidelity of Implementation

Although seemingly well defined in the literature, fidelity of implementation is rarely reported in large-scale education studies that examine the effectiveness of K–12 curriculum interventions (O'Donnell, 2008), especially with regard to how fidelity enhances or constrains the effects of the intervention on outcomes (Dobson & Cook, 1980; U.S. Department of Education, 2006).

On the basis of the extensive work that has been done in the public and mental health fields, the following points should be considered when applying fidelity of implementation to K–12 curriculum intervention research: (a) fidelity of implementation to curricular programs appear to be guided by organizational or social theories; (b) there is a need for greater clarity and specificity in the articulation of the components or features that make up a curriculum intervention; and (c) researchers should not assume that fidelity to curriculum interventions will be high, nor should they dismiss the fact that teachers may adapt programs to suit their needs without capturing these effects. Specifically, the current study was designed to: (1) study teacher levels of fidelity to a standardized curricular model that teachers learned in their teacher education program and, (2) student outcomes from the programs; that is, physical activity patterns.

Implementation in a school or classroom is the placement of a curricular model in the instructional process (Mills & Ragan, 2000). Fidelity of implementation is distinguishable from adoption, because many curricular models

are adopted, but never implemented as they were intended by their designers (Bond, 1988). Therefore, one should not suppose that the users of a curriculum will necessarily implement it in the way it is intended to be used (Hord & Huling-Austin, 1986).

Smith and Ragan (1999) believed that it is critical to be able to identify the degree to which the description of the program being taught represents what actually occurred during classroom instruction. Fullan and Pomfret (1977) described fidelity of implementation as a factor that results from the comparison of planned use of an innovation with its actual use. Designers of curricula anticipate that the extent to which their products are used as intended will influence the extent to which the product performs as intended.

O'Donnell (2008) proposed five criteria for measuring fidelity of program implementation: (a) adherence; whether the components of the intervention are being delivered as designed; (b) duration; the number, length, or frequency of sessions implemented; (c) quality of delivery; the manner in which the implementer delivers the program using the techniques, processes, or methods prescribed; (d) participant responsiveness; the extent to which participants are engaged by and involved in the activities and content of the program; and (e) program differentiation; whether critical features that distinguish the program from the comparison condition are present or absent during implementation. These criteria are especially important in regards to the current study. This study investigated teachers' use of a curricular model learned in their teacher education programs, as well as investigating whether or not teachers were still using this

model as designers intended it. Student physical activity outcomes from the curricular model were also investigated.

Physical Education Teacher Training Literature

Many agree that the teaching practicum is the most important and effective learning experience in Teacher Education (Behets & Vergauwen, 2006; Zeichner, 2008). Field experiences may also be called teaching experience, teaching practicum, or student teaching. These early field experiences typically begin with school visits, structured observations, discussions with teachers, and eventually practicum students begin teaching small portions of a lesson to a small group of students. Student teaching involves extended practice in one or two settings and progresses to teaching full lessons to an entire class (Behets & Vergauwen, 2006). An important line of research and one that is currently underdeveloped is fidelity of teachers to their teacher education programs and curricular model(s) taught in those programs.

Physical Activity Levels Using Different Curricular Models in Physical Education

School Physical Education is recognized by many as the most available resource for promoting physical activity among children and children (Centers for Disease Control and Prevention [CDC], 2009). Currently, there is little research documenting the physical activity levels of students while enrolled in adopted Physical Education programs with identified curricular models.

Physical activity. Over the past few decades there have been well-documented increases in overweight and obese children as well as an increase in

sedentary lifestyles in the United States (Mulheron & Vonasek, 2009). This increased level of overweight and obesity is exposing large proportions of the population to various degrees of health-related diseases (CDC, 1997; Mulheron & Vonasek, 2009). These diseases include cardiovascular diseases and cancer, both of which are related to the lack of physical activity (Bouchard, Blair, & Haskell, 2007). The National Association for Sport and Physical Education (2009) has identified youth physical activity as a potential means of reversing the obesity epidemic. An accurate understanding and quantification of physical activity behaviors is of extreme importance to both researchers and practitioners battling this epidemic (Sirard & Pate, 2001).

School Physical Education is recognized as the most widely available resource for promoting physical activity among children and adolescents (Corbin, 2002; Jackson, Morrow, Hill & Dishman, 2004; McKenzie, Marshall, Sallis, & Conway, 2000). In one study of the Sport Education model used in Physical Education classes (Hastie & Trost, 2002), it was found that students averaged approximately 30 minutes of moderate to vigorous physical activity during each Physical Education lesson. This is equivalent to just over 60 percent of class time, which is above the healthy people 2010 objective of 50 percent of lesson time. Further, a study of the Sport Play and Active Recreation for Kids (SPARK) curricular model found that students averaged between 49% to 51% of Physical Education class time in MVPA (Mckenzie et al., 2003). Despite significant progress in the field of Physical Education pedagogy, there are few studies that have examined the implementation, evaluation, and student outcomes from

curricular models in Physical Education programs (Ward & Doutis, 1999). Further, many of the existing studies of Physical Education curricula focus on those in secondary schools, rather than elementary Physical Education curricula (Penney, 2006). Not only is research on Physical Education curricula needed at the elementary level, but it is equally important to measure students' physical activity patterns when teachers are using a specific Physical Education curricular model. This will help the field to better understand opportunities for physical activity in Physical Education classes. While the study of physical activity in Physical Education classes is increasing, more data are needed across different Physical Education curricular models.

Statement of Purpose

This study was informed by the body of knowledge on fidelity of curricular implementation, defined as the determination of how well a curriculum is implemented in comparison with the original program design (O'Donnell, 2008). Thus, the purpose of this study was to investigate teachers' fidelity to the Dynamic Physical Education (DPE) curricular model after having completed DPE methods courses at the university level, when teaching in either a DPE-supported or a non-DPE supported district(s). A secondary purpose of this study was to measure students' physical activity (PA) outcomes in classes where the DPE curricular model was used with various levels of district support.

Specific research questions included:

1) What fidelity differences exist among teachers using the DPE curricular model in DPE high support and moderate/low support administrative districts and what are the related themes?
2) What physical activity levels, lesson context, and teacher behaviors are observed in Physical Education lessons taught with the DPE curricular model across content in DPE high and moderate/low support administrative districts?

Very few data are available on student physical activity levels when enrolled in Physical Education classes using the DPE curriculum or data on the effectiveness of the specific model in Physical Education classes for producing physically active lessons. This study may encourage existing partnerships with university teacher education and other related professional preparation programs, as well as promote the establishment of new partnerships. Additionally, it may provide support for universities to offer a broader range of methods courses and exposure to multiple curricular models for pre-service Physical Education teachers.

Chapter 2

STUDENT PHYSICAL ACTIVITY LEVELS WHEN PARTICIPATING IN THE DYNAMIC PHYSICAL EDUCATION CURRICULAR MODEL

The benefits of regular physical activity for youth are well documented (Centers for Disease Control and Prevention [CDC], 2008; Strong, Malina, & Blimkie, 2005). Regular physical activity is associated with a reduced risk of certain types of cancer, heart disease, type 2 diabetes in adults, and is negatively associated with obesity among children and adolescents (American Heart Association [AHA]; 2010; Mulheron & Vonasek, 2009). Further, physical activity can reduce blood pressure and increase HDL-cholesterol or "good" cholesterol (AHA, 2010).

The Surgeon General's report on physical activity and health (United States Department of Health and Human Services ([USDHHS], 1996) and others made clear the benefits of physical activity for children and adults. Regular participation in physical activity during childhood helps build and maintain healthy bones, muscles, and joints, helps control weight, build lean muscle, reduce fat, prevents or delays the development of high blood pressure, has been shown to reduce blood pressure in some children with hypertension, and also reduces feelings of depression and anxiety (CDC, 2009; Strong et al., 2005). Schools have been identified as ideal institutional settings for developing the health of youth through physical activity promotion and the prevention and treatment of childhood obesity (CDC, 2009; Luepker et al., 1995; Pate et al., 2006; Story, 1999).

Physical Activity in Schools and Physical Education Programs

Story (1999) concluded that school-based interventions were effective for making positive health changes, such as decreased body weight and/or body fat and increased aerobic capacity, muscular endurance, flexibility, knowledge, and self-efficacy. Shaya, Flores, Gbarayor, and Wang (2008) found a total of 40 school intervention studies yielding statistically significant differences between baseline and follow up measurements (i.e., BMIs, skinfold measurements, sit-and-reach flexibility, and aerobic capacity). Further, these physical activity based obesity-prevention interventions illustrate the remarkably high effectiveness of physical activity in reducing obesity-related measures and increasing overall physical activity patterns and physical fitness of school-age subjects (Shaya et al., 2008). Carrel and colleagues (2005) also found positive changes in adiposity and fitness measures such as BMIs, sit-and-reach flexibility, and aerobic capacity with children enrolled in short-term physical activity interventions. Because schools are often viewed as intervention sites for children's physical activity patterns, it is also important to study student physical activity levels throughout the school day, including Physical Education classes.

Physical Education is intended to be a planned instructional program with specific objectives and measurable student outcomes. As an essential part of the total curriculum, Physical Education programs increase students physical competence, health-related fitness, self-responsibility and enjoyment of physical activity so that they can adopt physical activity as a natural and ongoing part of everyday life (National Association of Sport and Physical Education [(NASPE)],

2004; USDHHS, 2008). Further, Healthy People 2010 (USDHHS, 2009) and the CDC (2008) propose that the following criteria be met in school Physical Education programs: (a) increase the proportion of children who participate in daily Physical Education, (b) increase the proportion of children who spend at least 50% of Physical Education class time being physically active, and (c) increase the proportion of children that meet current physical activity guidelines for aerobic physical activity and for muscle-strengthening activity.

Due to concerns related to overweight, obese, and sedentary youth, the past decade has seen an increased interest in studying the physical activity patterns of youth. Since this paradigm shift towards Health Oriented Physical Education (HOPE) along with various guidelines developed related to physical activity (NASPE 2009; USDHHS 2008), researchers have explored and continue to explore techniques for measuring physical activity (Le Masurier, 2004). Some of the most popular means of measuring physical activity in children are through the use of accelerometers, pedometers, heart rate monitors, and direct observation.

Scruggs (2007) using pedometry, found that fifth and sixth grade students engaged in physical activity for 40 percent of Physical Education time. Scruggs and colleagues (2005) used both pedometers and systematic observation techniques to study first through fourth grade students' physical activity patterns in Physical Education classes. Authors reported students engaged in physical activity 29% to 36% of class time. Direct measures during standardized Physical Education curricula using validated systems show that children rarely participate

in programs that reach national recommendations for frequency (i.e., daily), duration, and intensity (McKenzie & Kahan, 2008).

Physical activity levels in physical education using different curricular models. Only a few evidence-based Physical Education programs exist (McKenzie, Sallis, & Rosengard, 2009), and little is known about effective approaches for overcoming barriers to their widespread adoption. The Sport Play and Active Recreation for Kids (SPARK) model has consistently shown that professional development efforts and curricular adoption increases students' physical activity levels in Physical Education classes (Sallis, McKenzie, Alcaraz, Kolody, Faucette, & Hovell, 1997). A study examining the intervention effects of the SPARK curriculum showed that third graders engaged in moderate to vigorous physical activity (MVPA) for 52% of class time (McKenzie et al., 1995). There were substantial regional differences in the frequency and length of lessons and in the amount of physical activity children accrued. The SPARK research findings have shown improvements in the amount of physical activity opportunities and MVPA achieved by students without the schools administrators altering Physical Education class time.

Hastie and Trost (2002) using a 22-lesson Sport Education hockey season, reported that students averaged approximately 30 minutes of MVPA during each lesson which is just over 60% of class time. Thereby exceeding the healthy people 2010 objective (USDHHS, 2000).

Only one study could be found on student physical activity levels using the Dynamic Physical Education (DPE) curricular model with 485 children in

grades 1st-6th from two different schools (Morgan, Beighle, & Pangrazi, 2007). Results indicated that 30 minutes of Physical Education contributed significantly to children's daily physical activity. Specifically, the least, moderately, and most active children (authors used baseline data to classify physical activity levels into tertiary groupings) accumulated approximately 1,700, 1,100, and 2,500 more steps, respectively, on school days with Physical Education compared to school days without it. The study did not; however, report the percentage of time students were engaged in physical activity. Rather, only the pedometer step counts were reported. Authors also highlighted that based on their study, the least active children benefitted the most from Physical Education. That is, Physical Education contributed to 18% of their 24-hour activity compared to the most active students with 13% contribution (Morgan et al., 2007). In addition to studying curricular models and student outcomes, it is also important to investigate teacher fidelity to curricular models.

Curricular Fidelity

This study was informed by the body of knowledge of fidelity of curricular implementation, defined as the determination of how well a curriculum is implemented in comparison with the original author design (O'Donnell, 2008). Classroom research study findings on standardized curricula use and student outcomes are mixed. It has been shown that teachers with higher fidelity to a curricular model and administrative support can lead to higher levels of student learning (Ede, 2006). There have been few studies; however, of standardized curricula use in the area of Physical Education. This may be due to the fact that

most Physical Education programs are designed and implemented by Physical Education specialists in districts and programs where no specific curricular model is mandated. This was the first known study measuring the DPE curricular model and teacher fidelity; specifically investigating student physical activity levels using direct observation. The current study also investigated the use of a specific Physical Education curricular model that was either faithfully adhered to or mandated at the district level. Therefore, the purpose of this study was to measure student physical activity levels when teachers were using the DPE model in a high DPE support district and DPE non-support districts. Specifically the research question was: (a) what physical activity levels, lesson context, and teacher behaviors are present across various content when teachers use the DPE curricular model in DPE high support and non-support school districts, and between teachers using the curricula with high and low levels of fidelity?

