

**Environmental support and physical education teacher self-efficacy:
A test of social cognitive theory**

by

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CHAPTER 1 - INTRODUCTION

School physical education has been identified as an important vehicle for delivering physical activity to millions of children and adolescents in the U.S. (Lee, Burgeson, Fulton, and Spain, 2007). Teachers are critical in determining the activities in which children engage in during physical education classes. They can decide to implement curricula and teach lessons that focus on social skills, sport skills, or health-related fitness. According to Social Cognitive Theory (Bandura, 1997) a major determinant of the choices teachers make are their own instructional self-efficacy beliefs. Few researchers have examined the self-efficacy of physical education teachers.

Social Cognitive Theory defines human behavior as one component of a triadic, dynamic, and reciprocal interaction of personal factors, behavior, and the environment (Bandura, 1977; 1986). Self-efficacy is a major construct of the Social Cognitive Theory. Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Bandura, 1994). Bandura suggests that having a strong sense of self-efficacy enhances human accomplishment and personal well-being in many ways. In contrast, people low in self-efficacy shy away from difficult tasks which they view as personal threats. Individual beliefs about self-efficacy are developed by four main sources of influence; *past performance accomplishments* (most effective), *vicarious experiences*, *verbal persuasion*, and *emotional arousal*.

Chase, Lirgg, and Carson (2001) developed the Teacher Efficacy Scale in Physical Education (TESPE) based on four dimensions of teacher efficacy: *Motivation*, *Analysis of Skills*, *Preparation*, and *Communication*. According to their teacher efficacy model, teachers high in

overall efficacy will provide more instructional time and a higher quality of feedback to students than teachers with low teacher efficacy.

Teacher self-efficacy has been found to predict student achievement, student motivation, and students' own sense of self-efficacy. Further, teacher self-efficacy has been linked to teacher's enthusiasm for teaching, teachers' high confidence levels and positive attitudes, their willingness to experiment with new methods, the amount of effort and persistence a teacher demonstrates, their commitment to teaching, teacher retention, and an orderly and positive school atmosphere and greater classroom-based decision making (Ward, 2005).

Unlike other disciplines, physical education does not have a national curriculum. Instead, physical education has a set of competencies that have been labeled *content standards* specifying what a student should know and be able to do as a result of participating in a quality physical education program (National Association for Sport and Physical Education, 2004). Associated with these standards are *benchmarks*, which are specific skills and knowledge that represent progress towards the standards.

Little is known about teachers understanding of and attitudes toward the physical education standards. Doolittle (2003) suggested standards-based curricula represent a huge paradigm shift for many teachers currently in the field. Chen (2006) identified a disturbing misalignment between the standards and the actual curriculum offered in some schools today. Curricular alignment is expressed in two directions—vertical and horizontal (Thomas, Lee and Thomas, 2008). Vertical alignment describes the relationship of the benchmarks and content across grades and is usually a shared responsibility. Horizontal alignment is vested in individual teachers within a unit of instruction or within an individual lesson. In a well-aligned program, the connection among standards, objectives, activities, and assessment is obvious (Thomas et al,

2008). Developed by the Centers for Disease Control and Prevention (CDC), the *Physical Education Curriculum Analysis Tool* (PECAT) was designed to assess how closely the written curricula align with national standards, guidelines, and best practices for quality physical education programs.

Meaningful professional development has been highlighted as one of the empowering vehicles for equipping teachers with adequate knowledge of educational standards (Borko, Elliott, & Uchiyama, 2002; Glisan, 1996; Leinwand, 1992). Bandura (1997) recommends intensive on-site training with guided practice and corrective feedback about how to translate conceptual change into desired school practices. With staff members who doubt that they can exercise much influence and who view innovations skeptically, staff training must build a sense of teaching efficacy as well as skill in new educational practices (Bandura, 1997).

Legitimate collaborations are rare in general education and even rarer in physical education (Martinek & Schempp, 1988). Schools can promote teacher efficacy by cultivation and providing organizational support through positive collaboration with the teaching staff and administrators as well as providing resources and direction for the use of those materials (Chester & Beaudin, 1996; Weiss, 1999). Unfortunately, physical education teachers traditionally avoid long term collaboration with their colleagues and resist involvement in whole school decision making (Sparkes, 1991). The advent of new social media technology, particularly blog technology, has the capacity to engage collaborative activity (Stiler & Philleo, 2003) but its usefulness in physical education is unknown. A critical question is whether or not this will work in physical education.

Given this lack of research and the importance of physical education classes, the purpose of this study was to develop and test the effect of a standards-based training program and six-

week weblog on self-efficacy. A secondary goal of this study was to analyze the standards, benchmarks and physical education curriculum from sixteen independent school districts.

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PILOT STUDY 1

Analysis of Standards and Benchmarks for Fourteen School Districts (Thomas, Smith & Buns, 2010).

The purpose of this project was to assess the vertical alignment of physical education curricula. Districts provided standards and benchmarks for analysis of the vertical articulation of the benchmarks. All districts were located in one state that does not provide state physical education standards or benchmarks. In small districts (n=7) the Physical Education Teacher Evaluation Tool (National Association for Sport and Physical Education, 2007) (Appendix I) was used with the cooperation of one teacher while in larger districts (n=7) one teacher per level (elementary, middle and high school) were observed (total 28).

Districts had standards for physical education (mean=5.5) with as few as three and as many as seven standards. Six of fourteen districts used the current National Association for Sport and Physical Education (NASPE) National Content Standards (NNCS) exactly or with modifications, four used a previous version of the NNCS and four districts did not use or modify the NNCS. All districts included a standard on skill, personal and/or social responsibility, and fitness. Valuing physical activity was the most frequently omitted of the NNCS standards. The national content standards (2004) are:

- Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities
- Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.
- Standard 3: Participates regularly in physical activity
- Standard 4: Achieve and maintains a health enhancing level of physical fitness.

- Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.
- Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Districts divided grades into levels in three ways; clusters (e.g., k-2, 3-6, 7-8, 9-12), all grades (e.g., k, 1, 2, 3 etc.), and late start (begin clusters at grade 3 or 5). Clusters (n=8) were the most common organizing method, with all grades next (n=3) followed by late-start (n=2). One district did not separate benchmarks by level. Sequencing (the tracking of something students should know or do across levels) was evident in two districts where at least one benchmark for each standard was present at all levels. Five districts had no benchmarks that tracked across levels, however one was because no levels were identified, one because no benchmarks were present for grades 7-12, and two were in districts where there were 10-12 levels. There were from 26 to 240 benchmarks (mean=88). Larger districts had more benchmarks than smaller districts, and more benchmarks were present in the lower levels/grades.

Little time was allocated to vertical curriculum meetings and professional development in these districts. Physical education curriculum plans in these districts would benefit from careful application of PECAT and corresponding revisions.

PILOT STUDY 2

Physical Education After Local Wellness Policies (The study sample was from the Iowa Department of Education, Team Nutrition Demonstration Project 2006-9 with primary funding from the United States Department of Agriculture)

The purpose of this study was to understand the process of local wellness policy development and implementation for physical activity goals, specifically the role of physical education in the policy implementation. Sixteen independent public school districts were selected to participate in this national demonstration project. One elementary school, middle school, and high school building were selected within each large district (n=8), and one school (usually the high school) was selected for each small district (n=8). Questions specific to the physical activity goal and physical education program were posed in a survey for the principal and one physical education teacher in each building.

Approximately 8% of physical education teachers surveyed were part of the school wellness policy development committee. Since the 2005-2006 school year, 80.7% of physical education teachers reported no change in time allocated for physical education in their school while 15.4% reported an increase. None of the districts met the minimum recommendations for minutes per week of physical education. Principals and physical education teachers identified budget restrictions, too little time in the school day, and lack of facilities as barriers to increasing physical education minutes. Further agreement was reported for value of physical education where fitness, cooperation and motor skills were the most frequently cited. Teachers reported planning time and blowing off steam more frequently than principals. Physical education teachers described the money allocated to the physical education budget each school year as *inadequate* (38.5%) or *adequate* (34.6%). On a scale from 1-10 (1 = no confidence, 10 =

extremely confident), physical educators ($m=5.9$) and principals ($m=6.1$) expressed similar confidence that their wellness policy will significantly improve student health and wellness. Principals (66.7%) were more likely than physical education teachers (28.7%) to report the local school wellness policy has increased student physical activity levels.

Generally, principals valued the role of physical education consistent with the national standards. Physical education teachers may feel less valued and more pessimistic than necessary based on these data. Financial pressure and academic issues were important factors; however principals reported efforts to protect physical education programs during difficult economic times.

Taken together, these pilot projects suggest that district level physical education standards and benchmarks would benefit from a careful analysis based on PECAT. Further, physical education teachers often have a poor view of their role in the educational setting and this may negatively influence self-efficacy. Finally, physical education teachers may benefit from training designed to improve the program and to enhance their self-efficacy.

HYPOTHESES

1. Physical education teacher self-efficacy (general physical education) and self-efficacy for curricular decisions (specifically created for this study) will increase more from pre-to-post for the intervention teachers and not for the control teachers.
2. Collaboration among physical education teachers will be related to self-efficacy.
 - a. Collaboration will be evidenced by communication among intervention teachers on the blog.
 - b. Collaboration will be evident as support among teachers increases.
3. Intervention teachers will make better curricular decisions than control teachers as evidenced by horizontal alignment and adherence to benchmarks.
4. Higher administrator support will be associated with higher self-efficacy.
5. Districts will vary widely in the vertical and horizontal alignment of their physical education curricula based on PECAT and curriculum mapping.

CHAPTER 2 - EXTENDED LITERATURE REVIEW

Issues germane to the hypotheses are physical education teacher self-efficacy, self-efficacy instrument development, Social Cognitive Theory, curriculum mapping and backward design, collaboration, weblogs and professional development, curricular decisions of teachers.

Curricular Decisions

A critical factor in teacher's decision to select a particular curriculum approach or teaching strategy is the extent to which the plan or strategy "works" (Richardson, 1992). To work, a curriculum should fit within the context and the teacher's value orientation (Ennis, 2003). It must also be acceptable to students, who may embrace or reject a program based on the extent to which it meets their expectations for physical education. If students do not believe they can participate successfully in a curriculum, some will respond by simply choosing not to take part. In other physical education classes, students may feel that the program is enjoyable and exciting and be quite willing to respond positively. Often, an interesting, well-sequenced curriculum is a teacher's best management tool, ensuring student on-task behavior in activities they find meaningful (Ennis, 2003).

The beliefs teachers hold influence their perception of education, teaching behaviors, and student learning outcomes (Xiang, Lowry, & McBride, 2002). Different teacher priorities reflect different curricular goals (Ennis & Zhu, 1991), different expectations from students (Ennis, Chen & Ross, 1992), and different planning behaviors (Ennis, Mueller & Hooper, 1990). Congruent value orientations of teachers from the same school physical education department were identified as key factors in successfully implementing coordinated curricular innovations (Howarth, 2000).