Methods

Recruitment, Participants, and Settings

To be included in a pool of potential participants, ($N = 44$) teachers had to have been teaching between 2-7 years and had attended a Physical Education Teacher Education (PETE) program that specifically advocated and prepared teachers to employ the DPE curricular model (Pangrazi & Beighle, 2010). Twenty Physical Education teachers working in 18 elementary schools in seven different school districts volunteered to serve as participants in a large urban area in the Southwestern USA, as well as the 4^{th} and 5^{th} grade students (N= 1388, male = 678, female = 610) from the Physical Education teachers' classrooms. Class sizes

ranged from 14 to 33 students. The DPE high support district included male (n = 3) and female (n = 7) teachers who reported their ethnic backgrounds as white (n = 6), Hispanic (n = 1), Asian (n = 1), African American (n = 1), and Native American (n = 1). Additionally teachers reported teaching experience (m = 5.7, sd = 1.83). The DPE non-supported districts (n = 6) included female (n = 3), and male (n = 7) who reported their ethnic backgrounds as white (n = 5), Hispanic (n = 3), Asian (n = 1), and African American (n = 1). Additionally participants in this group reported years of teaching experience (m = 3.7, sd = 1.49). Institutional Review Board Approval was obtained from the University, each participant school district, and teachers provided their consent.

Classification

DPE high or non-support district. In order for districts to qualify as providing high levels of support for DPE they had to: (a) provide regular (at least one time per semester) professional development training directly related to DPE, (b) present district information stating that the DPE model had been adopted, and (c) indicate that they required/desired to hire Physical Education teachers trained in the DPE model. Non-DPE support districts had none or one of the aforementioned conditions.

High or low levels of teacher fidelity to DPE. Levels of teacher fidelity to the DPE curricular model were determined by a cut-point score of number of required DPE program components taught from a DPE checklist during classroom observations. The DPE checklist was developed and validated in a previous study. Teachers classified as having high levels of fidelity to the DPE curricular model

used 12 of the 15 DPE elements provided on the DPE observation instrument. Teachers with low levels of fidelity to the DPE curricular model used four to eleven of the DPE checklist items during classroom observations (more information on the DPE checklist and validation process are reported elsewhere).

Data Collection

Prior to data collection, the primary investigator and a graduate student visited Physical Education classrooms to learn how to collect data efficiently and correctly using the System for Observing Fitness Instruction Time ([SOFIT]; McKenzie, 2009) observation instrument. Training continued (videotapes and 25 live classes) until Inter-Rater reliabilities consistently exceeded 90% agreement on all SOFIT categories. Data were collected through direct observation, specifically through the SOFIT (McKenzie, Sallis, & Nader, 1991; McKenzie, 2009) using the SOFIT systematic observation tool. Teachers were each observed on three different occasions (total observations $n = 60$). These observations lasted between 60 to 100 minutes depending on class length.

SOFIT. The SOFIT direct observation method of assessing physical activity permits the simultaneous collection of contextually-rich data in settings where they occur as well as data that help explain how physical activity is influenced by both physical and social environments. Direct observation is also less invasive than the other data collection techniques. SOFIT has been used to assess physical activity in Physical Education classes in over 2000 schools and thirty published papers (McKenzie, 2002). The activity codes (lying, sitting, standing, walking, and vigorous) have been calibrated using heart rate monitoring

(Rowe, Schuldheisz, & van der Mars, 1997) and have been validated using accelerometry (Scruggs et al., 2003). SOFIT has been used in at least five large National Institutes of Health studies. Baseline studies of the SPARK curricular model in over one-thousand elementary schools indicated that student activity engagement was about 37 percent of lesson time, compared to the 50 percent activity time recommended by Healthy People 2010 (McKenzie, 2002).

SOFIT uses momentary time sampling to obtain simultaneous recordings of three variables: (a) student activity levels, (b) the lesson context in which they occurred (i.e., how lesson content was delivered, including time for fitness, skill drills, game play, knowledge, and management), and (c) teacher behaviors (in class PA promotion, out of class PA promotion, or no PA promotion) and interactions relative to promoting physical activity and fitness. For each class observed, five students were randomly selected; the first four students were observed while the fifth student served as a back up. The researcher rotated among students recording student physical activity patterns every 10 seconds. During SOFIT data collection, the first phase required a decision to be made on the physical activity levels of the students. The researcher preselected a student and determined his/her level of physical activity (active engagement level). The engagement level provided an estimate of the intensity of the student's physical activity and used the activity codes 1 to 4 (lying down, sitting, standing, walking) and code 5 (very active) when the student expended more energy than he/she would during ordinary walking. The higher the code, the higher the student's rate

of energy expenditure and PA level. Categories 4 and 5 were combined to provide a measure of MVPA (McNamee & van der Mars, 2005).

The second phase of the decision sequence involved coding for the curricular lesson context of the class being observed. For each observation sample (10-second interval) a decision was made as to whether class time was currently being allocated for general content such as management (M) or for actual subject matter (Physical Education) content. If Physical Education content was occurring, an additional decision was necessary to determine whether the class focus is on: general knowledge (K), fitness (F), skill practice (S), game play (G) or other (O).

The final phase of the decision sequence involved coding the teacher's involvement during class. Teacher behavior was classified into one of three categories. The first behavior category, "promotes fitness in class" (I), is coded when the teacher prompts, encourages, or reinforces learners about physical activity engagement or encourages students to hustle, keep up the good work, etc. The second category is recorded when the teachers "promotes fitness outside of Physical Education" by way of prompts such as, "remember to practice these push-ups at home". The remaining category, (N), is recorded if the teacher "does not promote in class or out of class physical activity" during the entire observation interval (see Appendix D for a copy of the SOFIT coding sheet). Inter-Rater reliability was regularly assessed in 10% of observations, which resulted in approximately one jointly coded class per week.

Data Analysis

Descriptive statistics were conducted on variables from all three areas of the SOFIT instrument (means, standard deviation). For each of the three areas, items were summed to calculate percentages for physical activity, lesson context/content, and teacher behaviors. *T*-tests were used to compare groups by level of district support for the curricular model (i.e., DPE high support district vs. non-support district); and by teachers' fidelity to the curricular model (DPE high fidelity or low fidelity teachers) for student physical activity. Bonferroni adjustments were made based on multiple *t*-tests ($k = 3$; $p < .01$).

Results

Inter-Rater Reliability checks confirmed high levels of Inter-Rater Reliability, ranging from 90% to 96% across data collection for the SOFIT instrument (10% of observations checked, resulting in about one per week). Results for students' physical activity, lesson context, and teacher behavior from the SOFIT instrument are reported by comparing teachers in the DPE high support district versus non-support districts. Findings are then presented by teacher group, that is, teachers teaching the DPE curriculum with high fidelity levels or teaching the model with low fidelity levels. Finally, findings are presented for a summed category of walking and very active (i.e., MVPA), as has been done by other researchers to determine the meaningfulness of the physical activity data (van der Mars, Vogler, Darst, & Cusimano, 1998).

District Support Groups

While there were noticeable differences in terms of available equipment and administrative support by the DPE high support district and DPE non-support

districts, students in both groups had similar experiences in terms of time spent in physical activity, lesson context, and teacher behaviors.

Physical Activity. *T*-tests investigating DPE high support district and non-support district differences showed non-significant results. For observation 1: $t(18) = 1.30$, $p = .21$; observation 2: $t(18) = -.82$, $p = .42$; and observation 3: $t(18)$, $-.52$, $p = .61$. Physical activity levels were consistently lower than national recommendations for MVPA, (i.e., 50% of Physical Education class time) across both district support groups in terms of how much lesson time was spent in activities considered to be moderate to vigorous activity (walking or an activity that has higher energy expenditure than walking). Overall, students were engaged in MVPA for 29% of lesson time in the high support district, and for 30% in the non-support districts (see Figure 1). Moreover, students from both groups were standing still for a good portion of each lesson (42% high support; 46% non-support districts; see Figure 1).

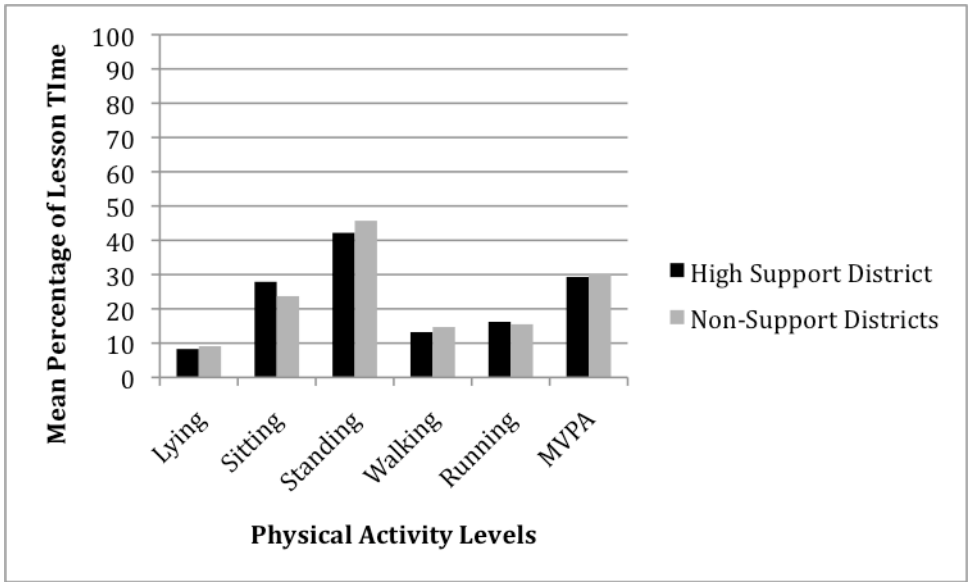

Figure 1. Comparison of mean physical activity levels by district support groups.

Lesson Context. Teachers from both groups also spent a significant amount of every class period in management activities (26% high support; 22% non-support districts; see Figure 2). Teachers from both district support groups spent a similar amount of class time engaging students in fitness activities (25% high support; 28% non-support district). One difference between the district support groups was that the DPE non-support district teachers spent 21% of class time devoted to providing students with knowledge instruction, whereas the DPE high support district teachers spent only 17% of class time engaged in knowledge instruction.

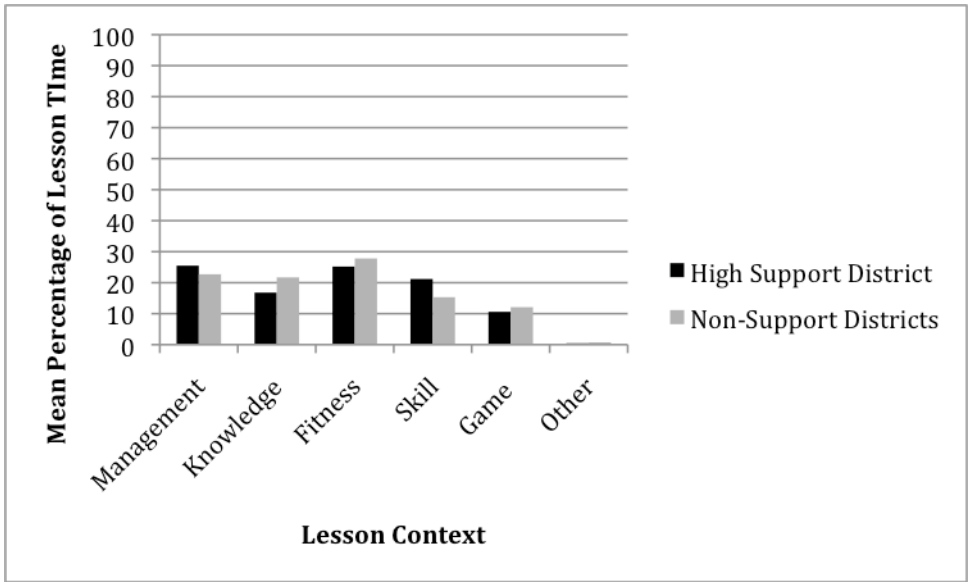

Figure 2. Comparison of lesson context by district support groups.

Teacher Behavior. Teachers from both the DPE high support district and non-support districts promoted in class physical fitness (i.e., physical activity promotion) 46% or 53%, of all lessons, respectively (see Figure 3). Additionally, teachers also promoted physical fitness activity outside the classroom 47% or

54% of lessons respectively, for the DPE high support and DPE non-support districts. Little to no time was spent "not promoting physical fitness" for either group, that is, less than 1%, of class time across both district support groups.

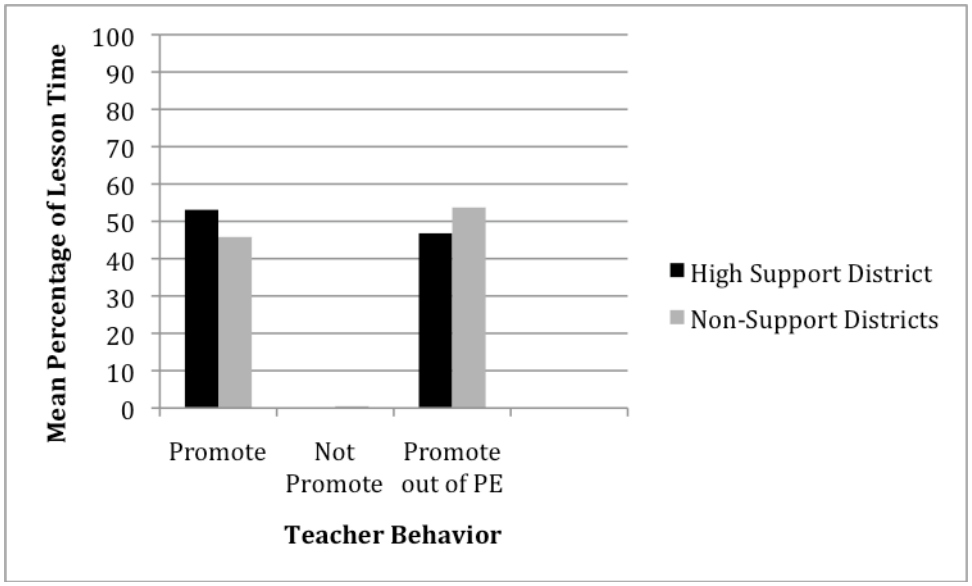

Figure 3. Comparison of teacher behavior by district support groups.