Tensions emerge when teachers are expected to deliver a curriculum constructed by

agents and agencies external to the school context. In a study by MacPhail (2007), many teachers were not central to curriculum planning and development, however many teachers did not necessarily wish to be involved in the curriculum development process. These teachers were more concerned with receiving appropriate training and resources from central agencies in physical education. Clearly, there is ample opportunity for stress and failure when teachers are not involved in curriculum development or do not feel supported in delivering a curriculum planned by others.

Status of Physical Education

Many conditions and issues influence physical education as a learning and teaching environment. One of the most salient issues is the low status of physical education among curricular areas. Researchers have often studied and documented this aspect (Macdonald & Brooker, 1997; O'Sullivan, Siedentop & Tannehill, 1994; Sharpe & Templin, 1997). The low status of physical education can be reflected in many ways—lack of general support for the physical education program, lack of administrative support, lack of parent support, lack of support from colleagues, and even lack of support from students themselves (O'Sullivan, 1989; O'Sullivan et al., 1994). Low status and lack of support can create job inhibitors, resulting in larger class sizes (as compared with other academic areas), limited access to facilities, limited equipment and resources, and lack of professional development opportunities (O'Sullivan, 1989). Fejgin and Hanegby (1999) suggest that physical education teachers have limited involvement in decision making, although teachers indicate they would like to have more input in issues such as scheduling (Stroot, Collier, O'Sullivan & England, 1994).

A study by Lindholm (1997) reports only 26% of physical education teachers felt they were “fairly rewarded” and “received sufficient pay” for the work they were performing. Less

than half reported that they were “successful” at what they did. In the same study, 96% of secondary physical education teachers indicated that they were doing work they enjoyed, liked the people they worked with, and were comfortable with their job security.

Administrator Support

Administrator’s beliefs about physical education are instrumental in their philosophical and financial support of physical education programs. Unfortunately, although teachers derive rewards from teaching, they receive limited feedback or praise from administrators regarding their teaching. Only 40% of secondary physical education teachers indicated that they regularly received information about the quality of their teaching (Lindholm, 1997). Teachers rely on the support of administrators to create strong programs and maintain class control. When administrators value physical education highly, physical education teachers are encouraged to set goals leading to student learning. Even the most energetic, effective, and motivated teachers can quickly become withdrawn when administrators do not facilitate their efforts to teach an educationally sound physical education curriculum (Ennis, 2003). Administrators should protect the instructional time allocated to physical education and intervene to limit the distractions that can occur when the gymnasium is used for after-school recreation, school picture days, and commencement rehearsals. Administrators are more likely to view the physical education program as essential when teachers construct a curriculum that contributes to the schools’ academic mission and facilitates the health and well-being of students through quality instruction in developmentally appropriate physical activity (Ennis, 2003).

Data suggest that improving teaching conditions such as administrator support and input on decision making will increase teacher retention (Ingersoll, 2001). The quality of leadership is often an important contributor to the production and maintenance of organizational climates. In

the educational domain, strong principals excel in their ability to get their staff to work together with a strong sense of purpose and belief in their abilities to surmount obstacles to educational attainments. Such principals display strong commitments to scholastic attainment and seek ways to enhance the instructional function of their schools. Interpersonal supportiveness by principals may contribute to a positive climate in the school but does not, in itself, build teachers' sense of teaching efficacy (Bandura, 1997). Rather, principals who create a school climate with a strong academic emphasis and serve as advocates on behalf of teacher's instructional efforts with the central administration enhance their teacher's beliefs in their teaching efficacy (Hoy & Woolfolk, 1993).

Social Cognitive Theory

In 1986, Bandura officially launched Social Cognitive Theory with his book *Social Foundations of Thought and Action: A Social Cognitive Theory*. The Social Cognitive Theory defines human behavior as a triadic, dynamic, and reciprocal interaction of personal factors, behavior, and the environment (Bandura, 1977; 1986). However, this reciprocal interaction does not imply that all sources of influence are of equal strength. The theory recognizes that some sources of influence are stronger than others and that they do not all occur simultaneously. In fact, the interaction between the three factors will differ based on the individual, the particular behavior being examined, and the specific situation in which the behavior occurs (Bandura, 1986). Thus, this model of causation as proposed by the Social Cognitive Theory is extremely complex.

The person-behavior interaction involves the bi-directional influences of one's thoughts, emotions, and biological properties and one's actions (Bandura, 1977; 1986; 1989). For example, a person's expectations, beliefs, self-perceptions, goals, and intentions give shape and

direction to behavior. However, the behavior that is carried out will then affect one's thoughts and emotions. Social Cognitive Theory also accounts for biological personal factors, such as sex, ethnicity, temperament, and genetic predisposition and the influences they have on behavior.

A bi-directional interaction also occurs between the environment and personal characteristics (Bandura, 1977; 1986). In this process, human expectations, beliefs, and cognitive competencies are developed and modified by social influences and physical structures within the environment. These social influences can convey information and activate emotional reactions through such factors as modeling, instruction and social persuasion (Bandura, 1986). In addition, humans evoke different reactions from their social environment as a result of their physical characteristics, such as age, size, race, sex, and physical attractiveness.

The final interaction occurs between behavior and the environment. Bandura contends that people are both products and producers of their environment (Bandura, 1977; 1986). A person's behavior will determine the aspects of their environment to which they are exposed, and behavior is, in turn, modified by that environment. A person's behavior can affect the way in which they experience the environment through selective attention. Based on learned human preferences and competencies, humans select whom they interact with and the activities in which they participate from a vast range of possibilities. Human behavior also influences their environment, such as when an aggressive person creates a hostile environment. Thus, behavior determines which of the many potential environmental influences come into play and what forms they will take. In turn, the environment partly determines which forms of one's behaviors are developed and activated.

Self-Efficacy

Self-efficacy research is prolific and numerous meta-analyses have affirmed the critical role that self-efficacy plays in such areas as work-related performance, and child, student, and teacher performance (Holden, Moncher, Schinke, & Barker, 1990; Moulton, Brown, & Lent, 1991; Ross, Cousins, & Gadalla, 1996; Stajkovic & Luthans, 1998). Self-efficacy is a major construct of the Social Cognitive Theory. Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Bandura, 1994). Self-efficacy beliefs determine how people feel, think, motivate themselves and how they behave. Efficacious people are quick to take advantage of opportunity structures and figure out ways to circumvent institutional constraints or change them by collective action. Conversely, inefficacious people are less apt to exploit the enabling opportunities provided by the social system and are easily discouraged by institutional impediments.

Bandura (1994) suggests that having a strong sense of efficacy enhances human accomplishment and personal well-being in many ways. People with high assurance in their capabilities approach difficult tasks as challenges to be mastered rather than as threats to be avoided. Such an efficacious outlook fosters intrinsic interest and deep engrossment in activities. They set challenging goals for themselves and maintain a strong commitment to those goals. The person with high self-efficacy heightens and sustains their efforts in the face of failure. They quickly recover their sense of efficacy after failures or setbacks. They attribute failure to insufficient effort or lack of knowledge and skills which are acquirable. They approach threatening situations with assurance that they can exercise control over them.

In contrast, people low in self-efficacy shy away from difficult tasks which they view as personal threats. They have low aspirations and weak commitment to the goals they choose to

pursue. When faced with difficult tasks, they dwell on their personal deficiencies, on the obstacles they will encounter, and all kinds of adverse outcomes rather than concentrate on how to perform successfully. They give less effort and give up quickly in the face of difficulties. They are slow to recover the relatively low self-efficacy they started with following failure or setbacks. Because they view insufficient performance as deficient aptitude it does not require much failure for them to lose faith in their capabilities. They fall easy victim to stress and depression (Bandura, 1994).

Individual's beliefs about their self-efficacy can be developed by four main sources of influence. The most effective way of creating a strong sense of efficacy is through *past performance accomplishments*. Successes build a robust belief in one's self-efficacy. Failures undermine it, especially if failures occur before a sense of efficacy is firmly established (Bandura, 1994). If people experience only easy successes they come to expect quick results and are easily discouraged by failure. A resilient sense of self-efficacy requires experience in overcoming obstacles through effort. Some setbacks and difficulties in human pursuits serve a useful purpose in teaching that success usually requires sustained effort (Bandura, 1994). After people become convinced they have what it takes to succeed, they persevere in the face of adversity and quickly rebound from setbacks. By sticking it out through tough times, they emerge stronger from adversity.

The second way of creating and strengthening self-efficacy is through the *vicarious experiences* (modeling) provided by social models. Seeing people similar to ones-self succeed by sustained effort raises observers' beliefs that they too possess the capabilities to master similar activities required to succeed. By the same token, observing others' fail despite high effort lowers observers' judgments of their own self-efficacy and undermines their efforts. The impact

of modeling on self-efficacy is strongly influenced by perceived similarity to the models. The greater the assumed similarities the more persuasive are the models' successes and failures. If people see the models as very different from themselves their perceived self-efficacy is not much influenced by the models' behavior and the results it produces. Individuals seek proficient models that possess the competencies to which they aspire (Bandura, 1994). Through their behavior and expressed ways of thinking, competent models can transmit knowledge and teach observers effective skills and strategies for managing environmental demands. *Verbal persuasion* is a third way of strengthening an individual's self-efficacy. People who are persuaded verbally that they possess the capabilities to master given activities are likely to give greater effort and sustain it than if they hold self-doubts and dwell on personal deficiencies when problems arise. To the extent that persuasive boosts in perceived self-efficacy lead people to try hard enough to succeed, they promote development of skills and a sense of personal efficacy. Unrealistic boosts in efficacy are quickly disconfirmed by disappointing results of one's efforts. People who have been persuaded that they lack capabilities tend to avoid challenging activities that cultivate potentialities and give up quickly in the face of difficulties (Bandura, 1994).

People also rely partly on their judgments of their internal (physiological) capabilities and their *emotional arousal*. They interpret their stress reactions and tension as signs of vulnerability to poor performance (Bandura, 1994). In activities involving strength and stamina, people judge their fatigue, aches and pains as signs of physical weakness. Mood also affects people's judgments of their self-efficacy. Positive mood enhances perceived self-efficacy, negative mood diminishes it. Thus, the fourth way of modifying self-beliefs of efficacy is to reduce people's stress reactions and alter their negative emotional inclinations and interpretations of their physical states (Bandura, 1994).

It is not the sheer intensity of emotional and physical reactions that is important but rather how they are perceived and interpreted. People who have a high sense of efficacy are likely to view their state of affective arousal as an energizing facilitator of performance, whereas those who are filled with self-doubts regard their arousal as a debilitating factor. Successful efficacy builders do more than convey positive appraisals. In addition to raising people's beliefs in their capabilities, these facilitators structure situations for others in ways that bring success and avoid placing people in situations prematurely where they are likely to fail often. They measure success in terms of self-improvement rather than by triumphs over others (Bandura, 1994). Physiological indicators of efficacy play an especially influential role in health functioning and in athletic and other physical activities.

School is the place where children develop the cognitive competencies and acquire the knowledge and problem-solving skills essential for participating effectively in the larger society (Bandura, 1997). The task of creating learning environments conducive to development of knowledge and skill rests heavily on the talents and self-efficacy of teachers. Those who have a high sense of efficacy about their teaching capabilities can motivate their students and enhance their cognitive development. Teachers who have a low sense of instructional efficacy favor a custodial orientation that relies heavily on negative sanctions to get students to study.