Teacher Fidelity Levels

The DPE high support district and DPE non-support districts were also a factor in determining teacher fidelity levels to the DPE curricular model. There were nine of ten teachers in the DPE high support district that were determined to be "high teacher fidelity", with at least 12 of 15 DPE elements (or 80%) taught. There were also three teachers from the DPE non-support district group determined to be teaching the DPE curricular model at "high teacher fidelity".

Physical Activity. *T*-tests investigating DPE high fidelity and low fidelity group differences showed non-significant results; observation 1: $t(18) = 1.30$, $p = .02$ (non-significant due to Bonferonni adjustments); observation 2: $t(18) = -.82$, $p = .63$; and observation 3: $t(18)$, -.52, $p = .84$. Extremely similar to the results

reported earlier for DPE district support groups, teachers from the high and low teacher fidelity groups had students standing in one place for an extraordinary amount of time during the Physical Education lessons (43% high fidelity; 46% low fidelity). Similarly, students were recorded sitting in one spot for a significant amount of class times (27% high fidelity; 24% low fidelity). Students were engaged in MVPA only 29% (high teacher fidelity) and 30% (low teacher fidelity) of class time. Students spent little time lying down during the Physical Education lesson (8% high fidelity; 9% and low fidelity).

Lesson Context. Teacher fidelity groups were also similar in the amount of instructional time spent in management behaviors (26% high teacher fidelity; 21% low teacher fidelity). Students were consistently spending about one quarter of the lesson involved in fitness related lesson activities (26% high teacher fidelity; 27% low teacher fidelity). Both the teacher high fidelity and low fidelity groups spent a similar amount of time engaging students in: knowledge activities (19% high fidelity; 20% low fidelity); and skill activities (18% high fidelity; 19% low fidelity); game play (11% high fidelity; 13% low fidelity).

Teacher Behavior. Promoting physical activity in Physical Education classes as well as promoting students to be physically active outside of the school day was also consistent across teacher fidelity groups. Teachers promoted physical activity 50% (high teacher fidelity) and 49% of class time (low teacher fidelity). Promotion of physical activity outside of Physical Education classes was also similar across teacher fidelity groups (50% high and 50% low teacher fidelity).

MVPA: High and Non-Support DPE Districts

Student physical activity levels between the DPE high support district and DPE non-support districts showed students participating in MVPA for 38% of class time in the DPE non-support districts while the DPE high support district demonstrated student engagement in MVPA for 31% of class time. Parallel results were found for MVPA of students for teacher fidelity groups (see Figure 4). Further, *t*-tests were run by district support group and teacher fidelity groups and were not significant.

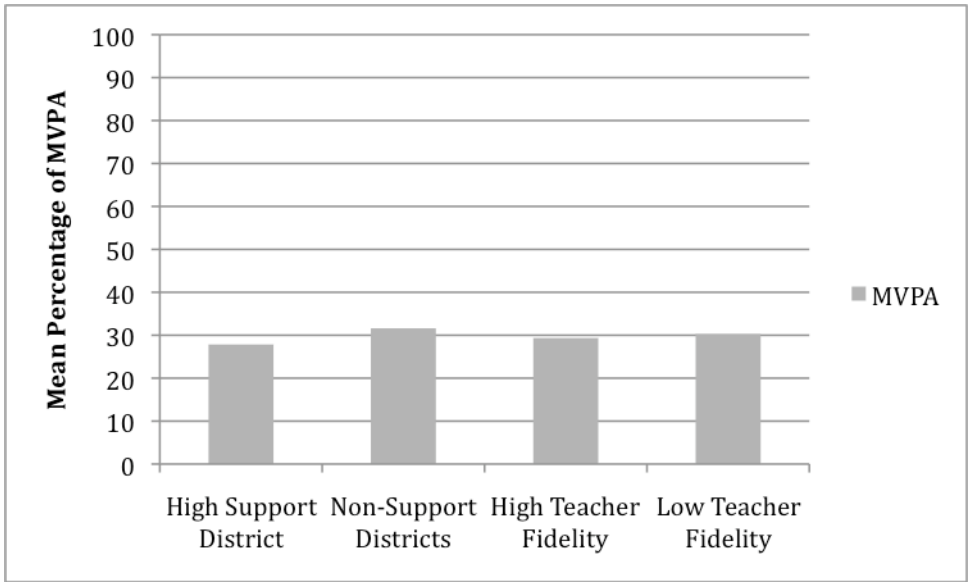

Figure 4. Comparison of mean MVPA by district support and teacher fidelity groups.

Discussion

It has become increasingly common for Physical Education teachers to consider MVPA an important student outcome for their Physical Education programs. This research study investigated student physical activity levels, lesson context, and teacher behaviors when teachers used the DPE curricular model in a

high support and non-support districts, as well teachers using the model with high and low levels of fidelity.

Fidelity of teacher implementation is the delivery of a curricular model in the way in which it was designed to be delivered by authors (O'Donnell, 2008). Research studies have shown that when teachers have significant teacher preparation on a specific curricular model, ongoing professional development opportunities, and administrative support, that fidelity of implementation is more likely to occur for that curricular model (Brown, Pitvorec, Ditto, & Randall-Kelso, 2009; Prusack, Pennington, Graser, Beighle, & Morgan, 2010). Within the current study the teachers in the high support district met the aforementioned conditions.

Physical Activity Levels

Healthy People 2010 (USDHHS, 2009) and various researchers have called for students to engage in MVPA for at least 50% of each Physical Education lesson (Jago et al., 2009; Morgan et al., 2007; Thomas, 2004). However, many Physical Education programs, including the high and non-support DPE district groups, as well as the high and low teacher fidelity groups in the current study, are failing to meet this recommended level (Fairclough & Stratton, 2005). Two areas will be highlighted in the following discussion; students physical activity levels and teacher behaviors using the DPE curricula during Physical Education classes.

Comparison of student physical activity levels across curricula.

Studies of physical activity levels with specific curricula such as SPARK and

Sport Education have reported student engagement in MVPA, for SPARK 49%-52% at post intervention and for Sport Education 60% when implemented regularly (Hastie & Trost, 2002; McKenzie et al., 1995; McKenzie et al., 2000). The SPARK intervention increased MVPA by 18% by teacher training in a new curricular model without increasing the frequency or duration of Physical Education lessons (McKenzie, 2002).

Using multi-activity models and the SOFIT instrument as was done in the current study with MVAP at only 30% (mean) found for teacher groups (i.e., district support and teacher fidelity groups); Bevan, Fitzpatrick, Sanchez, Riley, and Forrest (2010) reported that students were engaged in MVPA for about 40% (23 minutes was the average length of classes) of the Physical Education lessons. Van der Mars et al. (1998) also determined student physical activity levels from a multi activity curricular model reporting that students engaged in MVPA an average of 52% of the Physical Education lessons. Kulinna, Silverman, and Keating (2000) also showed that elementary students engaged in MVPA 37% of class time (similar to the national average). All of these aforementioned studies of multi-activity models using the SOFIT instrument showed higher levels of MVPA than the current study using the DPE curricular model. Since the DPE curricular model does include the mandatory 7-8 minutes fitness portion of every lesson, it may be assumed that students are spending a considerable amount of time in MVPA (Pangrazi & Beighle, 2010); however, this was not found in the current study.

Morgan and his colleagues (2007) studied students' steps measured using pedometers when teachers' used the DPE curricular model during 30-minute Physical Education classes reporting that students were very physically active during the Physical Education lessons. However, this study did not measure student physical activity intensity levels, and is not directly comparable to the current study. Similar to the high district support teachers in the current study, teachers in the Morgan et al. (2007) study used a common curricular model, attended frequent professional development training, and had district support via district coordinator.

Hurmeric, Kirazci, Ince, and Cieck, (2005) determined student physical activity differences between public and private school Physical Education classes. While no significant differences were found between the different types of institutions, students were standing for a significant amount of multi-activity Physical Education lessons (56%). van der Mars et al. (1998) also reported that students were standing a significant amount of class time (36%) using a multi-activity model. Lastly, McKenzie, Marshall, Sallis, and Conway (2000) studied 430 teachers in 24 schools using the SPARK curricular model and found students were standing for 34% of class time. In the current study students were standing between 42% and 46% of class time which may be considered a moderate amount of class time compared to other studies.

Teacher Behavior with Specific Curricular Models

Perhaps one of the most positive features of the DPE curricular model may be its impact on students' physical activity behaviors, that is, the promotion of

physical activity both in and outside of the Physical Education setting. The current DPE study showed that teachers promoted fitness during the lesson and promoted outside physical activity during 50% of all lessons. Teachers across the DPE high support and non-support districts, as well as the high and low teacher fidelity groups spent the majority of all lessons promoting physical activity. Similarly, van der Mars et al. (1998) also with a multi-activity curricula showed that teachers were actively promoting fitness (41%) and there were few episodes where teachers remained silent (i.e., not promoting or modeling physical activity) throughout the Physical Education lesson. The current study's findings are unique, as compared to previous studies such as McKenzie et al. (2000) who reported that teachers were promoting fitness during only 10% of all lessons.

This study showed that district oversight and support does not produce higher levels of MVPA. A speculation about why the teachers in the non-support district engaged students in more MVPA than teachers working in the high support district may be due to the fact that there were fewer interruptions (i.e., management techniques; move and freeze) therefore allowing students to spend more lesson time in game play and skill development, further accumulating MVPA. A limitation of this study may have been the small sample size of teachers observed. Further, each participant was only observed on three occasions. Therefore, it may be beneficial to observe participants' teaching additional Physical Education lessons.

Conclusions

More research studies are needed in terms of Physical Education curricula and student outcomes (including physical activity) in order to better prepare pre-service teachers to teach Physical Education curricula that provide demonstrated outcomes and to add to the body of knowledge about student outcomes from specific curricular models in Physical Education. This study highlights outcomes from teaching the DPE curricular model, particularly promoting physical activity within and outside of Physical Education classes; arguably one of the salient outcomes of Physical Education programs. Neither teacher fidelity levels to the DPE curricular model nor grouping teachers by districts (high support and no-support for the DPE curricular model), differentially resulted in increased MVPA. The results of this study may be helpful for teachers currently using the DPE curricular model to determine what practices can be improved upon to engage students in more MVPA opportunities as well as to celebrate the incredible promotion of physical activity within and outside of school. Lastly, district support or teacher fidelity to the DPE curricular model appears to have little influence on student physical activity outcomes.

Chapter 3

TEACHER FIDELITY TO THE DYNAMIC PHYSICAL EDUCATION CURRICULAR MODEL

This study addressed teachers' fidelity to a Physical Education curricular model. The theoretical framework guiding this study included teacher socialization, professional development, and fidelity to curricular models.

Teacher Socialization in Education and Physical Education

Teacher socialization research is a field of scholarship that seeks to understand the process through which the individual becomes a participating member of the society of teachers (Danziger, 1971). "Teachers actions represent active and creative responses to the constraints, opportunities, and dilemmas posed by the immediate contexts of the classroom and the school, and it is through these immediate contexts that the wider structure of the community, society, and the state have their impact on teachers" (Danzinger, 1971, pp. 14). The socialization issues that general education teachers encounter are somewhat different than the socialization issues a Physical Education teacher might face.

Socialization in Physical Education settings differ from other educational settings because teaching in the physical domain as well as being isolated (i.e., gymnasiums) and the marginalization of the field (Rovegno, 1993). Macdonald and Kirk (1996) defined socialization in Physical Education as a process with the goal being for the teacher to build and maintain a sense of personal identity, self-worth, and professional competence within the constraints of the occupation. Additionally, Lawson (1986) defined occupational socialization as, "all of the

kinds of socialization that initially influence persons to enter the field of Physical Education and that later are responsible for their perceptions and actions as teacher educators and teachers" (p. 107). The process by which one is taught and learns the responsibilities of a particular role is another important aspect of occupational socialization (Solomon, Worthy, & Carter, 1993; Stroot & Whipple, 2004; Van Maanen & Shein, 1979).

Professional Development in Education and Physical Education

There is an impressive body of research that identifies types of continuing professional development (CPD) that are most likely to result in enhanced teacher and student learning (Armour & Yelling 2007). However, despite evidence that specific programs can improve teacher knowledge and practice as well as student outcomes, these programs seldom reach real teachers on a large scale (Hill, 2009). Moreover, due to various constraints, and often lack of support, some teachers engage in only the minimum professional learning experiences required by their state or district each year (Hill, 2009). Teachers may also find it challenging to transfer the material learned during professional development opportunities into their classrooms (Sherman, Tran, & Alves, 2010). Professional development support must be ongoing in order to train and educate teachers. A one day workshop for teachers without any follow up support is not sufficient to help teachers change the way they teach (Martin, McCaughtry, Kulinna, & Cothran, 2008; Sherman et al., 2010). Further, there are also limited professional development opportunities specific to the field offered for Physical Education

teachers, or the professional development offered doesn't relate to the field (Armour & Yelling, 2007).

Armour and Duncombe (2004) reported on the continuing professional development opportunities for Physical Educators in England. This program was designed to support Physical Education teachers' lifelong learning and development. While it was determined that teachers in England greatly valued this new form of professional development, they also felt that the government did not necessarily understand or meet the demands for what teachers needed to be learning in professional development sessions to enhance their current Physical Education programs. Physical educators need ongoing, relevant professional development opportunities across various topic areas including curricula across a variety of curricular models.

Multi-Activity Physical Education Curricular Models

The Physical Education curriculum is an overall plan for the total Physical Education program, which is intended to guide teachers in conducting educational activities for a specific group of students (Jewett, Bain, & Ennis, 1995). There are many curricular models for Physical Education running the gamut from movement education to adventure education to multi-activity models. The Dynamic Physical Education model is the focus of this study (considered a multi-activity model; Pangrazi & Beighle, 2010), thus, only the DPE model is discussed below.