Teachers operate collectively within an interactive social system. The belief systems of teacher and staff create school cultures that can have vitalizing or demoralizing effects on how well schools function as a social system. Schools in which the staff collectively judges themselves as powerless to get students to achieve academic success convey a group sense of academic futility that can pervade the entire school (Bandura, 1997). Schools in which staff members collectively judge themselves capable of promoting academic success permeate their

schools with a positive atmosphere for development that promotes academic attainments regardless of whether they serve predominantly advantaged or disadvantaged students.

Classroom structures affect the development of self-efficacy, in large part, by the relative emphasis they place on social comparison versus self-comparison appraisal. Self-appraisals of less able students suffer most when all students in a class are taught only one way and teachers make frequent comparative evaluations (Bandura, 1997). In a personalized classroom structure, individualized instruction tailored to students' knowledge and skills enables all of them to expand their competencies and provides less basis for demoralizing social comparison. As a result, students are more likely to compare their rate of progress to their own personal standards than to the performance of others. Self-comparison of improvement in a personalized classroom structure raises perceived capability. Cooperative learning structures, in which students work together and help one another, also tend to promote more positive self-evaluations of efficacy and higher academic achievement than do individualistic or competitive ones (Bandura, 1997). Bandura developed and tested his theory, and generally his work has been supported by others working with the Social Cognitive theory.

Teaching Efficacy

Teaching efficacy has been defined as “the extent to which the teacher believes he or she has the capacity to affect student performance” (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977). Essentially, it is the expressed level of confidence a teacher has in his or her ability to help children learn. For decades, researchers have identified teacher efficacy as a crucial factor for improving teacher education and promoting educational reform. Teacher efficacy has been found to predict student achievement (Ashton & Webb, 1986; More & Esselman, 1992), student motivation (Midgley, Feldlaufer, & Eccles, 1989), and students' own sense of efficacy

(Anderson, Green, & Loewen, 1988). Further, teacher efficacy has been linked to teacher's enthusiasm for teaching (Allinder, 1994; Guskey & Passaro, 1994), teachers' high confidence levels and positive attitudes, their willingness to experiment with new methods (Berman et al., 1977; Stein & Wang, 1988), the amount of effort and persistence a teacher demonstrates, their commitment to teaching (Coladarci, 1992; Evans & Tribble, 1986), teacher retention (Burley, Hall, Villeme, & Brockmeire, 1991; Glickman & Tamashir, 1982), levels of novelty in instruction (Ghaith & Yaghi, 1997; Stein & Wang, 1988) and an orderly and positive school atmosphere and greater classroom-based decision making (Ward, 2005). Teachers with a strong sense of efficacy tend to exhibit greater levels of planning and organization (Allinder, 1994).

Evidence indicates that teacher's beliefs in their teaching efficacy (sometimes referred to as "instructional efficacy") partly determines how they structure activities during class and shape student's evaluations of their capabilities. Gibson and Dembo (1984) measured teachers' beliefs in their efficacy to motivate and educate difficult students and to counteract adverse home and community influences on students' academic development. Teachers with a high sense of teaching efficacy operate on the belief that difficult students are teachable through extra effort and appropriate techniques and that they can enlist family supports and overcome negating community influences through effective teaching. In contrast, teachers who have a low sense of teaching efficacy believe there is little they can do if students are unmotivated and that the influence teachers can exert on student development is severely limited by unsupportive or oppositional influences from the home and neighborhood environment. Gibson and Dembo (1984) also observed how teachers of high and low perceived efficacy manage their classroom activities. Teachers who have a high sense of teaching efficacy devote more classroom time to academic activities, provide students who encounter difficulties with the guidance they need to

succeed, and praise their academic accomplishments. In contrast, teachers of low perceived efficacy spend more time on non-academic pastimes, readily give up on students if they do not get quick results, and criticize them for their failures. Thus, teachers who believe strongly in their ability to promote learning create mastery experiences for their students, but those with self-doubts about their teaching efficacy construct classroom environments that are likely to undermine students' judgments of their abilities (Bandura, 1997).

Teacher's belief in their efficacy affects their general view toward the educational process as well as their specific instructional activities. Those who have a low sense of teaching efficacy favor a "custodial orientation" that takes a pessimistic view of student's motivation, emphasizes control of classroom behavior through strict regulations, and relies on extrinsic inducements and negative sanctions to get students to study (Woolfolk & Hoy, 1990; Woolfolk, Rosoff, & Hoy, 1990). Melby (1995) finds that teachers with a low sense of efficacy are mired in classroom problems. They distrust their ability to manage their classrooms; are stressed and angered by students' misbehavior; are pessimistic about students' improvability; take a custodial view of their job; resort to restrictive and punitive modes of discipline; focus more on the subject matter than on students' development; and, if they had to do it all over again, would not choose the teaching profession. Teachers who believe strongly in their teaching efficacy tend to rely on precursory means rather than authoritarian control and support development of their students' intrinsic interest and academic self-directedness (Bandura, 1997).

Ashton and Webb (1986) document the cumulative impact of divergent levels of teachers' perceived efficacy. They studied "seasoned" teachers who taught students placed in classes for basic skills because of severe academic deficiencies. Teacher's beliefs about their teaching efficacy predicted their students' levels of mathematical and language achievement over

the course of the academic year when the variations in the students' entering ability are controlled. Teachers with a high sense of efficacy tend to view difficult students as reachable and teachable and regard their learning problems as surmountable by extra effort. Teachers of low perceived efficacy are inclined to invoke low student ability as an explanation for why their students cannot be taught (Bandura, 1997).

Students whose sense of efficacy is well-grounded in academic self-regulatory capabilities are less vulnerable to the possible adverse effects of teachers with a low self-efficacy than are students who are struggling with self-doubts about their academic abilities. This differential effect was identified by Midgley et al., (1989) in a longitudinal study of the transition from elementary to junior high school. High-achieving students were not much affected by their teacher's sense of teaching efficacy during transition periods. In contrast, low-achieving students who had teachers low in self-efficacy in both school environments or who moved from teachers' of high self-efficacy to ones of low self-efficacy suffered declines in academic expectations and evaluations of their academic performances. Transitions from teachers of low to high self-efficacy led low-achieving students to expect more of themselves academically.

Some teachers find themselves beleaguered day in and day out by disruptive and non-achieving students. Eventually, a low sense of self-efficacy to fulfill academic demands takes a stressful toll. Burnout in academia is not all that uncommon (Bandura, 1997). It encompasses a syndrome of reactions to prolonged occupational stressors that includes physical and emotional exhaustion, depersonalization of the people one is serving, and lack of any sense of personal accomplishment (Jackson, Schwab, & Shuler, 1986; Kyriacou, 1987). Chwalisz, Altmaier, and Russell (1992) clarify the causal path through which a sense of coping inefficacy is linked to burnout in teachers. When faced with academic stressors, teachers of high self-efficacy direct

their efforts at resolving problems. In contrast, teachers who distrust their efficacy try to avoid dealing with academic problems and, instead, turn their efforts inward to relieve their emotional distress. The pattern of coping and withdrawal heightens emotional exhaustion, depersonalization, and a growing sense of futility.

Some of the means of coping involve disengagement from the instructional activities themselves. Thus, teachers who lack a secure sense of teaching efficacy show weak commitment to teaching (Evans & Tribble, 1986), spend less time on subject matter in their areas of perceived inefficacy (Enochs & Riggs, 1990), and devote less total time to academic matters (Gibson & Dembo, 1984). In a study of a variety of factors, Coladarci (1992) found that teachers' sense of teaching efficacy was the best predictor of commitment to the teaching profession. Strong educational leadership by the principal also contributed to teacher's commitment, but a school climate of collegiality and support, salary, and teaching experience did not.

Teachers' sense of teaching efficacy is not necessarily uniform across different subjects. Bandura (1997) contends teacher efficacy scales should be linked to the various knowledge domains. Multi-item measures are an improvement over single-item ones, but teacher efficacy scales are, for the most part, still cast in a general form rather than being tailored to the domains of instructional functioning.

Educational organizations present a number of distinct challenges and stressors. Many of the adverse conditions with which schools have to cope reflect the broader social and economic "ills" of the society (Bandura, 1997). These adverse realities affect student educability and impair the school environment. In the 1940's teachers identified as the top disciplinary problems: students making noise, talking, running in the halls, and chewing gum. In the 1980's, the leading problems included drug and alcohol abuse, assault and vandalism, extortion,

pregnancy, and gang warfare. To make matters worse, a host of problems within the teaching profession have been documented by Ashton and Webb (1986). They include heavy workloads requiring constant intensive interactions, little control of how the educational enterprise is run but responsibility to meet high public demands, disconcerting bureaucratic practices, variable quality of administrative leadership, insufficient resources, and lack of advancement opportunities, a sizable share of problematic students, insufficient pay, low occupational status, and inadequate public recognition of accomplishments.

Much has been written about the attributes of efficacious schools. Given some variability in achievement across grades and subjects within schools and fluctuations over time, identifying effective schools is not an easy task (Bandura, 1997). The analyses that are most informative control for background factors associated with level of academic achievement, such as the ethnic and socioeconomic composition of the schools' student bodies. Without such controls, school differences may simply reflect what students bring to those schools.

In highly efficacious schools, in addition to serving as administrators, principals are educational leaders who seek ways to improve instruction. They figure out ways to work around stifling policies and regulations that impede academic innovativeness. In low-achieving schools, principals function more as administrators and disciplinarians. Masterful academic leadership by the principal builds teachers' sense of teaching efficacy (Coladarci, 1992).

According to Bandura (1997), effective schooling involves reciprocal causation. Teacher's sense of teaching efficacy partly determines how much their students learn. In turn, a number of factors in the school environment can alter teacher's beliefs in their efficacy to produce scholastic attainments. Some of these factors stem from the characteristics of students and their family backgrounds. Parental influences contribute to scholastic attainments through

the resources, guidance, modeling, and incentives the home provides for academic learning. Teachers' sense of teaching efficacy can be gradually eroded by student bodies composed of many low-achieving students and those from disadvantaged socioeconomic backgrounds that leave them ill-prepared motivationally and cognitively for academic progress.

Teachers' sense of collective efficacy varies across grade level and subjects. Teachers express a relatively low sense of efficacy to promote learning in students at the entry level (Bandura, 1993). Since demands are minimal at entry, the low sense of teaching efficacy may partly reflect the perceived unpreparedness of students for classroom instruction. In the middle grades, when students are better acclimated to school routines and demands are not too rigorous, teachers express a stronger belief that they can educate their students. In succeeding grades, however, when the complexities of academic demands increase and scholastic deficits becoming increasingly salient, teachers view their schools as declining in instructional efficacy.

Physical Education Teaching Efficacy

School physical education has been specifically identified as an important vehicle for delivering physical activity to millions of children and adolescents in the U.S. (Lee, Burgeson, Fulton, & Spain, 2007). Physical education teachers play a vital role in helping children develop the behaviors, attitudes, skills, and knowledge they will need to be physically active for a lifetime. Social Cognitive Theory (Bandura, 1997) suggests that it is vital to understand teachers' efficacy for overcoming the barriers they face in teaching.