The multi-activity approach emphasizes a balanced range of activities (simple games and relays, organized from simple to complex skills) rather than a

sole focus on sport related activities (Metzler, 2006; Steinhardt, 1992). The DPE curriculum model has had over 40 years of implementation and revision (17 editions). The model includes a resource text with complete lesson plans documenting what state and national Physical Education standards are being taught. Lessons are intended to be developmentally appropriate for the age and skill level (levels 1-4) of the students. The curricular model contains four major instructional elements: (a) physical fitness, (b) rhythmic activities, (c) body-management, and (d) visual-tactile coordination. DPE lessons are structured to include: (a) an Introductory Activity (2-3 minutes), (b) Fitness Development (7-8 minutes), (c) Lesson Focus (15-20 minutes), and (d) a Game Activity (5-7 minutes), for a standard 30 minute class (Pangrazi & Beighle, 2010, pp. 1-7).

Prusak, Pennington, Graser, Beighle, and Mogran (2010) reported that the Dynamic Physical Education program has been a "success" in a district with a strong support system for Physical Education. Authors stated that the success was due to: (a) district-wide Physical Education program (common curriculum), (b) a district coordinator, (c) on going professional development, and (d) university partnership with the district (Prusak et al., 2010, pp. 102). Not only are these elements required for successful implementation of the program, but they must also interact with one another for the program to thrive. Morgan, Beighle, and Pangrazi (2007) also studied the DPE curricular model in relation to student physical activity levels using pedometers. Authors found that physical activity levels (steps taken via pedometry), were comparable to those found in the Sport Play and Active Recreation for Kids (SPARK) curricular model, with students

engaged in physical activity for more than 50 percent of the Physical Education class time. They suggested that quality Physical Education programs contribute to students physical activity levels throughout the school day. Although there have been various studies of student outcomes, there are few studies addressing teacher fidelity to curricular models.

Fidelity to Curricular Models in Education and Physical Education

Classroom research study findings on standardized curricula use, teacher fidelity to the model(s), and student outcomes are mixed. For example, in a study conducted with a Title 1 urban school in California, using the districted mandated Open Court Language Arts curriculum, Ede (2006) found that students reading achievement scores exceeded that of students using different curricular models, such as "Success for All". In another study conducted in California; however, with the same Open Court scripted curricular model, no evidence was found that students developed higher reading achievement scores than students using comparable methods of instruction (Ede, 2006).

In a study examining preschool teachers' fidelity to a language-focused curriculum designed to improve at-risk children's language outcomes through targeted improvements to a classroom's activity contexts (e.g., dramatic play, art, storybook reading) and instructional processes (e.g., teacher use of open-ended questions, recasts, and expansions), it was found that teachers exhibited fidelity to activity contexts more readily than to instructional processes (Pence, Justice, & Wiggins, 2008). Similarly, another study of teachers' fidelity to a substance abuse prevention curriculum, showed that only 49% of the teachers implemented one or

more of the lessons with students over a three year period (Hahn, Noland, Rayens, & Christie, 2002).

Few studies have looked at the diffusion and sustainability of Physical Education curricula. This may be due to the fact that most Physical Education programs are designed and implemented by Physical Education specialists in districts and programs where no specific curricular model is required to be taught. Dowda, Sallis, McKenzie, Rosengard, and Kohl (2005) studied the sustainability of the Sport, Play and Active Recreation for Kids (SPARK) program in schools that had adopted the program through extensive professional development efforts. Results showed that up to 80 percent of schools were still using the program up to four years later (Dowda et al., 2005; McKenzie, Sallis, & Rosengard, 2009). A similar study was conducted, evaluating the sustainability of the Coordinated Approach to Child Health (CATCH) program and teacher use of the SPARK curriculum (McKenzie et al., 1994; McKenzie, Li, Derby, Webber, Luepker, & Cribb 2003). A five year follow up of the CATCH program showed that more than half of the teachers trained to use the SPARK curricular model were still using it consistently (McKenzie et al., 2003). Kulinna, McCaughtry, Cothran, and Martin (2006) studied the Exemplary Physical Education Curricular (EPWC) model and reported that teachers used the district's curriculum during just under half of their teaching time. Their findings reflected the difficulties of district curricular adoption and teacher reluctance to buy into a program that may not meet the needs of the student population.

An area with even fewer studies than fidelity to Physical Education

curricula is fidelity to PETE program training once graduates are teaching in schools. This is an important area of research, as beginning teachers will likely be teaching curricula and methods learned in PETE training programs. Physical Education Teacher Education (PETE) programs can have a significant impact on teachers beliefs and teaching styles. In a study of the University of South Florida's PETE program which is considered to be a success among graduates of the program and faculty (Graber, 2006), the following factors helped make the PETE program particularly strong: (a) faculty consensus about the training of students in a non-traditional approach, (b) students completed the program in cohort groups allowing more collaboration, (c) students were required to participate in professional development courses throughout their training, and (d) students were placed early and frequently into internships (Graber, 2006; Rovegno, 1993). These early internships and ongoing professional development opportunities may lead students to have a more concrete understanding and commitment to specific curricular models (Rovegno, 1993).

There are few studies related to teacher fidelity of curricula implementation of Physical Education models. The Morgan et al. (2007) study is a small, initial study of student physical activity outcomes within the DPE curricular model. Further study of student outcomes and teacher behaviors/fidelity to the curricular model are needed. To date, there is little empirical evidence on student outcome data related to the DPE curriculum (Kulinna, 2008) and there were no studies found (that could be identified) on teacher fidelity to the curricular model. Therefore, the purpose of this study was to investigate teacher

fidelity to the Dynamic Physical Education (DPE) curricular model after having completed DPE methods courses at the university level when teaching in either a high supported DPE district or non-DPE supported districts. The specific research question was: What fidelity differences exist among DPE high support and non-support districts and what are the related themes?

Methods

Recruitment and Participants

Teachers were recruited from a pool (*N*=50) of Physical Education teachers who graduated within the last two to seven years from a large Physical Education Teacher Education (PETE) program in the Southwestern USA focused on the DPE curricular model. Another recruitment criterion was for teachers to be instructing Physical Education at the Elementary school level in order to study their current use of the DPE curricular model (Pangrazi & Beighle, 2010).

Teachers were invited to participate by email, telephone, or personal communication. Recruitment follow up contact continued until the target of twenty teachers was reached; that is, ten teachers from a DPE high supported district and ten teachers from several DPE non-support districts. Institutional Review Board Approval was obtained from the University. District research approval was also obtained from each of the seven participating school districts and teachers provided informed consent.

Participants in this study were 20 Physical Education teachers working in elementary schools in seven different school districts and 18 schools in a large urban area in the Southwestern USA. The DPE high support district included male

(n = 3) and female (n = 7) teachers who reported their ethnic backgrounds as white (n = 6), Hispanic (n = 1), Asian (n = 1), African American (n = 1), and Native American (n = 1). Additionally teachers reported teaching experience (m = 5.7, sd = 1.83). The DPE non-supported districts (n = 6) included female (n = 3), and male (n = 7) who reported their ethnic backgrounds as white (n = 5), Hispanic (n = 3), Asian (n = 1), and African American (n = 1). Additionally participants in this group reported years of teaching experience (m = 3.7, sd = 1.49). Lastly, pseudonyms are used for participants in this study to protect their identity.

Classification (Independent Variable)

DPE high or non-support districts. Teachers were grouped based on the level of professional development support provided by the district. Districts qualified as providing high levels of support for DPE if they: (a) provided regular (at least one time per semester) professional development training directly related to DPE, (b) presented district information stating that the DPE model was adopted, and (c) indicated that they require/desire to hire Physical Education teachers trained in the DPE model (e.g., informal interview). Conversely, districts without DPE support met none or only one of these requirements.

Data Collection and Procedures

A mixed methods approach was used in this study to gain a better understanding of teachers' fidelity levels to the DPE curricular model. Teachers were observed for a minimum of two classes during each observation (3 visits per teacher), with only fourth and fifth grade Physical Education classes. During the school visit, the DPE instrument was completed, field notes were taken, and

informal interviews conducted. Data on physical activity levels were also collected and are reported elsewhere.

Instruments

DPE Observation Instrument

Teacher participants in the study had no knowledge of the researchers' primary objective in observing teacher fidelity levels to the DPE curriculum. Teachers believed that the purpose of the study was to gather information about their teaching practices and student physical activity levels. A PE observation instrument was developed and validated to investigate teachers' fidelity to the curricular model.

Step one: Checklist development. Prior to data collection, teachers (n = 50) working in two districts in the southwest USA, currently using the DPE curricular model but not involved in the current study, were sent an electronic message and asked to provide a list of 15 elements that they believed must be included in a Physical Education lesson to be considered an "authentic" DPE lesson (see Appendix C). After 50% of surveys were returned, teachers' responses (n = 25) were used to create a master list for the observation checklist of the most salient components of a DPE lesson (master list included 48 items). Similar items were combined to avoid duplication (19 items). Next, the master list was sent to several Physical Education faculty members working at the university level that were extremely familiar with the DPE curriculum to review the list and provide suggestions for additions or deletions. There were no suggestions for other items to add. However, two items were removed from the list since they were considered

good teaching practices (e.g., planning) and not necessarily unique to the DPE curricular model (now 17 items). The DPE instrument is in the form of a checklist.

Step two: Instrument content validation. The revised master list of DPE lesson components (see Appendix C) of 17 items was then sent to Physical Education teachers (*n*= 68) not participating in the current study that had adopted the DPE curricular model. These teachers were asked to match the DPE element to a corresponding category including: (a) 4 part lesson, (b) management, (c) school and district curriculum support, (d) equipment, and (e) instruction. Teachers were also asked to suggest items that they thought needed to be added or deleted from the critical components of the DPE list. When 50% of the DPE validation instruments from teachers were returned (*n* = 42), one item was removed from the list based on teachers' feedback that was considered a good teaching practice and not DPE specific. Further, one final item was removed because it was district specific rather than DPE specific. The final DPE instrument included the most pertinent 15 items required for a lesson to be considered an authentic DPE lesson (see Appendix C).

Step three: Pilot testing. After the development of the DPE instrument and prior to data collection, the primary investigator and a graduate student, trained to collect data using the DPE observation instrument over three months. First, researchers practiced coding the DPE observation instrument with 10 videotaped lessons, then with 25 live classes until > 90% Inter-Rater reliability was regularly reached in 4th and 5th grade classes with teachers who were not participating in this study from a highly supported DPE district. Descriptive

statistics were run and reviewed to determine if any changes were needed to the DPE instrument based on the pilot study. All of the 15 items were present in the teachers' classes during various observations and thus the observation instrument was deemed usable.

Archive analysis. A content analysis of print and electronic policies and documents pertinent to Physical Education curricula for each district and school was conducted. Documents included district Physical Education curriculum and requirements, district training and support, documents posted on district websites, and professional development workshops and topics offered during the year at each school. Archives were collected from the districts' web sites, handouts given at teacher in-service trainings, and through the districts' resource curriculum textbooks. Archives were used to determine DPE high support district and non-support district groups as well as to stimulate sharing of participant perspectives of and involvement in particular policies or practices during informal interviews that took place during observation days. The researcher also used the curriculum guide to assess whether participants were teaching the lesson as directed through the districts lesson plan schedule.

Field notes and informal interviews. Researchers took field notes during classroom observations in addition to coding three classes using the DPE observation instrument. During the lesson, the researcher would type as many phrases, instructions, and student to teacher interactions, as possible. After the lesson was completed, the researcher would review the notes and elaborate to make more sense of the data. Each teacher was observed over three half days

across the semester. Additionally, the researcher attended the monthly Physical Education teacher professional development sessions held in the high support school district when offered and additional field notes were taken. At the conclusion of data collection, the researcher read through the field notes to look for regular occurrences across teachers and to generate initial fidelity themes.

Data Analysis

Descriptives and frequencies were run for DPE district support groups (i.e., high district support or no district support for the DPE curricular model). Multiple *t*-tests were run to investigate possible differences among DPE high support district and non-support district groups for each of the three observation days and overall for number of DPE elements taught. Bonferroni adjustments were made based on multiple *t*-tests ($k = 4$; $p < .01$).

A constant comparison technique (Brannen, 2005) was utilized to record, code, and analyze data from the four sources. Trustworthiness measures included data source triangulation (i.e., informal interviews, field notes, archive analysis). The primary investigator and a peer reviewer independently reviewed all materials coding for themes. Next, the two reviewers negotiated themes. Finally, both reviewers conducted an independent search for negative cases (no additional changes were made). Member checks were also performed with the 20 teacher participants (sent themes for comments) and no additional changes were needed.

Results

Inter-Rater Reliability for the DPE observation instrument was maintained during data collection with 10% of observations checked and ranged from 95% to

97%. Descriptive findings are first reported from the DPE observation instrument. Next, from the archive analysis, DPE checklist, field notes, and informal interviews, two themes are presented about teachers' fidelity to the curricular model: (a) district support led to higher teacher fidelity levels to the DPE curriculum and guide/schedule, and (b) the teachers from the non-support district implemented management procedures differently than the high support district teachers. Further, *t*-tests showed that teachers in the high support district were significantly more faithful to the DPE curricular that teachers in the non-support districts across all three observations (overall $t(2.87) = -8.91$, $p < .01$).

Descriptive Findings

Teachers from the DPE high support district followed the curricula most of the time. Conversely, the non-support district teachers followed the curricular model only some of the time (see Figure 1).