Self-efficacy and outcome expectancy comprise two major constructs in the Social-Cognitive Theory. In teaching settings, teacher efficacy is defined as one's beliefs about his or her ability to teach effectively, whereas teaching outcome expectancy refers to one's beliefs concerning how effective her/his teaching would have positive effects on student learning.

Recently scholars have focused their research on the examination of self-efficacy and outcome expectancy in relation to academic teaching (Plourde, 2002). But such inquiries have been rarely made in physical education.

Few researchers have examined the self-efficacy of physical education teachers. Given this lack of research and the importance of physical education classes, Martin and Kulinna (2003) developed a physical education teachers' physical activity self-efficacy (PETPAS) scale that would allow researchers to assess teachers' self-efficacy for teaching classes with high levels of physical activity, defined as at least 50% of class time. The goal was to develop a psychometrically sound instrument for assessing and beginning to understand teachers' efficacy for overcoming the barriers they face to teaching physically active physical education classes. The PETPAS scale has been found to be a valid measure in both U.S. and Turkish physical education settings.

Teachers are critical in determining the activities children engage in during physical education classes. They can decide to implement curriculums and teach lessons that focus on social skills, sport skills, or health-related fitness. According to Social Cognitive Theory (Bandura, 1997), major determinants of the choices teachers make are their self-efficacy judgments. Researchers in physical education and the exercise and sport sciences have recognized the important role that self-efficacy cognitions play in both the initiation of exercise and in sport performance (Kujala, Kaprio, Sarna, & Koskenvuo, 1998; Ross & Gilbert, 1985; Sallis, McKenzie, Alcaraz, Kolody, Faucette & Hovell, 1997).

As aforementioned, teachers who report low self-efficacy are more likely to attribute their successes or failures to outside factors, such as lack of resources (Lock, Telljohann & Price, 1995). Teachers with high teaching efficacy will provide more instructional time and a higher

quality of feedback to students than teachers with low teacher efficacy (teacher efficacy model). In physical education, teachers with high efficacy provide more Academic Learning Time than the teachers with low efficacy (Chase, Lirgg, & Sakelos, 2003). Teachers with high teaching efficacy also provided more specific reinforcement, general encouragement, specific informational feedback, general organization, and less general punishment feedback than teachers with low teacher efficacy.

Chase and Lirgg (2001) developed the Teacher Efficacy Scale in Physical Education (TESPE). The scale is based on what the researchers identified as the four dimensions of teacher efficacy:

- *Motivation* - reflected a teacher's confidence in his/her ability to motivate students.
- *Analysis of Skills* - revolved around the teacher's ability to analyze student performance of skills.
- *Preparation* - represented the teacher's ability to prepare and plan for instruction.
- *Communication* - revolved around the teacher's ability to communicate information to his/her students.

Although documented use of the TESPE is limited, these outcomes are important variables in preparing physically educated students. Chase and Lirgg (2002) theorized that teacher efficacy will affect a teacher's commitment to teach, persistence in teaching, use of time in providing instruction, and the quality and type of feedback provided to students. To test this model, sixteen pre-service teachers completed the Teacher Efficacy Scale for Physical Education (TESPE) and were videotaped teaching one lesson in physical education (Chase, Lirgg, & Sakelos, 2003). Results of a one-way analysis of variance of instructional time and quality of

feedback indicated there were differences between the teachers with high teacher efficacy and those teachers with low teacher efficacy. Teachers with high efficacy provided more Academic Learning Time (82%) than the teachers with low efficacy (76%). Teachers with high teacher efficacy also provide more specific reinforcement ($M = 15.20$), general encouragement ($M = 3.20$), specific informational feedback ($M = 15.20$), general organization ($M = 22.40$), and less general punishment ($M = .40$) feedback than teachers with low teacher efficacy (specific reinforcement, $M=7.00$, general encouragement, $M=1.80$, specific informational feedback, $M=7.60$, general organization, $M=19.80$, and less general punishment, $M=2.00$). Overall, teachers with high efficacy were more positive in their feedback to students than teachers with low teacher efficacy.

Measuring Teaching Efficacy

There are a variety of problems in measuring teacher efficacy. Researchers have questioned the validity and reliability of existing measures (Tschannen-Moran & Woolfolk-Hoy, 2001; Henson, Krogan & Vacha-Haase, 2001). For example, there has been disagreement over the conceptualization of teacher efficacy that has contributed to lack of clarity in measuring the construct. Unfortunately, research on teacher self-efficacy has been “plagued” by methodological and conceptual shortcomings (Bandura, 1997; Woolfolk & Hoy, 1990). Ross’ (1994) meta-analytic study, for example, found that virtually all 87 studies he examined viewed teacher efficacy as a generalized expectancy, contrary to the domain- and task-specific conceptualization of self-efficacy (Bandura, 1997). Additionally, self-efficacy has been inadequately assessed with one-item scales that have failed to achieve correspondence between the self-efficacy measure and the behavior of interest (Bandura, 1997).

Definitions of teacher self-efficacy (e.g., Hoover-Dempsey, Bassler, & Brissie, 1987; Hoy & Woolfolk, 1993) have also confounded self-efficacy with outcome expectations and locus of control (Guskey & Passaro, 1994), making it difficult to reach substantiate conclusions in this area. Therefore, reports that teacher self-efficacy is positively related to perceptions of parental involvement (e.g., home tutoring; Hoover-Dempsey et al., 1987), administrative attention and support (Ashton & Webb, 1986; Chester & Beaudin, 1996), colleague collaboration (Chester & Beaudin, 1996; Hoy & Woolfolk, 1993), and a rigorous academic climate (Woolfolk & Hoy, 1990) must be viewed with caution. Bandura (1997) has said there is a need for sound self-efficacy measures in education that are based on the theoretical underpinnings of Social Cognitive Theory.

There are questions about the extent to which teacher's efficacy is specific to given contexts and to what extent efficacy beliefs are transferable across contexts. In addition, the appropriate level of specificity in the measure of teacher efficacy has been difficult to discern. Although the Gibson and Dembo (1984) measure has been the most popular of the teacher efficacy instruments to date problems remain both conceptually and statistically. The lack of clarity about the meaning of factors and the instability of the factor structure make this instrument problematic for researchers (Tschannen-Moran & Woolfolk-Hoy, 2001).

When measuring teacher efficacy, Bandura (1997, 2001) recommended including various levels of task demands, allowing respondents to indicate the strength of their efficacy beliefs in light of a variety of impediments or obstacles and providing a broad range of response options. The Teachers Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk-Hoy, 2001) was developed with a scale similar to Gibson and Dembo (1984) and includes portions of Bandura's scale. The factor structure, reliability, and validity of this measure have been

examined in three separate studies. The results of these analyses indicate that the Teacher's Sense of Efficacy Scale (Long and Short versions) could be considered reasonably valid and reliable. Positive correlations with others measures of personal teaching efficacy ($r = 0.64$, $p < .01$) provide evidence for construct validity (Tschannen-Moran & Woolfolk-Hoy, 2001). The Gibson and Dembo (1984) instrument focuses on coping with student difficulties and disruptions as well as overcoming the impediments posed by an unsupportive environment. Lacking were assessments of teaching support for student thinking, effectiveness with capable students, creativity in teaching, and the flexible application of alternative assessment and teaching strategies. The TSES addresses some of these limitations by including items that assess a broader range of teaching tasks, as advocated by Bandura (2001).

Standards and Benchmarks

Physical education does not have a national curriculum. Instead, physical education has a set of competencies that define the skills and knowledge that students are expected to learn through physical education (National Association for Sport and Physical Education, 2004). These competencies have been labeled *content standards*, and specify what a student should know and be able to do as a result of participating in a quality physical education program. While the national content standards describe what students are expected to know and be able to do, they do not define what is considered acceptable performance. That is the role of performance indicators, otherwise referred to as *benchmarks*. Benchmarks are specific skills and knowledge that represent progress toward the standards. The revised content standards (National Association for Sport and Physical Education, 2004) are:

- Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities

- Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.
- Standard 3: Participates regularly in physical activity
- Standard 4: Achieve and maintains a health enhancing level of physical fitness.
- Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.
- Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

The dominant movement in public education today will likely be known historically as the era of “standards-based education” (Siedentop, 2005). Standards-based program design is a process for designing educational programs toward the end of student learning. Because states have control of their own educational system, each state is responsible for developing its own standards. The National Association for Sport and Physical Education (NASPE) has provided national leadership for developing K-12 physical education standards (1995, 2004). The NASPE Standards were based on the document *Outcomes of Quality Physical Education* (National Association for Sport and Physical Education, 1992), which defined a physically educated person. Although each state is responsible for developing its own content standards, many states have adopted the NASPE National Physical Education Content Standards (National Association for Sport and Physical Education, 1995), as did the International Council for Health, Physical Education, Recreation, Sport, and Dance (CHPERSD), an international physical education organization. NASPE standards are somewhat different than standards in other subjects; that is, most state science or math standards identify exactly what students should be learning in the 5th,

7th, or 9th grades. The NASPE standards don't tell teachers when or even if, a student should learn a pass in volleyball, to travel a horizontal climbing wall, or to reach a specific level of cardiovascular fitness. Thus, choosing the activities that comprise a school physical education curriculum under NASPE standards is left open.

Standards-based program design is not a prescriptive methodology requiring all students to learn at the same time, in the same way, or even at the same depth (Gardner, 1991). Done poorly, standards-based design processes can be ineffectual and stifling of true learning and deep understanding (Wiggins & McTighe, 1998). When standards-based design processes are used in rote and mechanical ways or as the “big stick” of high-stakes testing (Gardner, 1991) such use is met with misconceptions and problems. Kohn (1999) described these misconceptions and problems as the result of being fundamentally misguided in five separate respects. First, these approaches proceed from the assumption that students should be thinking constantly about their performance. *A preoccupation with achievement* is not only different from, but often detrimental to, a focus on learning. Second, this use of standards tends to favor what Kohn describes as *Old-School teaching*, the sort of instruction that treats students as though they were “inert objects”. Third, these behaviors are *wedded to standardized testing*. The limits of such testing amount to a serious indictment of the version of school reform that relies on these tests, particularly for schools in low-income neighborhoods. Fourth, these approaches usually consist of *imposing specific requirements and trying to coerce improvement* by specifying exactly what must be taught and learned by mandating a particular kind of education that may not be well-suited for the students or instructor. Finally, these teaching styles are often met with an assumption that *harder is better*. Kohn describes this assumption as a reductive premise for

judging teachers, textbooks, and tests; lurking behind complaints about “dumbing down” education and calls to “raise the bar.”

Despite attempts to think differently, physical educators tend to fall into the routine of creating and then “covering the curriculum” and do not conceive of teaching and learning as a fluid, flowing process that is necessarily nonlinear or nonscripted (Lambert, 2003). This practice has left some physical educators with good intentions, nice curriculum guides and activities that are “fun” but often have little or no connection to students’ learning important things.