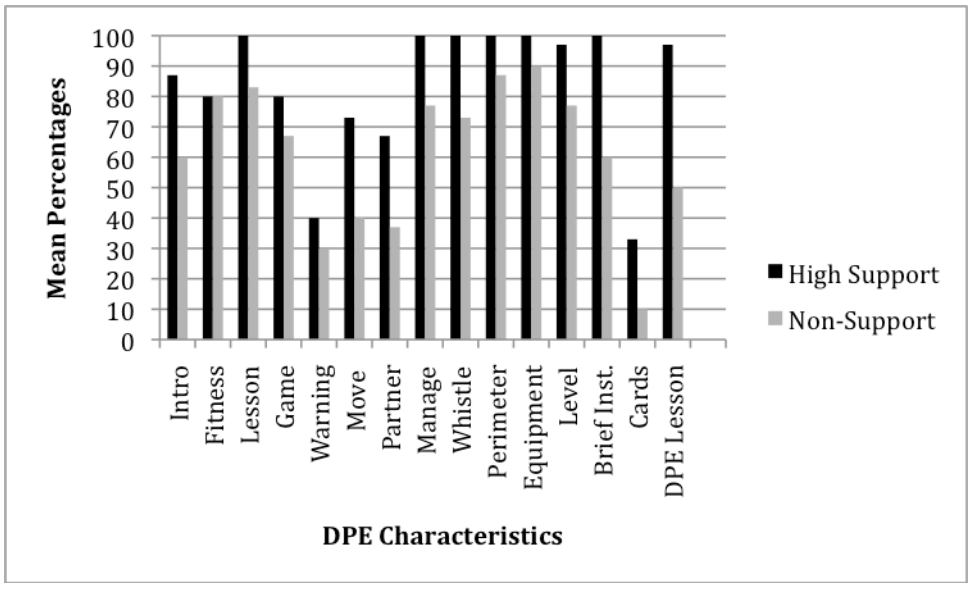

Figure 5. Comparison of means across three observations for 15 DPE checklist elements. Note: See Appendix C for full descriptions of DPE characteristics.

District Support

The DPE non-support district teachers were teaching a minimum of four elements and a maximum of 14 elements per lesson from the DPE checklist. The DPE high support district teachers taught a minimum of seven elements and a maximum of fifteen (taught all areas of checklist) elements per lesson.

Teachers in the DPE high support district were teaching the curriculum with higher fidelity levels than teachers working in non-support districts. High support district teachers were observed teaching the required curricula for Time 1, Time 2, and Time 3 (e.g., Time 1: Medic tag, Hexagon hustle, Rope climbing, and Swinging on ropes). Teachers in the non-support districts were teaching DPE lessons from the DPE lesson plan book, but were not following the DPE curriculum schedule from the textbook instructor guide (Pangrazi & Beighle, 2010).

One difference found between the DPE high support district and DPE non-support districts related to the degree to which teachers adhered to the DPE 4-part lesson format (i.e., intro, fitness, lesson, and game) The 4-part format was taught during the majority of lessons when teachers were from DPE high support environment (see Figure 1). Teachers in non-support districts would often teach the 4-parts of the lesson; however, they were not teaching it as recommended. For example, Rob taught the introductory activity for 7 minutes, instead of the DPE recommended 2-3 minutes (Rob, male, field notes, observation 1, non-support district). Additionally, it was observed on 30 occasions that teachers from non-support districts would teach only two or three parts of the lesson and save the

majority of class time for the game rather than teach the full 4-part lesson (field notes, non-support district). DPE recommends the game portion of the lesson to last 5-7 minutes and never to be a "regular" game, but rather to be a modified or sideline game (Pangrazi & Beighle, 2010).

Another difference between teachers in the DPE high support and non-support districts were that the later group often was not following the DPE curriculum guide or schedule (checklist, 30 observations). This may be due to the lack of administrative support, needed facilities, and equipment. "Carl" stated, "I teach DPE the best I can with the resources I have" (male, informal interview notes, observation 1, non-support district). Some teachers simply did not follow the curriculum guide because they were not required to follow the schedule. When one teacher was asked why he had chosen to teach Frisbee skills that day he replied, "Well I just choose what sounds like fun that morning" (Alan, male, informal interview notes, observation 2, non-support district). Additionally, teachers in the DPE non-support group sometimes modified the lesson that was scheduled to be taught. During one informal interview Rob stated, "I just don't teach soccer skills. I don't like soccer and I think the kids can sense that. If I have a negative attitude towards soccer so will they" (male, informal interview notes, observation 3, non-support district).

In contrast, teachers from the DPE high support district taught the 4-part lesson during 100% of all observations. It should be noted that only one teacher working in the DPE high support district was observed not following the curriculum guide. The majority of teachers working in the high support district

strictly adhered to the district curriculum guide. They were following the curriculum guide (archives, 30 observations, high support district) and schedule provided from the physical education district coordinator (archives, see Appendix D). However, during one informal interview a teacher stated, "I'm off curriculum today." When questioned about what that meant and why she was teaching "off curriculum", it was explained that she was behind the mandated schedule a week because of a grant the district coordinator had the teacher working on for the district. The teacher also stated that the coordinator "approved" the lesson she was teaching that day. The teacher was asked to clarify the process for teaching "off curriculum". The teacher stated that you could teach a lesson not included in the curriculum guide only if a lesson plan was submitted and approved by the district coordinator two weeks prior to actually teaching the lesson (note: teachers can only submit two replacement lessons per school year)(Courtney, female, informal interview notes, observation 1, high support district).

Only one lesson was observed in the DPE high support district that was not a DPE lesson. The teacher had students play a regular game of soccer during the soccer unit for the "game" portion of the 4-part lesson (Tom, male, checklist, field notes, high support district). This is not recommended, as the DPE curricular model recommends that games be modified. In addition, sideline games are modified in order to be all-inclusive and not exclude less skilled students. Many lessons (n = 17) observed in the non-support districts were not DPE lessons out of the lesson plan book or from the curriculum guide (field notes across 60 observations).

There was one aspect of the DPE curricular model that teachers from both district support groups did not meet. Almost no teachers from the DPE high support district or non-support districts carried the recommended lesson plan cards on their person (see Figure 1). Lesson plan cards are index cards with directions for teaching the four parts of the lesson. Only five teachers (of 20) were seen carrying and referring to lesson plan cards while teaching. Of this handful of teachers, only one teacher from the non-support district carried and used the lesson plan cards during instruction.

DPE Management: Recommended DPE Techniques

Another major theme identified in this study was the emphasis the DPE curricular model places on management. Described by one teacher as, "DPE is a simple way of managing a class" (Reya, female, informal interview notes, observation 3, high support district). Management in the DPE curricular model includes anything from moving and freezing students' in-between activities, the organization of the equipment around the room, how the teacher moves around the room during instruction, warnings and time-outs for misbehaviors, and teacher talk. When teachers were asked about the most critical aspect of DPE, the overwhelming response given was the "management techniques". Management was also the most salient difference noted during teacher observations between teachers in the DPE high support and non-support districts. Teachers working in the high support district often congratulated and reinforced students for "good spacing". "Good spacing" meant that students were moving and actively engaged

in physical activity, but they were not close to another student or socializing (Tina, female, field notes, observation 2, high support district).

DPE management: Rules and routines. There are several rules and routines that teachers using the DPE curriculum must follow. For instance, teachers are to "move and freeze" students three times upon first entering the gymnasium or multi-purpose room. The move and freeze is a DPE technique to get students ready for the introductory activity at the start of the lesson. Teachers bring students in to the gymnasium and have them perform a locomotor activity and freeze, and then repeat two more times (Pangrazi & Beighle, 2010).

During the first visits to classrooms, teachers in the high support district were moving and freezing students at the start of the lesson during 9 of 10 observations of lessons. Teachers from the non-support district did move and freeze students at the start of the lesson but it was not always three times (ranged from 0 to 3, field notes, 30 observations) and it was only done during 40% of the observed lessons (see Figure 1). Also, teachers from the non-support districts sometimes had students enter the gymnasium and sit for role call or instruction (which is not recommended in the DPE curricular model; observed with four of ten teachers in this group).

Teachers from both district support groups had students "practice" moving and freezing when the class was not following directions or when students were talking or not following instructions quickly enough, thus supporting their fidelity to the DPE curricular model (Pangrazi & Beighle, 2010). Teachers would say, "4th grade let's practice getting into groups again. I heard talking and saw students

trying to be partners with their friends. You are supposed to be partners with the person closest to you" (Jackie, female, field notes, observation 1, high support district).

DPE management: Partner or group selection. DPE recommends that teachers use a variety of techniques to group students quickly. For instance when the teacher says "toe to toe" students are supposed to get toe to toe with the person closest to them as quickly as they can. Another example is the "whistle mixer". When the teacher blows the whistle, for instance four times, this means that students must get into groups of four and sit down as quickly as they can. However, teachers from both the high support and non-support districts only used these grouping techniques some of the time. Teachers would often say, "When I say go, four people behind the poly spot sitting" (field notes, both groups, recorded 24 times). However, teachers in the DPE high support district did use the recommended grouping techniques more often then teachers from the non-support districts (see Figure 1).

DPE management: Warnings and time-outs. Another difference between the DPE high support district and non-support districts was the use of warnings and time-outs for misbehaving students. DPE recommends "quiet, personal" warnings when a student is misbehaving (Pangrazi & Beighle, 2010). Teachers from the non-support districts were using quiet warnings for less than half of misbehaviors, (i.e., 30-40% of the time; see Figure 1). Some of the teachers in the non-support districts would simply say, "Thomas, quit doing that!" (Alan, male, field notes, observation 1, non-support district). At one school a

chair was placed at the front of the gymnasium and when a student was misbehaving they were told to go sit in the chair at the front of the room (male, field notes, observation 2, non-support district). During another observation a teacher stated, “Hey, stop that or go to time-out.” (Alan, male, field notes, observation 3, non-support district). One teacher also yelled at several students for misbehaving (Alex, male, field notes, observation 2, non-support district). When observing teachers in the high support district, quiet and personal reprimands were observed the majority (3 not quiet reprimands out of 30 observations for this group) of the time.

DPE management: Equipment use guidelines. For teachers working in both the DPE high support and non-support districts, the equipment used in the lesson was set up around the perimeter of the gymnasium before the start of each class. There were only four observations of 60 where the equipment was not set up prior to the start of the lesson.

It was typical in the high support district to observe teachers having students place equipment on the floor at the sound of the whistle (100% of the time; see Figure 1). When students hear the whistle, a common phrase heard by teachers is “hands on knees, eyes on me”. When a student does this quickly the teacher might state, “Great job Sara! You have your hands on knees, eyes on me.” If students do not perform this task quickly the teacher might have them practice picking up and setting down equipment several times. For teachers working in the non-support districts, some teachers required equipment to be placed on the

ground at the whistle while others did not find this necessary (n = 17 teachers required, n = 3 teachers did not require).

Discussion

The literature on socialization, professional development, and fidelity of implementation informed this study. This study gives insight to the level of teacher fidelity to the DPE curricular model after teachers completed an undergraduate degree at a major university that focused primarily on DPE curricular methods of instruction as well as across supportive and non-supportive districts. It has been shown that when teachers have significant teacher preparation on a specific curricular model, ongoing professional development opportunities, and administrative support, curricular models are taught with higher fidelity levels (Brown, Pitvorec, Ditto, & Randall-Kelso, 2009; Prusak et al., 2010). These conditions were met entirely by the high support district in the current study.

Teacher Preparation/In-service Training

Graber (2005) reported teachers perspectives of the quality of coursework completed during pre-service teacher training. Teachers stated that methods courses were most valuable and served as a foundation for quality teaching (Graber 2005). This relates to the current study, as all teachers underwent the same methodology coursework in their PETE training. Further, teachers in the current study stated during informal interviews that they felt comfortable teaching the DPE curricular model because they still had support from their mentor teachers (from student teaching) as well as additional support from their former

instructors at the university similar to Rovegno's (1993) and Graber's (2006) studies of a successful PETE program.

The current study also showed that teachers working in the DPE high support district were provided ample opportunities to engage in ongoing professional development. Teachers in the DPE high support district attended in-service training sessions every third Wednesday of the month. These trainings were geared at current research in Physical Education, a review of upcoming lessons to be taught, and various funding opportunities teachers were encouraged to apply for (in-service training notes).

Unique to the current study was that teachers in both the high support district and non-support districts had high or moderate/low levels of fidelity to the DPE curricular model. This may be due to the fact that the teacher preparation program that all teachers in this study attended strongly emphasized the DPE curricular model. Similar to the University of South Florida program described by Graber (2006) and Rovegno (1998), the PETE program that trained all teacher participants in the current study had frequent internships with quality mentor teachers, followed a common curriculum, and teachers attended regular professional development trainings (Prusak et al., 2010).

Teachers' Fidelity to Training Programs and Curricula

Brown et al. (2009) reported that teachers were following a standards based mathematical program with high levels of fidelity to the lesson plans, similar to the results from the current study of the DPE curricular model. Also consistent with the current studies findings on Physical Education teacher fidelity to a

curricular model, teachers follow curricular models with higher levels of fidelity when they have significant teacher training, as well as on-going professional development for the model (Brown et al., 2009; Graber 2006). The SPARK, CATCH, and EPEC Physical Education curricular models interventions have also shown lasting teacher implementation after participating in ongoing professional development experiences (Dowda et al., 2005; Kulinna et al., 2006; McKenzie et al., 2003).

Administrative Support

The current study of the DPE curricular model showed that teachers from the DPE high support district were using the model with higher levels of fidelity. That is, teachers were using DPE lessons from the DPE lesson plan book, presented lessons as a 4-part lesson, and used DPE management techniques for the majority of their classes. Conversely, teachers with no district support only taught the salient components from the checklist some of the time.

Similarly, teachers from the high support district used the DPE recommended management techniques with high levels of fidelity, while teachers with no district support used the management techniques less frequently. Some teachers working in the non-support districts were not able to teach the DPE curricular model to the extent desired by authors of the curricula due to lack of equipment, facilities, and administrative support (i.e., informal interviews). Further, a few teachers also mentioned during informal interviews (from the non-support group) that it was nice to have the DPE curriculum as a guide, but still be able to implement activities not included in the DPE schedule, and to not have to

get approval to teach a lesson not included in the schedule. These results are similar to Kloeppel, Kulinna, and Cothran's (in press) qualitative study reporting teachers' perceptions of mandated Physical Education curricular models in which teachers (in districts that mandated a particular curriculum) reported feeling restrained, and often preferred to teach using a variety of Physical Education curricula.