Two conceptions of learning have had an effect on educational program design (Lambert, 2003). The first, *objectives-based program design* emanates from behavioral theory as a foundation of learning, whereas the second, the *standards-based program design*, derived from cognitive theory as a foundation of learning. Tyler’s (1949) process entailed devising a systematic plan for creating content-driven educational experiences through written objectives indicating the behavior that the student would develop. Tyler’s work is seminal because it led to the dominant curriculum design process of forward mapping of curriculum, designing educational programs from the bottom up (K-12). Kirk’s (1993) analysis of the objectives-based approach to program design helps identify key limitations of the objectives-based process: (a) objectives lead to “compartmentalization, marginalization, trivialization” of qualitative subjective, and humanistic experiences, and (b) this approach has led to the assumption that motor learning can be easily assessed and measured because of its overt, performance nature and that other forms of learning are not as important.

Traditionally, programs evolve from bottom up—grade by grade, adding forward from the most basic, elemental components at the lower grades to more complex applications at the higher grades. At the height of the behavioral objectives movement (Bloom, 1956), goals and

objectives took the form of intricate, specific, discrete elements that led to assessment of intricate, specific, discrete, elements of knowledge and skill. Program design processes, as a result, focused more on the elements (the pieces that the teachers need to teach) than on the learning results for students to attain.

The standards-based approach to program design works from the end to the beginning, from grade 12 to kindergarten. This model also has fewer components and these components are connected across the program. Further, the component should represent the “big ideas,” the concepts and principles, not just facts and single elements, as is more typical of the objectives approach. This perspective emphasizes what students should know and be able to do with what they know when they exit high school (Lambert, 1999). The standards-based program design process is often termed “backward design” or “reverse mapping” because the process leads to programs that are designed from the end back toward the beginning. A primary goal of standards-based program design is to let the standards guide learning. Standards should not create performance conformity and cookie-cutter expectations of student demonstrations of their ultimate abilities (Lambert, 2003).

Developing a standards-based curriculum begins by looking at the standards, recognizing the skills, knowledge, and dispositions that students should demonstrate to meet these standards, and selecting a curriculum model and/or activities that will allow students to reach the outcomes stated in the standards (Lund, 2005). Teachers must carefully choose content and activities that will allow students to reach the standards. Some activities may be eliminated from a program because of their minimal contribution to meeting standards.

Aiming to achieve standards requires ongoing and rigorous assessment appropriate to the standards (Siedentop, 2005). Assessments are a key part of the standards-based curriculum

process because those developing curricula must decide what they are going to accept as evidence that students have met standards. Additionally, they must decide at what point(s) students are going to demonstrate competence. The types of assessment used for standards-based curriculum must be aligned with the standards.

Curricular assessments are also necessary in standards-based curricula so that students will be able to track their success, and teachers and school districts can determine whether the curriculum allows the standards to be met. If students are falling short of meeting those standards, the reason(s) why must be determined. In some cases, new approaches to teaching, or different activities must be included in the program. In other instances, additional time is needed for students to achieve the standards.

There is often a disconnect between the standards and the assessments (Lund, 2005). Standards-based curricula represent a huge paradigm shift for many teachers currently in the field (Doolittle, 2003). It forces teachers to select activities and justify their contribution to meeting the standards rather than selecting activities by teacher preference or tradition. Some students experience a thoughtful variety of activities, with sufficient time and progression in each activity to allow them to achieve the NASPE standards. Other students will experience a hodgepodge of activities with insufficient time in any of them to become proficient, a result of which may be that they do not meet any NASPE standards.

Whether the standards bring about a change in the quality of education and make a difference in student learning depends directly on a teacher's knowledge about and attitude toward the standards (Danin, 1997; Fletcher, 1998). Individuals view and interpret the standards differently depending on their level of knowledge about the standards-based approach and the standards. In a study investigating teacher's awareness of and attitudes toward their state math

standards, Danin (1997) found that the teachers who had a greater understanding of the standards showed positive attitudes toward the implementation of the standards. Similarly, Fletcher (1998) reported that the teachers who had extensive knowledge of the national science standards had extremely favorable attitudes toward the standards. The teachers, in turn, were more likely to use the standards as philosophical and practical tools for guiding their practice. In contrast, the teachers who had superficial knowledge of the standards had negative impressions of the standards and expressed little interest in learning more about the standards.

The National Standards for Physical Education (National Association for Sport and Physical Education, 1995) have been published and available in the field of physical education for nearly 15 years. Little is known about teachers understanding of and attitudes toward the physical education standards. Recent articles (Peterson, Cruz, & Amundson, 2002; Veal, Campbell, Johnson, & McKethan, 2002) have indicated positive results from moving to a standards-based approach in physical education, although they lack empirical evidence. For example, as a result of the increased emphasis on standards and accountability measures, the authors argue administrators have convinced physical education teachers of the need for, and importance of, standards-based instruction and assessment. Administrators have also advocated for resources that will allow teachers to revise curricula and bring programs in line with standards, and for the first time in many districts, teachers were designing specific performance indicators and assessments for how to measure achievement of both benchmarks and outcomes (Veal et al., 2002). As one director of physical education stated;

“I love what the standards have done for physical education...Because of the standards, the profession is in a better place right now than it was three, five, or ten years ago. We’re not looking at people trying to eliminate us anymore. Now, members of the

regents are regular visitors to various meetings, groups of us regularly visit with State Education Department officials, and we're looked at as models by curriculum developers in some schools...we have a lot of credibility right now." (Peterson et al., 2002, p.15).

More recently, Chen (2006) investigated the current levels of teacher's knowledge about and views of the National Standards for Physical Education (National Association for Sport and Physical Education, 1995) and factors that influenced the teacher's understandings and interpretations of the standards. Twenty-five elementary and secondary physical education teachers voluntarily participated in this study. Data were collected primarily through 25 formal interviews and observing 78 lessons taught by the teachers. Findings indicated that: a) personal commitment is a key factor contributing to teachers growing knowledge about the standards, b) active participation in professional development activities helps teachers stay current, and c) understanding of the standards is an influential determinant of the teacher's attitude toward the standards. These findings support the speculation of Veal et al. (2002) and Peterson et al. (2002) by indicating positive results when moving to a standards-based program design in physical education.

Curricular Alignment

Proper implementation of standards-based physical education implies that (a) the K-12 physical education curriculum is developmentally appropriate and (b) the curriculum is delivered so that as students progress through this system they will have the maximum potential for meeting content standards and benchmarks. Articulation of the curriculum across grade levels thus becomes a primary concern when implementing standards-based education. Researchers can help showing what a well-aligned curriculum map could look like, offer assessment tips, and provide evaluation and resources as needed. Using a process known as curriculum mapping

(Jacobs, 1997), teachers, schools, and school districts examine their physical education curriculum for the content and assessments that they deliver each month over the school year. They then align benchmarks to the curriculum map to identify any redundancies across grade levels or any instructional gaps that would reduce students' chances of meeting required benchmarks.

There is still a disturbing misalignment between the standards and the actual curriculum offered in some schools today (Chen, 2006). Curricular alignment is expressed in two directions—vertical and horizontal (Thomas et al., 2008). Vertical alignment describes the relationship of the benchmarks and content across grades. Good vertical alignment begins with standards describing what children can do and what they will know at the end of the program (grade 12).

Vertical alignment is usually a shared responsibility. In most school districts, more than one teacher provides physical education, so vertical alignment is the result of a plan that is developed and executed by more than one educator. What is critical to the success of this part of the curriculum plan is that each physical education teacher accepts responsibility for their portion of the plan. Vertical alignment of standards and benchmarks may be done at the state, district, or building level, so, in many cases, a physical education teacher does not create this part of the plan.

Horizontal alignment is vested in individual teachers. This may be used as progress measured by benchmarks, within a unit of instruction, or within an individual lesson. Alignment of standards, benchmarks, objectives, curriculum content, and assessment demonstrates accountability. Horizontal objectives for each standard can be developed for year, unit, or lesson plans. Those objectives are directly related to the curriculum plan and the educational

experiences during class. In a well-aligned program, the connection among standards, objectives, activities, and assessment is obvious (Thomas et al., 2008). So, an observer could read the lesson plan or observe a lesson and know what standard(s) was being addressed. Similarly, the assessment plan would clearly portray what had been taught.

Developed by the Centers for Disease Control and Prevention (CDC, 2006), the *Physical Education Curriculum Analysis Tool* (PECAT) was designed to assist educators in analyzing the strengths and weaknesses of written physical education curricula in terms of content, student assessment, and sequence. PECAT is also used to assess how closely the written curricula align with national standards, guidelines, and best practices for quality physical education programs. Finally, PECAT includes guidance on how to improve curriculum based upon the results.

The benchmarks presented in PECAT describe what children should do and know at the end of grades 2, 5, 8, and 12 for each standard. By looking at the benchmarks for one standard across the grades, one should see evidence of progress toward the standard. What is expected becomes increasingly more difficult or complex and more similar to the standard as children get older. This concept is consistent with developmentally appropriate physical education. PECAT provides 4 to 6 benchmarks for each standard at each of the four levels (grades K-2, 3-5, 5-8, and 9-12).

Professional Development

Teachers are key agents of change for educational reform because they are practical curriculum decision makers, innovative instructional practitioners, and teachers are responsible for the execution of new educational visions (Collins, 1997; 2001; Glisan, 1996; Hargreaves, Earl, Moor, & Manning, 2001; Haug, 1998; Ravitch, 1992). The implementation of the NASPE standards will not occur without teachers understanding, acceptance, and support of the

standards. The theoretical framework of teacher change (2001; Glisan, 1996; Hargreaves et al., 2001; Leinwand, 1992) suggests teacher's knowledge about and attitudes toward educational standards, their personal commitment to learning about the standards, and their availability and participation in formal professional development activities influence change in teacher's beliefs, knowledge, and behaviors (Fullan, 2001). In order for the standards to become guidelines for curriculum, teaching, and assessment, it is important for teachers to gain a keen understanding of the standards. In order to help students achieve desired learning outcomes, it is the teacher's responsibility for buying into, embracing, trying out, and integrating the standards into their daily teaching practices (Ravitch, 1992).

Meaningful professional development has been highlighted as one of the empowering vehicles for equipping teachers with adequate knowledge of educational standards (Borko, Elliott, & Uchiyama, 2002; Glisan, 1996; Leinwand, 1992). Quality professional development activities provide teachers with opportunities to develop new conceptions of learning, to teach in alignment with the standards, to expand content knowledge, and to learn new instructional strategies.

In order to initiate effective changes for putting the standards into practice, scholars have suggested that professional development should address the needs of teachers and their students because teaching and learning are both content and context specific (Burke, 2000; Darling-Hammond, 1996). To meet the teacher's needs, professional development should help teachers gain a better understanding of the standards and place an emphasis on broadening and strengthening teacher's content knowledge about the standards. It is also critical to coach the teachers to transform the standards into teaching practices, to incorporate the standards into the

existing curriculum, and to use various teaching strategies to foster student's achievement of the desired learning outcomes (Burke, 2000).

Despite physical educator's efforts to develop programs that contribute to lifelong physical activity, the data shows a decline in physical activity and increases in chronic risk factors. Lambert (1987) suggests that if the goal of physical education programs is to prepare students for lifelong participation in activity, then "many of our programs are invalid, and, quite possibly, negligent". There is evidence that some physical education programs offer a limited curriculum that does not take into account the needs and/or desires of students and that secondary physical education programs have replaced instructional programs with the equivalent of managed recreation programs (Goodland, 1984; Lambert, 1987; Lowry, Wechsler, Kann & Collins, 2001; Ross & Gilbert, 1985). The potential for most secondary school physical education programs to encourage lifelong participation may be severely limited (Pennington & Krouseas, 1999). In the search for solutions, physical education must place greater emphasis on relevant activities, include physical activities that are enjoyable, build self-efficacy, and connect the curriculum to the world outside of the gymnasium (Centers for Disease Control and Prevention, 1997; Saffici, 1999).

Personal commitment to the teaching profession is the catalyst for teachers to seek continuous improvement of content knowledge and pedagogical practices aligned with the standards (Hargreaves, 1997; Hargreaves et al., 2001). Although professional development may be essential to the teachers acquaintance with the standards and standards-based curriculum and instructions, a teacher's personal commitment to their own continued learning is the key to positive professional development outcomes (Burke, 2000; Darling-Hammond, 1998; Kwakman, 2003). A personal commitment to continued learning allows teachers to embrace new ideas

learned from professional development and assume ownership of them when they teach (Burke, 2000; Hargreaves, 1997; Hargreaves et al., 2001; Kwakman, 2003). Research indicates that teachers who are actively involved in professional development activities are more likely to remain aware of current teaching trends and embrace educational changes in their classroom practices. Conversely, teachers who had less desire for professional involvement and did not participate in professional development activities were unaware of current teaching innovations advocated in the standards (Borko, Elliott & Uchiyama, 2002; Leinwand, 1992).

School staff members are more likely to adopt new practices and continue to use them if they have a sense of ownership of the program (Berman & McLaughlin, 1977). They work harder at implementing innovations and derive a greater sense of efficacy and satisfaction from their accomplishments. Therefore, promoters of school implementations should help school staff member to help themselves rather than imposing new practices on them. Fritz, Miller-Heyl & MacPhee (2001) also provide support for the value of teacher training for enhancing feelings of self-efficacy, and the importance of addressing teaching efficacy issues within the staff development programs aimed at curricular innovation. In this study, the effectiveness of the DARE to be You (DTBY) teacher training for enhancing feelings of personal teaching efficacy was assessed for 241 control or training-group teachers using a pretest, posttest, and 9-month follow-up design. Examined was the relation between personal and general teaching efficacy, satisfaction with and investment in teaching, and integration of roles. Significant group-by-time interactions were found for personal teaching efficacy and teaching efficacy and the four teacher self-perception measures, using a repeated-measures multivariate analysis of variance. Level of involvement with the DTBY classroom activities was related to efficacy judgments. Teachers

who were high in self-efficacy saw training practices as important, were more likely to use these practices, and were more likely to improve their teaching.

Professional development activities may not be provided or encouraged in physical education, or those that are offered may not seem relevant to the physical educator's work (Macdonald & Brooker, 1997; O'Sullivan, 1989). This may be because traditional professional development activities have been disjointed, lacking teacher input and follow-up, and have not always affected teacher's behavior in the classroom (Visher, Teitelbaum & Emanuel, 1999). Teachers, however, indicate interest in professional development on topics such as assessment and evaluation, developing and using student portfolios in physical education, assisting students with developing individual fitness plans, teaching students with special needs, and using technology in physical education (Burgeson, Wechsler, Brener, Young & Spain, 2001). Teachers influence the work and learning of students. Thus, in many reform initiatives, increasing the quality of teaching is an objective (Finley, 2000). With so many reforms in the past two of decades, teacher in-service is essential to prepare teachers adequately to implement the initiatives (Martin, 2003).

Many teachers report feeling unprepared to meet some of the new initiative demands (e.g., performance standards, state and district curricula), but they feel more prepared after participating in professional growth activities on those topics (Wirt, Choy, Bae, Sable, Gruner & Stennet, 1999). Alexander, Heavisise & Farris (1999) surveyed teachers to determine their understanding and implementation of standards-based reform. Teachers who reported having implemented more reform initiatives in their classrooms were more likely to have attended professional development activities, and areas that the teachers were not implementing were the areas in which they indicated they need the most instruction. A collaborative approach involving

K-12 physical education teachers is one vehicle through which to affect physical education programs.

Collaboration

The education literature has documented the benefits of collaboration and collegial relationships among teachers and those elements remain components of reform measures (Martin, 2003). Collaborative learning and teaching models have several forms, including those that focus on problem-solving and those with applied team assessment and intervention processes. Positive learning outcomes for students and faculty consist of enhanced critical thinking and problem-solving skills, and leadership experience (Lytle, Lavay, Robinson, & Huettig, 2003). In physical education the need and value of collaboration and collegiality has also been recognized (Doutis & Ward, 1999). Unfortunately, physical education teachers traditionally avoid long term collaboration with their colleagues and resist involvement in whole school decision making (Sparkes, 1991). Physical education teachers find it difficult both to establish collegial relationships with other teachers in the school and to find time to plan lessons and programs with their peers (Doutis & Ward, 1999) even though cooperative relationships with colleagues and teamwork are viewed as job enhancers, and increased collaboration decreases isolation. Physical education teachers working collaboratively with universities, often in the form of professional development schools, report that they are rejuvenated, empowered, and have opportunities to participate in shared leadership (Rovegno & Bandhaur, 1998; Sharpe & Templin, 1997).

The story of collaborative efforts in physical education is still quite new (Martinek & Schempp, 1988). Legitimate collaborations are rare in general education and even rarer in physical education. Many educational reforms suggest collaboration as a measure to enhance

communication, feedback, learning, and information gathering (Martin, 2003). Teachers and schools can engage in many types of collaborative relationships. Collaborative partnerships between schools and universities are becoming more common. Numerous calls for reform have included recommendations for teachers and universities to work together to create more effective learning environments for students in public schools and universities (Aldrich, 2001).

Weblogs (Blogs)

Current educational research and theory have demonstrated the importance of social interaction in teaching and learning. Drawing on Vygotsky's educational theory (1978), educators acknowledge that knowledge construction is relational and conversational in nature. Recent years have witnessed a growing interest in the latest generation of web-based collaboration (Boulous, Maramaba & Wheeler, 2006). Blogs may be useful teaching and learning tools because they provide a space for students to reflect and publish their thoughts and understandings. "Blogging" – a contraction of the term "web logging" – has become firmly established as a web-based communications tool, with an estimated number of users in excess of one million (Bryant, 2003). A blog is a website that contains entries in reverse chronological order (most recent first) about a particular topic (Williams & Jacobs, 2004). Blogs can be written by one person or a group of contributors. Entries contain commentary and may also include links to other websites and images. Blog technology has the capacity to "engage people in collaborative activity, knowledge sharing, reflection and debate, where complex and expensive technology has failed" (Stiler & Philleo, 2003).

Refereed published material on the subject of blogs in general is limited and even limited in education. The academic literature on blogging tends to be concentrated in the areas of teacher training and other professions where the use of reflective journals as a learning tool is

accepted practice, and where, as a consequence, there is an increased likelihood of a favorable disposition to blogs in the first place (Wagner, 2003). In addition to serving as a learning tool, academic literature suggests blogging may promote collaboration among stakeholders. Oravec (2002) identified blog use as a means of encouraging collaboration through the sharing of links to resources and up-to-date information. For students, blog use can empower students and encourage them to become critically analytical in their thinking. In agreement, Dickey (2004) found that the use of blogs supported the “emergence of community” by affording participants opportunities to socialize, interact and enter into dialogue, seek support and assistance, and express feelings and emotions.

A vital component of an effective model of implementation is staff development. The creation of cooperative partnerships does not come easily. Bandura (1997) recommends intensive on-site training during with guided practice and corrective feedback about how to translate the conceptual change into desired school practices. With staff members who doubt that they can exercise much influence and who view innovations skeptically, staff training must build a sense of teaching efficacy as well as skill in new educational practices.

There are no quick fixes to educational maladies. Instituting innovations adds to teacher’s already heavy workloads. Teacher’s sense of efficacy is one of the best predictors of their willingness to adopt new educational practices and to stick with them (Berman & McLaughlin, 1977). It takes time, hard work, and a robust sense of efficacy to build the broad-based support needed to transform ineffectual education programs into successful ones (Bandura, 1997). Schools can influence teacher efficacy by cultivating and providing organizational support through positive collaboration within the teaching staff and administrators via supervision as well as providing resources and direction for their use (Chester & Beaudin, 1996,

Weiss, 1999). Duran and Duran (2005) demonstrated that in-service science teacher efficacy scores could be increased through professional development emphasizing collaboration and inquiry learning (no control group or effect sizes reported). Carleton, Fitch, & Krockover (2008) examined changes in teacher efficacy and attitudes toward teaching throughout a standards-based integrated science instruction program. The data indicated that the participants' level of science teacher efficacy increased significantly during the program (also no control group or effect sizes reported). A critical question is whether or not this will work within the context of physical education.

Physical education teachers play a vital role in helping children develop the behaviors, attitudes, skills, and knowledge they will need to be physically active for a lifetime. Many conditions and issues influence the physical education learning and teaching environment. According to Social Cognitive Theory, major determinants of the choices teachers make are their self-efficacy judgments (Bandura, 1997). Few researchers have examined the self-efficacy of physical education teachers and little is known about teachers understanding of and attitudes towards physical education standards. Meaningful professional development has been highlighted as one of the empowering vehicles for equipping teachers with adequate knowledge of educational standards. The purpose of this study was to develop and test the effect of a standards-based training program and six-week weblog on self-efficacy. A secondary goal of this study was to analyze the standards, benchmarks and physical education curriculum from sixteen independent school districts.

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CHAPTER 3 - STUDY 1

PHYSICAL EDUCATION TEACHER SELF EFFICACY FOR STANDARDS BASED CURRICULUM: A TEST OF SOCIAL COGNITIVE THEORY

ABSTRACT

There is a need for sound self-efficacy measures in education that are based on Social Cognitive Theory. Physical education benefits public health by addressing physical inactivity and obesity. The purpose of this study was to develop and test a standards-based training program and virtual blog on self-efficacy. Participants were 60 physical education teachers recruited from 16 school districts. Three self-efficacy scales were administered at the beginning of a workshop and after a six-week collaborative blog. The major finding is that the intervention enhanced self-efficacy to a much greater extent than the control group. The average experimental group effect size for ESBI was .97 compared to .19 for the control group. This work supports the notion that self-efficacy is specific to context and content and could serve as a guide for future professional development opportunities.