The current study also showed that the DPE curricular model was taught with high fidelity for teachers working in a high DPE support district. This may be attributed to the fact that teachers received monthly professional development training, as well as support and oversight from the district physical education coordinator. Prusak et al. (2010) reported similar findings in a study of the DPE curriculum and suggested that the "success" of the DPE curricular model adoption was due to various features including administrative support and oversight. Similarly, several teachers that taught the DPE model with low levels of fidelity expressed that they would like to teach the model more closely as intended by authors, but simply did not have the resources, support, and tools to teach more of the model.

The importance of administrative support has also been reported by McCaughtry and colleagues (2006). Authors concluded that additional resources enabled teachers to: (a) improve instruction by teaching more content, (b) maximize student learning opportunities, (c) teach diverse learners, (d) teach to different developmental levels, and (e) increase classroom safety. Additionally, Bevan, Fitzpatrick, Sanchez, Riley, and Forrest (2010) determined that when

teachers had access to adequate Physical Education equipment and facilities, student physical activity levels increased. Authors further suggested that having administrative support in the form of a low student to teacher ratio, human resources, and access to adequate equipment and facilities were associated with increased student activity levels and decreased class management time.

Conclusion

Teachers with common PETE preparation, administrative support, ample resources (i.e., equipment, in-service training), and district level accountability, were teaching the Physical Education curricular model at high fidelity levels. Teachers from a district with high support and administrative support for the DPE curricular model showed significantly higher fidelity to the curricular model and implemented management procedures as recommended by authors of the curricular model. Further, teachers working in the non-support districts still taught the model, but not at the same high levels of fidelity as the teachers working in the supportive district. More studies are related to various student outcomes as well as teacher fidelity to other Physical Education curricular models. Fidelity levels of teachers to Physical Education curricula is somewhat difficult to study as very few Physical Education programs have adopted and mandated one specific curricular model be used by every Physical Education teacher in a particular school district. In addition, many Physical Education programs, teachers are not held accountable to teach a specific curricular model.

References

American Heart Association. (2010). *Physical Activity: AHA Scientific Position*. http://www.americanheart.org/presenter.jhtml?identifier=4563

Armour, K., & Duncombe, R. (2004). Teachers' continuing professional development in primary physical education: Lesson from present and past to inform the future. *Physical Education and Sport Pedagogy, 9*, 3-22.

Armour, K., & Yelling, M. (2007). Effective professional development for physical education teachers: The role of informal, collaborative learning. *Journal of Teaching in Physical Education, 26,* 177-200.

Arnold, P. J. (1988). *Education, movement and the Curriculum.* London, England: Falmer Press.

Behets, D., & Vergauwen, L. (2006). Learning to teaching in the field. In D. Kirk, D. Macdonald, & M. O"Sullivan, (Eds.), *Handbook of Physical Education* (pp. 407-424). Thousand Oaks, CA: Sage Publications.

Bevan, K., Fitzpatrick, L., Sanchez, B., Riley, A., & Forrest, C. (2010). Physical education resources, class management, and student physical activity levels: A structure-process-outcome approach to evaluating physical education effectiveness. *Journal of School Health, 80*, 573-582.

Blankenship, B., Tjeerdsma, B., & Coleman, M. (2009). An examination of "wash-out" and workplace conditions of beginning physical education teachers. *The Physical Educator, 66*(2), 97-110.

Bond, E. (1988). Diversity of microcomputer implementations: A process perspective. *Journal of Research in Computing in Education, 24*, 321-330.

Bouchard, C., Blair, S. N., & Haskell, W. L. (2007). *Physical activity and health*. Champaign, IL: Human Kinetics.

Brannen, B. (2005). Mixing methods: The entry of qualitative and quantitative approaches into the research process. *International Journal of Social Research Methodology*, 8, 173-184.

Brown, S., Pivtorec, K., Ditto, C., & Randall-Kelso, C. (2009). Reconceiving fidelity of implementation: An investigation of elementary whole-number lessons. *Journal for Research in Mathematics Education, 40*, 363-395.

Carrel, A., Clark, R., Peterson, S., Nemeth, B., Sullivan, J., & Allen, D. (2005). Improvement of fitness, body composition, and insulin sensitivity in

overweight children in a school-based exercise program: A randomized, controlled study. *Archives Pediatric Adolescence Medicine, 159*, 963-968.

Centers for Disease Control and Prevention. (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *Morbidity and Mortality Weekly Report, 46,* 1-36.

Centers for Disease Control and Prevention. (2008). The obesity epidemic and United States students fact sheet, combining results from 2007 National youth risk behavior survey and 2006 school health policies and programs study. Atlanta, GA: Author.

Centers for Disease Control and Prevention (CDC). (2009).Youth physical activity guidelines toolkit. *Youth Physical Activity: The Role of Schools*. United States Department of Health and Human Services. Retrieved from http://www.cdc.gov/HealthyYouth/physicalactivity/toolkit/factsheet_pa_guidelines_schools.pdf

Centers for Disease Control and Prevention. (2010). *Physical activity, physical education and academic performance: A review of the literature*. Atlanta, GA: U.S. Department of Health and Human Services.

Corbin, C. B. (2002). Physical activity for everyone: What every physical educator should know about promoting lifelong physical activity. *Journal of Teaching in Physical Education, 21*, 128-144.

Danziger, K. (1971). *Socialization*. Baltimore, MD: Penguin Books.

Dobson, L., & Cook, T. (1980). Avoiding type III error in program evaluation: Results from a field experiment. *Evaluation and Program Planning, 3,* 269-276.

Dowda, M., Sallis, J., McKenzie, T., Rosengard, P., & Kohl, H. (2005). Evaluating the sustainability of SPARK physical education: A case study translating research into practice. *Research Quarterly for Exercise and Sport, 76*, 11-19.

Ede, A. (2006). Scripted curriculum: Is it a prescription for success? *Childhood Education, 83*, 29-33.

Ennis, C. (1992). Curriculum theory as practiced: Case studies of operationalized value orientations. *Journal of Teaching in Physical Education. 11*, 358-375.

Fairclough, S., & Stratton, G. (2005). Physical activity levels in middle and high school physical education: A review. *Pediatric Exercise Science, 17*, 217-237.

Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research, 47*(1), 335-397.

Graber, K. (2005). The influence of teacher education programs on the beliefs of student teachers: General pedagogical knowledge, pedagogical content knowledge, and teacher education course work. *Journal of Teaching in Physical Education, 14,* 157-178.

Graber, K. (2006). Influencing student beliefs: The design of a "high impact" teacher education program. *Teaching and Teacher Education, 12*, 451-466.

Hahn, E., Noland, M., Rayens, M., & Christie, D. (2002) Efficacy of training and fidelity of implementation of the life skills training program. *Journal of School Health*, *72*, 282-288.

Hastie, P., & Trost, S. (2002). Student physical activity levels during a season of sport education. *Pediatric Exercise Science, 14*, 64-74.

Hill, H. C. (2009) Fixing teacher professional development. *Phi Delta Kappa.* Spring 2009, 470-476.

Hord, S., & Huling-Austing, L. (1986). Effective curriculum implementation: Some promising new insights. *Elementatry School Journal, 87*, 97-115.

Hurmeric, I., Kirazci, S., Ince, M., & Cieck, S. (2005). Assessment of health-related physical activity level, lesson context, and teacher behavior in public and private elementary school physical education. *Journal of International Council for Health, Physical Education, Recreation, Sport, and Dance, 4,* 20-24.

Jackson, A. J., Morrow, D., Hill, D., & Dishman, R. (2004). *Physical activity for health and fitness.* Champaign IL: Human Kinetics.

Jago, R., McMurray, R., Bassin, S., Pyle, L., Bruecker, S., Jakicic, J… (2009). Modifying middle school physical education: Piloting strategies to increase physical activity. *Pediatric Exercise Science, 21,* 171-185.

Jewett, A., Bain, L., & Ennis, D. (1995). *The curriculum process in physical education* (2nd ed.) Madison, WI: Brown and Benchmark.

Kloeppel, T., Kulinna, P., & Cothran, D. (in press). Teacher evaluations of standardized physical education curricula. *The Physical Educator.*

Kulinna, P. (2008). Models for curriculum and pedagogy in elementary school physical education. *The Elementary School Journal, 108*, 219-227.

Kulinna, P., McCaughtry, N., Cothran, D., & Martin, J. (2006). What do urban/inner-city physical education teachers teach? A contextual analysis of one elementary/primary school district. *Physical Education and Sport Pedagogy, 11*, 45-68.

Kulinna, P.H., Silverman, S., & Keating, X. (2000). Relationship between teachers' belief systems and actions toward teaching physical activity and fitness. *Journal of Teaching in Physical Education, 19*, 206-221.

Lawson, H. A. (1986). Occupational socialization and the design of teacher education programs. *Journal of Teaching in Physical Education, 5,* 107-116.

Le Masurier, G. C. (2004). Health-related physical fitness and physical activity trends among American youth. *International Journal of Physical Education, 41*, 48-59.

Luepker, R. V., Perry, C. L., McKinley, S. M., Nader, P.R., Parcel, G.S., Stone, E.J…(1995). Outcomes of a field-trial to improve children's dietary patterns and physical activity. *Journal of the American Medical Association, 275,* 768-776.

Macdonald, D., & Kirk, D. (1996). Private lives, public lives: Surveillance, identity, and self in the work of beginning physical education teachers. *Sport, Education, and Society, 1*, 59-75.

Martin, J., McCaughtry, N., Kulinna, P., & Cothran, D. (2008). The influences of professional development on teachers' self-efficacy toward educational change. *Physical Education and Sport Pedagogy, 13*, 171-190.

McCaughtry, N., Martin, J., Kulinna, P., & Cothran, D. (2006). What makes teacher professional development work? The influence of instructional resources on change in physical education. *Journal of In-Service Education, 32*, 221-235.

McKenzie T. (2009). System for observing fitness instruction time: General description and procedures manual. San Diego, CA: Author.

McKenzie, T. L. (2002). The use of direct observation to assess physical activity. In G. Welk (ed.), *Physical activity assessments for health-related research* (pp. 179-195). Champaign, IL: Human Kinetics.

McKenzie, T. L., Feldman, H., Woods, S. E., Romero, K. A., Dahlstrom, V., Stone, E. J., …(1995). Student activity levels and lesson context during third-grade physical education. *Research Quarterly for Exercise and Sport, 66,* 184–193.

McKenzie, T., & Kahan, D. (2008). Physical activity, public health, and elementary schools. *The Elementary School Journal, 108*(3), 171-180.

McKenzie, T., Li, D., Derby, C., Webber, L., Luepker, R., & Cribb, P. (2003). Maintenance of effects of the CATCH physical education program: Results from the CATCH-ON study. *Health Education and Behavior, 30*, 447-462.

McKenzie, T., Marshall, S., Sallis, J., & Conway, T. (2000). Student activity levels, lesson context, and teacher behavior during middle school physical education. *Research Quarterly for Exercise and Sport, 71*, 249-259.

McKenzie, T. L., Sallis, J. F., & Nader, P. R. (1991). SOFIT: System for observing fitness instruction time. *Journal of Teaching in Physical Education*, *11*, 195-205.

McKenzie, T., Sallis, J., Prochaska, J., Conway, T., Marshall, S., & Rosengard, P. (2004). Evaluation of a two year middle-school physical education intervention: M-SPAN. *Medicine and Science in Sports and Exercise*, 1382-1388.

McKenzie, T., Sallis, J., & Rosengard, P. (2009). Beyond the stucco tower: Designing, development, and dissemination of the SPARK physical education program. *American Academy of Kinesiology and Physical Education, 61,* 114-127.

McKenzie, T., Stikmiller, P., Stone, E., Woods, S., Ehlinger, S., Romero, K., & Budman, S. (1994). CATCH: Physical activity process evaluation in a multicenter trial. *Health Education Quarterly, Supplement 2*, S73-S89.

McNamee, J., & van der Mars, H. (2005). Accuracy of momentary time sampling: A comparison of varying interval lengths using SOFIT. *Journal of Teaching in Physical Education*, *24*, 282-292.

Metzler, M. (2006). *Instructional models for physical Education* (2nd ed.). Scottsdale, AZ: Holcomb Hathaway.

Mills, S., & Ragan, T. (2000). A tool for analyzing implementation fidelity of an integrated learning system. *Education Technology Research and Development, 48*(4), 21-41.

Morgan, C., Beighle, A., & Pangrazi, R. (2007). What are the contributory and compensatory relationships between physical education and physical activity in children? *Research Quarterly for Exercise and Sport, 78*, 407-412.

Mulheron, J., & Vonasek, K. (2009). Shaping a healthier generation: Successful state strategies to prevent childhood obesity. *NGA Center for Best Practices,* 1-64. Retrieved from http://www.rwjf.org/files/research/20091026healthiergeneration.pdf

National Association for Sport and Physical Education. (2004). *Moving into the future: National standards for physical education* (2nd ed.). Reston, VA: McGraw Hill.

National Association for Sport and Physical Education (2009). *Physical education trends in our nation's schools: A survey of practicing K-12 physical education teachers*. Port Washington, NY: Roslow Research Group. Retrieved from http://www.aahperd.org/naspe/about/announcements/upload/PE-Trends-Report.pdf

O'Donnell, C. L. (2008). Defining, conceptualizing, and measuring fidelity of implementation and its relationship to outcomes in K-12 curriculum intervention research. *Review of Educational Research*, 78(1), 33-84.

O'Sullivan, M. (1989). Failing gym is like failing lunch or recess: Two beginning teachers' struggle for legitimacy. *Journal of Teaching in Physical Education*, *8*, 227-242.

Pangrazi, R. P., & Beighle, A. (2010). *Dynamic physical education for elementary school children* (16th ed.). San Francisco, CA: Pearson Education.

Pangrazi, R. P., & Beighle, A. (2010). *Dynamic physical education curriculum guide: Lesson plans for implementation* (16th ed.). San Francisco, CA: Pearson Education.

Pangrazi, R. P., & Corbin, C. B. (2000). Health Foundations: Toward a focus on

physical activity promotion. *International Journal of Physical Education, 2*, 40-49.