INTRODUCTION

School physical education is a key strategy to increase physical activity during childhood and improves the chance of physically active lifestyles (Lee, Burgeson, Fulton, & Spain, 2007). Thus, physical education is important to public health because it addresses physical inactivity and obesity. One characteristic of quality physical education is a well-articulated and meaningful curriculum based on standards (CDC, 1997). The task of creating learning environments conducive to development of knowledge and skill rests on the talents and self-efficacy of teachers (Bandura, 1997). Studies have reported low self-efficacy in physical education teachers, but little is known about self-efficacy for standards based physical education or how to increase self-efficacy. Clearly, improving self-efficacy among physical educators and specifically addressing their efficacy for delivering quality physical education through a standards based curriculum has the potential to impact public health.

Numerous meta-analyses have affirmed the critical role that self-efficacy plays in such areas as work-related performance, and child, student, and teacher performance (Stajkovic, & Luthans, 1998) and health-related behaviors such as physical activity. Teaching efficacy refers to “the extent to which the teacher believes he or she has the capacity to affect student performance” (Berman & McLaughlin, 1977, p. 137). The expressed level of confidence a physical education teacher has in his or her ability to help students learn is likely related to how students perform. Relatively little information is available regarding the self-efficacy of physical educators and how confident those teachers are in their ability to deliver a standards based curriculum.

In general education, teacher efficacy has been found to predict student achievement (Ashton & Webb, 1986), student motivation (Midgley, Feldlaufer, & Eccles, 1989), and students

own sense of efficacy (Anderson, Green, & Loewen, 1988). Further, teacher efficacy has been linked to enthusiasm for teaching (Allinder, 1994), high confidence levels and positive attitudes, willingness to experiment with new methods (Stein & Wang, 1988), amount of effort and persistence demonstrated, commitment to teaching (Coladarci, 1992), levels of novelty in instruction (Stein & Wang, 1988), an orderly and positive school atmosphere, and greater classroom-based decision making (Ward, 2005). Teachers with a strong sense of efficacy tend to exhibit greater levels of planning and organization (Allinder, 1994).

Bandura (1997) has stated there is a need for sound self-efficacy measures in education that are based on the theoretical underpinnings of Social Cognitive Theory. Unfortunately, research on teacher self-efficacy has been “plagued” by methodological and conceptual shortcomings (Bandura, 1997). Ross’ (1994) meta-analytic study, for example, found that virtually all 87 studies he examined viewed teacher efficacy as a generalized expectancy, contrary to the domain- and task-specific conceptualization of self-efficacy proposed by Bandura (1986). Additionally, self-efficacy has been inadequately assessed with one-item scales that have failed to achieve correspondence between the self-efficacy measure and the behavior of interest (Bandura, 1997). Definitions of teacher self-efficacy have also confounded self-efficacy with outcome expectations and locus of control (Guskey & Passaro, 1994), making it difficult to reach substantial conclusions in this area.

Social Cognitive Theory defines human behavior as a triadic, dynamic, and reciprocal interaction of personal factors, behavior, and the environment (Bandura, 1986). According to Bandura (1997) individuals establish their efficacy beliefs by interpreting results from four sources: mastery experience, vicarious experience, social persuasion, and physiological state. The most influential of these four sources is *mastery experiences*. Successes build a robust belief

in one's self-efficacy. Failures undermine self-efficacy, especially if failures occur before a sense of efficacy is firmly established. If people experience only easy successes, they come to expect quick results and are easily discouraged by failure. After people become convinced they have what it takes to succeed, they persevere in the face of adversity and quickly rebound from setbacks.

The majority of studies in physical education settings have focused on the development and validation of teacher efficacy instruments (Martin & Hodges-Kulinna, 2003). Researchers in the exercise and sport sciences have recognized the important role that self-efficacy cognitions play in both the initiation of exercise and in sport performance (Sallis, McKenzie, Alcaraz, Kolody, Faucette & Hovell, 1997). Martin and Hodges-Kulinna (2003) developed a physical education teacher's physical activity self-efficacy (PETPAS) scale that allows researchers to assess teacher's self-efficacy for teaching classes with high levels of physical activity but this scale neglects other aspects important to quality physical education. Chase, Lirgg and Sakelos (2003) found that teachers with high efficacy provided more Academic Learning Time, specific reinforcement, general organization, specific informational feedback, and less general punishment than teachers with low teacher efficacy. Overall, teachers with high efficacy were more positive in their feedback to students than teachers with low teacher efficacy.

Teachers are key agents of change for educational reform because they are practical curriculum decision makers, innovative instructional practitioners, and teachers are responsible for the execution of new educational visions (Hargreaves, Earl, Moor, & Manning, 2001). The implementation of the NASPE standards will not occur without teachers understanding, acceptance, and support of the standards. In order to help students achieve desired learning outcomes, the teacher's responsibility is to understand, buy into, embrace, experiment and

integrate the standards into their daily teaching practices. However, there is evidence that some physical education programs offer a limited curriculum that does not take into account the needs and/or desires of students and that secondary physical education programs have replaced instructional programs with the equivalent of “managed recreation programs” (Lowry, Wechsler, Kann, & Collins, 2001). The potential for most secondary school physical education programs to encourage lifelong participation may be “severely limited” (Pennington & Krouseas, 1999). In the search for solutions, physical education must place greater emphasis on relevant activities, include physical activities that are enjoyable, build self-efficacy, and connect the curriculum to the world outside of the gymnasium (CDC, 1997).

Personal commitment to the teaching profession is the catalyst for teachers to seek continuous improvement of content knowledge and pedagogical practices aligned with the standards (Hargreaves et al., 2001). Teachers who had less desire for professional involvement and did not participate in professional development activities were unaware of current teaching innovations advocated in the standards (Borko, Elliott & Uchiyama, 2002). Unfortunately, professional development activities may not be provided or encouraged in physical education, or those that are offered may not seem relevant to the physical educator’s work (Macdonald & Brooker, 1997).

The story of collaborative efforts in physical education is still quite new. Legitimate collaborations are rare in general education and even rarer in physical education (Martin, 2003), for example physical education teachers traditionally avoid long term collaboration with their colleagues and resist involvement in whole school decision making (Sparkes, 1991). Physical educators find it difficult to find time to plan lessons and programs with their peers even though cooperative relationships with colleagues enhance jobs, increased collaboration and decreases

isolation (Doutis & Ward, 1999). Physical education teachers working collaboratively with universities, often in the form of professional development schools, report that they are rejuvenated, empowered, and have opportunities to participate in shared leadership (Rovegno & Bandhaur, 1998). Bandura (1997) recommends intensive on-site training with guided practice and corrective feedback to translate conceptual change into desired school practices. A growing interest exists in the latest generation of web-based collaboration (Boulous, Maramaba & Wheeler, 2006). Blogs may be useful teaching and learning tools because they provide a space for teachers to reflect and publish their thoughts and understandings. Blog technology has the capacity to “engage people in collaborative activity, knowledge sharing, reflection and debate, where complex and expensive technology has failed” (Stiler & Philleo, 2003).

 Blogging may promote collaboration among stakeholders. Evidence shows that in-service science teacher efficacy scores could be increased through professional development emphasizing collaboration and inquiry learning, although no control group or effect sizes were reported (Carleton, Fitch and Krockover, 2008). A critical question is whether or not this will work in physical education.

 Given this lack of research and the importance of physical education classes, the first purpose of this study was to test an intervention based on Bandura’s social cognitive theory (1986) to increase physical education teacher self-efficacy for standards based curricula. The second purpose was to examine the impact of virtual collaboration (via a blog) on self-efficacy.

METHOD

Experimental Design

This was a pre-post design with experimental and control groups. Each group participated in a different face-to-face workshop with the same facilitator. The experimental group also received on-going support through an internet blog. The experimental and control workshop were equivalent in length, engagement and participant satisfaction even though the content was different.

Participants

A priori power analysis indicated a total of 42 teachers (experimental group N=21, control group N=21) were needed as participants, based upon an efficacy effect size of 0.8 ($\alpha=.05$, $\beta=.80$). A total number of 60 teachers (experimental N= 35, control N=25) volunteered for the study. Post hoc power analysis indicated sufficient power for detecting differences in self-efficacy scores by group ($\alpha=.05$, $\beta=.79$). Teachers represented 16 school districts that were paired based on enrollment, free and reduced price lunch eligibility, and race. Random assignment of experimental or control conditions were made at the district level (by pairing districts) to prevent contamination of experimental and control conditions. The face-to-face workshop and intervention was provided to individual teachers in virtual space through a password-protected weblog. Thus, teacher was the unit of analysis.

Measures

Teacher Efficacy Scale in Physical Education (TESPE). The Teacher Efficacy Scale in Physical Education (TESPE, Chase, Lirgg, & Carson, 2001) was used to assess how confident each teacher feels that he or she can positively affect the learning of students. The TESPE

(Appendix D) consists of 16 items on four dimensions of teacher efficacy: motivation, analysis of skills, preparation, and communication.

Teachers' Sense of Efficacy Scale (TSES). To account for the currently unknown construct validity of the TESPE, a second measure of self-efficacy was used; the Teachers' Sense of Efficacy Scale (TSES-short form) (Tschannen-Moran & Woolfolk-Hoy, 2001). The Teacher Sense of Efficacy Scale assesses a teacher's efficacy for instructional strategies, student engagement, and classroom management (Appendix E).

Efficacy for Standards-based Instruction (ESBI). Researchers created the third self-efficacy tool, the Efficacy for Standards-based Instruction (ESBI) scale to measure self-efficacy for curricular decisions (relative to NASPE standards) of physical education teachers because this specific self-efficacy measurement does not exist. The ESBI (Appendix F) consists of 20 items on four dimensions of physical education teacher efficacy; knowledge, planning, instruction, and assessment. The ESBI was devised from the specific objectives for PECAT to rate physical educator's confidence in their ability to align district standards, benchmarks, lessons, and assessments and relate these to the national physical education standards. Following Bandura's (2006) guidelines, strength of teacher efficacy beliefs were recorded using a 100-point scale, ranging in 10-unit intervals from 0 ("Cannot do"); through intermediate degrees of assurance, 50 ("Moderately certain to do"); to complete assurance, 100 ("Certain can do").

Validity and Reliability of Measures

Cronbach's alpha (internal consistency) for the ESBI was .96, and the Equal-Length Spearman Brown split-half coefficient inferred good reliability ($r=.90$). The ESBI demonstrated better validity and reliability than the previously developed TESPE (Cronbach's alpha = .89;

Spearman Brown split-half coefficient=.86) and TSES (Cronbach's alpha=.84, Spearman Brown split-half coefficient=.79). As a test of concurrent validity for ESBI, Pearson's product moment correlations were performed to test the extent to which the total efficacy scores and subscales were related. The ESBI, TESPE, and TSES all had a significant positive correlations ($r=.49$ for ESBI and TESPE; $r=.44$ for ESBI and TSES; $r=.58$ for TESPE and TSES) with each other ($p<.01$). Discriminant validation of the three self-efficacy scales was identified using the ranked Physical Education Curriculum Analysis Tool (PECAT) score for each district as an independent measure (discriminant validity). The ESBI scale produced a low but significant correlation ($r=.28$, $p<.05$) with PECAT but TSES and TESPE were not significant.

Procedure.