Pate, R., Davis, M., Robins, T., Stone, E., McKenzie, T., & Young, J. (2006). Promoting physical activity in children and youth: A leadership role for schools. *Circulation: Journal of the American Heart Association, 114,* 1214-1224.

Pence, K., Justice, L., & Wiggins, K. (2008). Preschool teachers' fidelity in implementing a comprehensive language-rich curriculum. *Language, Speech & Hearing Services in Schools, 39*, 329-341.

Penney, D. (2006). Curriculum construction and change. In D. Kirk, D. Macdonald, & M. O'Sullivan (Eds.), *The Handbook of Physical Education* (pp. 565-579). Thousand Oaks, CA: Sage Publications.

Pissanos, B. W., & Allison, P. C., (1996) Continued professional learning: A topical life history. *Journal of Teaching in Physical Education, 16,* 2-19.

Pope, R., Coleman, K., Gonzalez, E., Barron, F., & Heath, E. (2002). Validity of revised system for observing fitness instruction time (SOFIT). *Pediatric Exercise Science, 14,* 135-146.

Print, M. (1993). *Curriculum development and design.* (2nd ed.) St. Leonard's, Australia: Allen and Unwin.

Prusak, K., Pennington, T., Graser, S. V., Beighle, A., & Morgan, C. (2010). Systematic success in physical education: The east valley phenomenon. *Journal of Teaching in Physical Education, 29*, 85-106.

Rovegno, I. (1993). Content-knowledge acquisition during undergraduate teacher education: Overcoming cultural templates and learning through practice. *American Educational Research Journal, 30*, 611-642.

Rowe, P. J., Schuldheisz, J. M., & van der Mars, H. (1997). Measuring physical activity in physical education: Validation of the SOFIT direct observation instrument for use with first to eighth grade students. *Pediatric Exercise Science, 9*, 136-149.

Sallis, J. F., & McKenzie, T. L. (1991). Physical education's role in public health. *Research Quarterly for Exercise and Sport, 62,* 124–137.

Sallis, J., McKenzie, T., Alcaraz, J., Kolody, B., Faucette, N., & Hovell, M.

(1997). The effects of a 2-year physical edcuaiton program (SPARK) on physical activity and fitness in elementary school students. *American Journal of Public Health, 87*, 1328-1334.

Scruggs, P. W. (2007). Quantifying activity time via pedometry in fifth- & sixth-grade physical education. *Journal of Physical Activity & Health*, *4,* 215-227.

Scruggs, P.W., Beveridge, S. K., Eisenman, P. A., Watson, D. L., Schultz, B. B., & Ransdell, L. B. (2003). Quantifying physical activity via pedometry in elementary physical education. *Medicine and Science in Sports and Exercise, 35*, 1065-1071.

Scruggs, P. W., Beveridge, S. K., Watson, D. L., & Clocksin, B. D. (2005). Quantifying physical activity in first- through fourth-grade physical education via pedometry. *Research Quarterly for Exercise & Sport*, *76*, 166-175.

Shaya, F., Flores, D., Gbarayor, C., & Wang, J. (2008). School-based obesity interventions: A literature review. *Journal of School Health, 78*, 189-196.

Sherman, C., Tran, C., & Alves, Y. (2010). Elementary school classroom delivered physical education: Costs, benefits, and barriers. *The Physical Educator, 67,* 2-12.

Sirard, J. R., & Pate, R. R. (2001). Physical activity assessment in children and adolescents. *Sports Medicine, 31*(6), 439-454.

Smith, P., & Ragan, T. (1999). *Instructional Design* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Solmon, M. A., Worthy, T., & Carter, J. A. (1993). The interaction of school context and role identity of first-year teachers. *Journal of Teaching in Physical Education*, *12,* 313-328.

Steinhardt, M. (1992). Physical Education. In P. Jackson (Ed.), *Handbook of Research on Curriculum* (pp. 964-1000). New York, NY: Macmillan Publishing Company.

Story, M. (1999). School-based approaches for preventing and treating obesity. *International Journal of Obesity*, Suppl 2, S43-S51.

Strong, W. B., Malina, R. & Blimkie, C. (2005). Evidence based physical activity for school-age youth. *Journal of Pediatrics, 146*, 732-737.

Stroot, S. A., Faucette, N., & Schwager, S. (1993). In the beginning: The induction of physical educators. *Journal of Teaching in Physical Education*, *12*, 375-385.

Stroot, S., & Whipple, C. (2004). Organization socialization: Factors affecting beginning teachers. In S. Silverman, & C. Ennis (Eds.), *Student Learning in Physical Education: Applying Research to Enhance Instruction* (p. 311-328). Champaign, IL: Human Kinetics.

Thomas, K. T. (2004). Riding to the rescue while holding on by a thread: Physical activity in the schools. *Quest, 56*, 150-170.

United States Department of Education. (2006). *Education research grant request for application*: *CFDA Number 84.305*. Washington, DC: Institute for Education Sciences. Retrieved from http://ies.ed.gov/funding/pdf/2010_84305A.pdf

United States Department of Health and Human Services. (1996). Physical activity and health: A report of the surgeon general. Atlanta, GA: Centers for Disease Control and Prevention.

United States Department of Health and Human Services. (2008). *2008 Physical activity guidelines for Americans.* Washington, D.C.: Author.

United States Department of Health and Human Services. (2009). *Developing Healthy People 2020: Physical Activity and Fitness.* Atlanta, GA: Author.

van der Mars, H., Vogler, B., Darst, P., & Cusimano, B. (1998). Students' physical activity levels and teachers' active supervision during fitness instruction. *Journal of Teaching in Physical Education, 18*, 57-75.

Van Maanen, J., & Shein, E. (1979). Toward a theory of organizational socialization. In B. Staw (Ed.), *Research in organization behavior* (Vol. 1; pp.209-261), Greenwich, CT: JAI Press.

Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research, 54,* 143-178.

Ward, P., & Doutis, P. (1999). Toward a consolidation of knowledge base reform in physical education. *Journal of Teaching in Physical Education, 18,* 382-402.

Zeichner, K., & Conklin, H.(2008). Introduction: settings for teacher education. In M. Cochran-Smith, S. Feiman-Nemser, D. McIntyre, and K. Demers

(Ed.), *Handbook of research on teacher education: Enduring questions in changing contexts* (Vol. 3: pp. 269-289), New York, NY: Routledge.

Zeichner, K., & Tabachnick, R. (1981). Are the effects of university education "washed-out" by school experience? *Journal of Teacher Education, 32*(3), 7-11.

APPENDIX A

EXPANDED LITERATURE REVIEW

The term "Curriculum" is somewhat difficult to define as it has a variety of meanings across educational settings (Print, 1993). Arnold (1988) defines curriculum as all planned activities, formal or informal, that are developed and pursued with students' interest in mind. Ennis (1992) simplifies the term, stating that curriculum is the learning experiences that occur within the school setting. Because curriculum encompasses the education field, it is only appropriate that training in curricular models be offered to teachers to keep them informed and current in terms of the latest curricular models.

Professional Development

Training in curricular models. A major component of the SPARK Physical Education curricular model is the focus on staff development and on-going training. The trainings are designed to: (a) enhance teachers' commitment to health-related Physical Education, (b) help teachers understand the SPARK curricular units, (c) develop management and instructional skills needed for effective program implementation, and (d) assist teachers in overcoming barriers to fully implement the models (Dowda, Sallis, McKenzie, Rosengard, & Kohl, 2005; McKenzie et al. 1994, 2003, 2004). The purpose of the staff development workshops were to have all of the teachers that implemented the SPARK program into their schools become familiar with the curriculum and implementation strategies, as well as, make a commitment to provide a minimum of three 30-minute SPARK Physical Education lessons per week (Dowda et al., 2005; McKenzie et al., 1994, 2003). The staff development workshops were active, with teachers engaging in lessons, physical skills, and activities they would eventually

teach. On-site facilitators were trained in an 80-hr program under the guidance of the SPARK executive director. The on-site facilitators helped teachers overcome several implementation barriers such as facility scheduling and equipment management (Dowda et al., 2005; McKenzie et al., 1994, 2003). Sometimes, when teachers do not receive the training necessary to teach a curricular model appropriately, wash-out may occur.

Washout in education. Zeichner and Tabachnick (1981) describe the washout effect as the period when the effect of the teacher education program diminishes. As beginning teachers move from being a student in teacher education programs to teaching in schools, they may experience "reality shock" (Veenman, 1984), because their teaching situations are vastly different from those in their pre-service practicum settings.

One consequence of this reality shock may be that beginning teachers return to traditional means of teaching. Zeichner and Tabachnik (1981) propose three reasons for this consequence: (a) teacher education programs have a weak impact on pre-service teachers and do not permanently impact their beliefs and practices, (b) while claiming to promote and teach more creative means of education, teacher education programs actually support more traditional instructional methods, and (c) the beliefs and skills beginning teachers have learned from their teacher education program are actually "washed out" by the difficult circumstances they encounter in their induction years.

Political and economic factors affecting teacher washout include national standards, state and local requirements, and state and local economic constraints

(Lawson, 1986). A beginning teacher who tries to establish a program following the state or national standards, or tries to teach a specific curricular model may feel frustrated if the local requirements and/or budget do not support those standards. A teacher in this type of situation is more likely to experience wash-out than a beginning teacher who buys into the state of national standards and is supported in those beliefs by the local curriculum and budget (Zeichner & Tabachnick, 1981). Washout of the teacher education program can occur in all subject matters and is similar for general education teachers and Physical Education teachers.

Washout in physical education. While PETE programs emphasize measurable student learning as an outcome of Physical Education instruction, many school administrators, faculty, parents, students, or even fellow Physical Education teachers do not hold the same views (O'Sullivan, 1989; Stroot, Faucette, & Schwager, 1993). Novice elementary Physical Education teachers are also often isolated from other teachers (e.g., O'Sullivan, 1989; Stroot et al., 1993), which may lead to a lack of follow through in focusing on student learning outcomes, which may be considered a type of wash-out.

The resources allocated to a beginning teacher, such as the amount of equipment and available facilities, can greatly impact whether that teacher experiences wash-out or not; teachers with the equipment they need to teach the lessons they want are less likely to experience wash-out than teachers with inadequate equipment (McCaughtry, Martin, Kulinna, & Cothran, 2006). Likewise, giving a teacher more control over what or how to teach will help to

inhibit wash-out of teacher training (Blankenship, Tjeerdsma, & Coleman, 2009). Fellow teachers can also have a big impact on whether washout occurs for beginning teachers. Classroom teachers, or even fellow Physical Education teachers, who do not see the value of Physical Education or helping students learn can make things difficult for beginning teachers, and result in wash-out of well-learned teaching skills (Blankenship et al., 2009).

Lastly, personal-social factors may influence retention of teaching behaviors or wash-out in beginning teachers. Most teachers desire student acceptance and enthusiasm for the content (Lawson, 1986). Students who resist the activities taught by a beginning teacher or how those activities are taught may lead a teacher to abandon activities, methods, and curricula learned in teacher preparation programs. Physical Education teachers are often also coaches. If the coach role conflicts with the teacher role (e.g., time given to each role, amount of respect afforded for each role), a beginning teacher may begin to let his/her teaching efforts/preparation slide in favor of the coaching role (Blankenship et al., 2009). One important measurable outcome for Physical Education is physical activity.

Physical Activity Patterns in Physical Education

Importance of measuring physical activity. The promotion of physical activity has gained tremendous momentum since the landmark Surgeon General's Report on Physical Activity and Health (USDHHS, 1996), the first report to summarize the health benefits of physical activity and reduced risk of hypokinetic diseases and call for national action. This movement toward physical activity

promotion was started initially by an article by Sallis and McKenzie (1991) who coined the term "Health-Related Physical Education" programs. This effort was further supported by the report "Health Foundations: Toward a Focus on Physical Activity Promotion" (Pangrazi & Corbin, 2000), which highlighted the need to move toward physical activity promotion in Physical Education. This has further led to the emergence of and emphasis on objective physical activity measurement (Le Masurier, 2004). The need to understand where and how much physical activity children accumulate has become increasingly important in assisting the development of curriculum and interventions that target physical activity promotion. Given the current public health emphasis guidelines for daily physical activity and the clear health benefits of physical activity, objective measurement of physical activity is necessary.

Measuring physical activity levels. Accelerometers are commonly used in measuring physical activity levels. Accelerometers are effective tools for the objective measurement of physical activity because they have the ability to continuously record physical activity data over user-specified time intervals (e.g., 5s, 15s, 30s, 1min, etc.; LeMasurier, 2004). Estimates of physical activity intensity (i.e., MVPA) can be determined using the accelerometer output and age-specific physical activity intensity cut-points. Thus, accelerometers can provide objective estimates of the time students spend in health enhancing levels of physical activity during Physical Education. Researchers have used accelerometers to examine physical activity in Physical Education (Hastie & Trost, 2002) and to validate other physical activity measurement tools for

assessing physical activity in Physical Education (Pope, Coleman, Gonzalez, Barron, & Heath, 2002). Establishing standardized accelerometer data collection procedures among researchers is necessary for collecting valid and comparable measures of physical activity in Physical Education. Accelerometers, however, are expensive for data collection in field studies.

The use of pedometers has also been found to produce valid scores and a practical physical activity assessment tool for use in field studies. Research studies have been undertaken to determine if pedometer output, steps/min, can accurately quantify physical activity in Physical Education (Scruggs, 2007). Scruggs et al. (2003) attempted to correlate 1st and 2nd grade students' physical education physical activity measures of steps per minute and MVPA as measured by systematic observation. Authors' suggested that that a step/min interval of 60-63 was an accurate indicator of 33 percent of the Physical Education time engaged in physical activity. Scruggs, Beveridge, Watson, and Clocksin (2005) further cross-validated the original study (2003) of first and second grade results (n=126), and established a step/min interval for third and fourth graders (n=131). The original first and second grade results were found to be accurate, as a step/min interval of 61-63 was the most accurate indicator of students engaging in physical activity for 33 percent of the PE time. Similar results were found for the third and fourth grade sample, as a step/min interval of 58-61 was the most accurate indicator of 33 percent of the Physical Education time engaged in physical activity. Scruggs (2007) also studied a sample of 149 fifth and sixth grade students, and 180 seventh and eighth graders. A step/min interval of 56-60

was found to be an accurate indicator of fifth and sixth grade students who engaged in physical activity for 33 percent of the Physical Education time. For seventh and eighth graders, a step/min interval of 85-87 was an accurate indicator of 50 percent of the Physical Education time engaged in physical activity.

APPENDIX B

IRB APPROVAL & ADDENDUM

ASU ARIZONA STATE UNIVERSITY
RESEARCH AND ECONOMIC AFFAIRS

Office of Research Integrity and Assurance

To:	Pamela Kulinna BLDG 140
From:	Mark Roosa, Chair Soc Beh IRB
Date:	05/21/2010
Committee Action:	**Exemption Granted**
IRB Action Date:	05/21/2010
IRB Protocol #:	1005005166
Study Title:	Teacher fidelity to the Dynamic Physical Education curriculum model across environments: Content outcomes

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(1) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

APPENDIX C

SOFIT and DPE OBSERVATIONAL CHECKLISTS

Dear Physical Education Specialists,

My name is Tiffany Kloeppel. I am a doctoral student in Physical Education Teacher Education/Sport Pedagogy at Arizona State University. I am preparing to start a research project for my doctoral dissertation. The study will focus on the Dynamic Physical Education curricular model and how teachers use and implement the curriculum.

Part of this process includes developing a valid instrument that allows me to determine if and to what extent a well-known Physical Education curriculum and instruction model (I.e., Dynamic Physical Education-DPE) is implemented by teachers.

To develop the best possible instrument I would like to request your assistance. Specifically, I would like you to share your thoughts on what you believe to be the fundamental/critical elements of DPE or elements that must occur for a lesson to be a "true" DPE lesson.

In the table below please list any 15 features of the DPE curricular model in order of priority that you feel make an authentic DPE lesson/program. In order to help you in this process, I've provided some ideas below; however, your 15 items do not need to be related to this list.

Additionally, please give a brief statement or explanation as to why you believe the element listed is unique or critical to the DPE model.

Gender_____ Ethnicity_____ District_____

Years of Teaching_____ P.E. Certified_____

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	

Samples:

a) Each lesson includes the four distinct parts.
b) Ample equipment to support the curriculum (individual pieces, group pieces)
c) Move and freeze three times before/during the introduction activity.
d) Lesson plan cards are available for use.

Please match the Description on the left to the Categories listed below (e.g., 4 part lesson, management, etc.) by placing a check mark in the box with the strongest correlation. Additionally, if you feel that a specific description does not fit the DPE curriculum you may choose to delete the description, reword a description, or add a description if you believe something is crucial to teaching DPE and it is not included in the list. There is also a section for general comments at the bottom of the page.

	4 Part Lesson	**Manag.**	**School and District Curriculum Support**	**Equip.**	**Instruction**
Intro 2-3 min.					
District CURRICULUM GUIDE plan of activities; schedule					
Game 5-7 min.					
Quiet, personal Warning, timeout and return, timeout for rest of class					
Lesson focus 12-15 min.					
Fitness 7-8 min.					
Three move and freezes before intro; when students enter the gym					
Lesson plan cards available for use					
Partner or team selection; toe to toe or whistle mixer					
Lessons are from DPE book					
Developmentally appropriate equipment that supports the curriculum					
Teacher gives brief, concise directions					
Students set					

equipment down and students freeze on whistle					
Student centered/working at own level or PACE/individual success/ student choice					
Equipment is set up and used for all lessons					
Teacher manages class through movement					
Individual activity episode length typically not more than one minute to one and a half minute					

Items to add:

1).

2)

3)

4)

5)

Items to delete:

1)

2)

3)

4)

5)

Comments:

Actual instrument used to collect DPE data.

	4 Part Lesson
Intro 2-3 min.	
Fitness 7-8 min.	
Lesson focus 12-15 min.	
Game 5-7 min.	
	Management and Equipment
Quiet, personal Warning, timeout and return, timeout for rest of class	
move and freeze 3 times before intro; when students enter the gym	
Partner or team selection; toe to toe or whistle mixer	
Teacher manages class through movement	
Students set equipment down and students freeze on whistle	
Equipment is laid out and easily accessible for use for all lessons	
Developmentally appropriate equipment that supports the curriculum	
	School/District Curriculum Support and Instruction
District CURRICULUM GUIDE plan of activities; schedule	
Lesson plan cards on person and are used	
Lessons are from DPE book	
Student centered/working at own level or PACE/individual success/ student choice	
Teacher gives brief, concise directions; less than 30 seconds	

SOFIT RECORDING FORM

Date _____ School _____ Grade __/Period ___ Teacher _____ Teacher Gen: M F SERIES____
Time start _____ Observer _____ Rel obs ____ No girls ____ boys ____ Location: O I
Time end _____ Lesson Length _____ No of obs. ____ Page 1 2 3 4 of __

Interval		Student Activity	Lesson Context	Interactions	NOTES
	1	1 2 3 4 5	M K F S G O	I O N	
	2	1 2 3 4 5	M K F S G O	I O N	
	3	1 2 3 4 5	M K F S G O	I O N	
o	4	1 2 3 4 5	M K F S G O	I O N	
n	5	1 2 3 4 5	M K F S G O	I O N	
e	6	1 2 3 4 5	M K F S G O	I O N	
	7	1 2 3 4 5	M K F S G O	I O N	
m/f	8	1 2 3 4 5	M K F S G O	I O N	
	9	1 2 3 4 5	M K F S G O	I O N	
	10	1 2 3 4 5	M K F S G O	I O N	
	11	1 2 3 4 5	M K F S G O	I O N	
	12	1 2 3 4 5	M K F S G O	I O N	
	13	1 2 3 4 5	M K F S G O	I O N	
	14	1 2 3 4 5	M K F S G O	I O N	
	15	1 2 3 4 5	M K F S G O	I O N	
t	16	1 2 3 4 5	M K F S G O	I O N	
w	17	1 2 3 4 5	M K F S G O	I O N	
o	18	1 2 3 4 5	M K F S G O	I O N	
	19	1 2 3 4 5	M K F S G O	I O N	
	20	1 2 3 4 5	M K F S G O	I O N	
m/f	21	1 2 3 4 5	M K F S G O	I O N	
	22	1 2 3 4 5	M K F S G O	I O N	
	23	1 2 3 4 5	M K F S G O	I O N	
	24	1 2 3 4 5	M K F S G O	I O N	
	25	1 2 3 4 5	M K F S G O	I O N	
	26	1 2 3 4 5	M K F S G O	I O N	
	27	1 2 3 4 5	M K F S G O	I O N	
t	28	1 2 3 4 5	M K F S G O	I O N	
h	29	1 2 3 4 5	M K F S G O	I O N	
r	30	1 2 3 4 5	M K F S G O	I O N	
e	31	1 2 3 4 5	M K F S G O	I O N	
e	32	1 2 3 4 5	M K F S G O	I O N	
	33	1 2 3 4 5	M K F S G O	I O N	
m/f	34	1 2 3 4 5	M K F S G O	I O N	
	35	1 2 3 4 5	M K F S G O	I O N	
	36	1 2 3 4 5	M K F S G O	I O N	
	37	1 2 3 4 5	M K F S G O	I O N	
	38	1 2 3 4 5	M K F S G O	I O N	
	39	1 2 3 4 5	M K F S G O	I O N	
f	40	1 2 3 4 5	M K F S G O	I O N	
o	41	1 2 3 4 5	M K F S G O	I O N	
u	42	1 2 3 4 5	M K F S G O	I O N	
r	43	1 2 3 4 5	M K F S G O	I O N	
	44	1 2 3 4 5	M K F S G O	I O N	
	45	1 2 3 4 5	M K F S G O	I O N	
m/f	46	1 2 3 4 5	M K F S G O	I O N	
	47	1 2 3 4 5	M K F S G O	I O N	
	48	1 2 3 4 5	M K F S G O	I O N	
SUM					

SOFIT DATA TRACKING FORM

FROM: _____ **DATE:** _____

ADDRESS: _____

PHONE: _____ **FAX:** _____

E-MAIL: _____

Attached are PEOF and SOFIT DATA FORMS for the following PE Observations:

	District	School	Date	Grade	Classroom/PE teacher	#SOFIT sheets
(E.G.,)	#1 ISD	Obama	10.02.09	4	Jones-4A/Clinton	2
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

PLEASE ADD COMMENTS BELOW AND ON THE REVERSE SIDE. THANKS!

APPENDIX D

CURRICULUM AND STANDARDS

LESSON CALENDER

TEACHER IN-SERVICE ARTIFACTS

Due to the page limitations of this document, this is a sample page of the lesson calendars used in the support district P.E. programs

ELEMENTARY PHYSICAL EDUCATION Program Activities 2010-11 Developmental Level II				
Week	**Introductory Activity 2-3 min.**	**Fitness Development 7-8 min.**	**Lesson Focus 12-15 min.**	**Closing Activity 5-7 min.**
SBT ***Split MPR***	**Move & Freeze on Signal p. 109** **Spatial awareness*	**Teacher Leader Movement Challenges p. 110** **Skip counting* **Spatial awareness* **Area of a shape* **Components of fitness*	**Orientation & Class Management Activities p.109 Beanbags, Blue Foam Balls, Fleeceballs, Scarves** **Grouping,* **Shapes* **Parallel lines*	**Toe to Toe Whistle Mixer p. 110 Home Base p. 142** **Grouping* **Listening skills* **Body part identification* **Center of area*
#1 **8/11-13** **DBT**	**Move & Freeze on Signal p. 109** **Spatial awareness*	**Teacher Leader Movement Challenges p. 110** **Skip counting* **Spatial awareness* **Area of a shape* **Components of fitness*	**Orientation & Class Management Activities p.109 Beanbags, Blue Foam Balls, Fleeceballs, Scarves** **Grouping,* **Shapes* **Parallel lines*	**Toe to Toe Whistle Mixer p. 110 Home Base p. 142** **Grouping* **Listening skills* **Body part identification* **Center of area*
SBT ***Split MPR***	**European Running p. 124** **Shape and letter recognition*	**Teacher Leader Exercises #1 p. 111** **Skip counting* **Spatial*	**Gymnastics Skills #1 p. 124** **Sequence of steps* **Parallel &*	**Circle Contests Whistle Mixer Alaska Baseball p. 126**

	*CW & CCW *Steady beat *Letter Recognition*	*awareness *Area of a shape *Components of fitness*	*perpendicular lines *90, 180, 270, 360 degrees *¼, ½, ¾, and full turns *Prediction*	*Grouping *Circumference *Skip counting *Greater than, less than*

Due to the page limitations of this document, this is a sample page of the schedule/curriculum guide used in the support district P.E. programs

PUBLIC SCHOOLS
Elementary Physical Education

YEARLY LESSON FOCUS ACTIVITIES
2010-11
DISTRICT-BASED TEACHERS

DATE	***K-2 DL-I***	***3-4 DL-II***	***5-6 DL-III***
Aug. 11-13	*Orientation & Class Management Activities (Beanbags, Blue Foam Balls, Fleeceballs, Scarves)*	*Orientation & Class Management Activities (Beanbags, Blue Foam Balls, Fleeceballs, Scarves)*	*Orientation & Class Management Activities (Beanbags, Blue Foam Balls, Fleeceballs, Scarves)*
Aug. 16-20	*Individual Rope Jumping Skills*	*Individual Rope Jumping Skills*	*Individual Rope Jumping Skills*
Aug. 23-27	*Gymnastics Skills #1*	*Gymnastics Skills #1*	*Gymnastics Skills #1*
Aug. 30-Sep. 3	*Manipulative Skills Using Beanbags*	*Pedometers*	*Advanced Pedometers*
Sep. 7-10 **Labor Day 9-6**	*Manipulative Skills Using Hoops*	*Manipulative Skills Using Wands & Hoops*	*Manipulative Skills Using Wands & Hoops*
Sep. 13-17	*Balance Beams/Benches*	*Balance Beams/Benches*	*Balance Beams/Benches*
Sep. 20-24	*Fundamental Skills Using Climbing Ropes #1*	*Fundamental Skills Using Climbing Ropes #1*	*Fundamental Skills Using Climbing Ropes #1*
Sep. 27-Oct.1	*Movement Skills #7*	**Fitness Selt-Testing**	*Fitness Self-Testing*
Oct. 4-8 ***October Break 10/11-15***	*Fundamental Skills Using a Parachute*	*Fundamental Skills Using a Parachute*	*Cooperative Game Skills*

Oct. 18-22 ***Parent/Teacher Conf. Week***	*Rhythmic Movement Skills #1*	*Rhythmic Movement Skills #1*	*Rhythmic Movement Skills #1*
Oct. 25-29	*Kicking, Trapping, Bowling & Rolling*	*Soccer Skills & Lead-Up Activities #1*	*Soccer Skills & Lead-Up Activities #1*
Nov. 1-5	*Movement Skills #2*	*Soccer Skills & Lead-Up Activities #2*	*Soccer Skills & Lead-Up Activities #2*
Nov. 8-12 ***Veteran's Day 11/11***	*Throwing Skills #1*	*Throwing Skills #1*	*Throwing Skills #1*
Nov. 15-19	*Manipulative Skills Using Playground Balls*	*Manipulative Skills Using Playground Balls*	*Football Skills & Lead-Up Activities #1*
Nov. 22-24 ***Thanksgiving 11/25-26***	*Walking and Jogging Skills*	*Walking*	*Walking, Orienteering, Cross Country*
Nov. 29-Dec. 3	*Long Rope Jumping Skills*	*Long Rope Jumping Skills*	*Long Rope Jumping Skills*
Dec. 6-10	*Throwing Skills #2*	*Throwing Skills #2*	*Throwing Skills #2*
Dec. 13-17 ***Winter Break 12/20-31***	*Rhythmic Movement Skills #2*	*Rhythmic Movement Skills #2*	*Rhythmic Movement Skills #2*