All elementary, middle school, and high school physical education teachers within each cooperating district were invited to participate (Appendix B). The study was approved by the Institutional Review Board and all participants completed an informed consent (Appendix C).

At the conclusion of each face-to-face meeting a mean satisfaction score from a 5-point scale was completed by teachers to evaluate how positively they viewed the training session (Appendix I). The three self-efficacy assessments were made at baseline and six weeks after face-to-face training.

Control condition. The control condition consisted of one face-to-face meeting in each of eight districts where the Healthy Kids Act (relatively new state legislation requiring schools to provide physical activity for students) was discussed (baseline). Six weeks later the teachers were asked to complete the self-efficacy measures a second time (endline).

Intervention condition. Physical education teachers in the intervention condition attended one face-to-face meeting with a focus on collaboration and vertical/horizontal alignment of

standards and benchmarks (Appendix I). The intervention was designed to support the three components of Social Cognitive Theory (personal, behavioral, and environmental factors).

Personal factor intervention supports designed to increase participant self-efficacy included discussion of the National Association of Sport and Physical Education (NASPE) description of quality physical education and best practices (Appendix I) and how participants have personally exhibited those teaching characteristics. *Behavioral factor* intervention supports were reinforced through physical educator self-monitoring, goal-setting guidance, and discussion of the parts of high quality physical education under their control through curricular decision making.

Environmental factor intervention support was provided by an introduction to the CDC's (2006) Physical Education Curriculum Analysis Tool (PECAT). Physical educators (K-12) received an assessment of their current district alignment using PECAT and assistance in developing horizontally and vertically aligned standards and benchmarks during a workshop. Further, environmental support was demonstrated through presentation of anecdotal evidence indicating some administrators are supportive of physical education despite difficult economic times and academic pressure (Buns, unpublished data).

The standards-based intervention developed for this study also targeted Bandura's (1986) framework of information and experiences that contribute to the development of self-efficacy beliefs: mastery experience, vicarious experience, verbal persuasion, and emotional arousal. *Mastery experiences* were supported during the face-to-face meeting through a discussion of NASPE's description of quality physical education, best practices and how participants have personally exhibited those teaching characteristics. A discussion of how district physical educators have contributed to quality physical education in their school provided *vicarious experiences* to increase self-efficacy levels. Persuasive reassurances that the teacher possesses

the capabilities to execute effective standards-based design strategies were also provided (*verbal persuasion*). Participants received reminders of their commitment to the profession by their attendance and participation in the current investigation. As advocated by Bandura (1986) the current intervention attempted to eliminate emotional reactions to subjective threats through the aforementioned mastery experiences and creating a relaxed and upbeat mood (*emotional arousal*). Eliminating such threats is believed to correspond with improvements in self-efficacy and skill (Bandura, 1997).

Finally, physical educators were introduced to a collaborative model (Friend & Cook, 2000) aimed at developing the skills necessary to become effective K-12 collaborators. Thus, the meeting concluded with the introduction of an online blog that they were asked to use for communication with physical education teachers within their district as well as the researcher regarding the use of national standards and benchmarks for six weeks following the face-to-face meeting.

Six-week Intervention in Virtual Space. Each teacher was provided with a pre-arranged WordPress.com blog account. Access to each school district's blog was limited to teachers within that same district for discussion. Each week for six weeks, a different NASPE Content Standard was addressed. At the beginning of each week an email was sent to all participants with a link to the blog. Teachers were presented with benchmarks for each of the six standards to stimulate discussion each week (Appendix I). For example, during Week 3 the posting was "*Standard 3: Participates regularly in physical activity. Sample performance outcomes (across the K-2 grade range) include:*

- *Engages in a variety of locomotor activities (e.g., hopping, walking, jumping, galloping, and running) during leisure time*

- *Participates in chasing and fleeing activities outside of school*
- *Participates in a variety of nonstructured and minimally organized physical activities outside of physical education class (e.g., tag, hide-and-seek).*

Information on the intent of each standard was provided weekly via the blog with information cited from *Moving into the Future: National Standards for Physical Education* (National Association for Sport and Physical Education, 2004). The same material was posted on each district's blog and the same emails were sent to all participants each week. Interaction among physical education teachers was encouraged within each district via blog and a reminder that stated "success is a result of effort (for teacher and student)".

Post-Baseline Data Collection

The three self-efficacy instruments administered at baseline (TSES, TESPE, and ESBI) were mailed to experimental and control teachers at their school address with a pre-paid postage return envelope for post-intervention data collection.

Statistical Analysis.

Primary outcome variables were measures of three types of teacher self-efficacy (TSES, TESPE, and ESBI) at two time points (pre- and post). The primary hypothesis—teacher efficacy will be greater among intervention teachers compared to control teachers and baseline assessment—was tested with a self-efficacy measure (3) x group (2) x time (2) repeated measures MANOVA. Higher-order interaction terms were added to test for variability of the intervention effect across district, building, and grade level. A random effect was included to account for variation among schools within a given district. Effect sizes were calculated to assess the practical meaningfulness of the intervention in condition to the control condition.

Pearson-product moment correlations were used to examine the impact of virtual collaboration on self-efficacy. All computations were carried out with SPSS Version 17.0 (Chicago, IL).

RESULTS

A total of 60 participants started the study and 48 completed the study (27 experimental, 21 control) for retention rates of 77% and 84%, respectively. Baseline self-efficacy levels for dropouts and full participants for the three measures of self-efficacy were compared. Effect sizes were small (ESBI=.43; TESPE=.21) with the distribution of upper and lower boundaries of the 95% confidence intervals for the drop-outs completely encompassing the full participants for ESBI (55.2-80.3 dropouts and 71.4-78.2 dropouts) and TESPE (dropouts 87.3-99.0 and completers 93.3-98.2). The TSES had the smallest effect size (.04) but the confidence intervals did not overlap (dropouts 76.9-88.5 and full participants 75.2-89.2; Table 1 Appendix J). Considering the small effect sizes and confidence intervals the dropouts did not appear to differ from the participants that completed the study for the key variables of interest. There were no significant differences ($t(1)=2.13, p=.14$) between full participants and dropouts in workshop satisfaction score (completer mean satisfaction = 1.42, SD = .54; dropout mean satisfaction = 1.17, SD = .40) based on independent t -tests and confidence intervals, although confidence intervals did not overlap. Based on baseline confidence intervals ($p<.05$), experimental and control groups were not significantly different in terms of teaching experience, education level or baseline self-efficacy levels (TSES, TESPE, and ESBI).

The dependent variables used in this analysis were deemed normally distributed after examining the skewness, kurtosis and Q-Q plots within each group (e.g., experimental and control) so parametric statistics were used. Descriptive data for the intervention and control groups at baseline and end point for the three measures of self-efficacy are presented in Table 1.

Efficacy for Standards-based Instruction (ESBI)

The repeated measure MANOVA with ESBI as the dependent variable produced significant results for group [$F(1,46)=15.37, p=.001$], time [$F(1, 46)=13.46, p=.001$] and the group by time interaction [$F(1,46)=9.87, p=.003$]. The interaction of time (baseline and endpoint) and group (experimental and control) was the effect of primary interest. Follow-up ANOVAs indicated significant effects for all four ESBI subscales over the six-week period; understanding [$F(1,46)=12.23, p=.001$], planning [$F(1,46)=7.59, p=.008$], teaching [$F(1,46)=6.32, p=.016$] and assessment [$F(1,46)=17.27, p<.001$]. Baseline and endpoint ESBI self-efficacy scores were significantly different from each other for the experimental group but not significant for control group. The average effect size for experimental group was .97 compared to .19 for control condition participants (Table 1).

Teacher Efficacy Scale in Physical Education (TESPE)

The multivariate tests produced three non-significant results for group [$F(1,46)=2.13, p=.106$], time [$F(1, 46)=2.59, p=.11$] and the group by time interaction [$F(1,46)=.021, p=.89$]. As shown in Table 1, TESPE scores in this study remained essentially unchanged for experimental and control groups. Based on confidence intervals, baseline and endpoint TESPE self-efficacy scores were not significantly different nor did these meet the criteria to be declared the same.

Teachers' Self-Efficacy Scale (TSES)

The multivariate tests produced three non-significant results for group [$F(1,46)=0.03, p=.89$], time [$F(1, 46)=0.15, p=.70$] and the group by time interaction [$F(1,46)=0.79, p=.38$]. TSES self-efficacy did not change significantly during the six-week time period (Table 1).

Based on the confidence intervals, TSES scores for the intervention group were declared the same, however the control group was neither the same or different based on the data.

Standards-based Training Debriefing Questionnaire.

At the end of the workshop, a debriefing questionnaire was completed by 60 teachers (25 control and 35 intervention teachers). Responses on the Likert-type questions (scored from 1 to 5, highest to lowest). Teachers were very satisfied with the face-to-face meeting with positive views (experimental $M = 1.43$, $SD = 0.55$; control $M = 1.32$, $SD = 0.48$). Independent t-tests ($t(2)=1.5$, $p=.86$) indicated no significant differences between how the intervention and control groups viewed the intervention.

Collaboration in Virtual Space (Online Blog).

All intervention participants were invited to participate in the collaborative weblog. Overall, 48.6% ($n = 17$) of intervention teachers posted at least one blog comment for a total of 22 comments. Teachers viewed their district blog more frequently than they participated in blog discussions (mean district blog views = 45.23 vs. mean district comments = 10.88). One district did not post any comments during six weeks. Teachers indicated the class activities used to meet NASPE standards during the six-week intervention period. Fitness testing was the most frequently identified method for aligning activities with the standards and accounted for 64.7% ($n = 11$) of all activities posted.

Comparing the bloggers (posted at least one comment) to the non-bloggers (did not post a comment) at baseline ESBI produced a small effect size favoring the bloggers (e.s.=.24), while TESPE produced a small effect size (e.s.=.35) favoring the non-bloggers. Based on ESBI, bloggers ($n = 15$) increased self-efficacy from baseline to end (ESBI baseline $M = 72.50$, $SD = 10.45$; end $M = 86.94$, $SD = 6.81$, e.s.=1.64) more than non-bloggers ($n=20$) (ESBI baseline $M =$

69.57, $SD = 18.16$; end $M = 81.02$, $SD = 10.47$, $e.s.=.77$). TESPE produced a moderate effect size (.75) over time for the bloggers. No other effect sizes were moderate or large. Three separate independent t-tests using end self-efficacy as the dependent variable and number of blog comments as the independent variable indicated no differences between groups for end ESBI ($t(2)=1.77$, $p=.09$), TESPE ($t(2)=-.96$, $p=.34$) or TSES ($t(2)=1.69$, $p<.10$) self-efficacy scores. The majority of bloggers (80%, $n=12$) completed the study.

Hypothesis Two

In order to test the second hypothesis, Pearson product-moment correlation analyses were computed to identify whether or not self-efficacy characteristics were related to collaboration as measured by weblog use (Table 2). The correlation analysis revealed a number of statistically significant positive relationships. Number of individual blog comments was significantly related to post-ESBI score ($r=-.57$, $p<.05$) and post-TSES score ($r=.49$, $p<.05$). At the district level, total number of district blog views was significantly related to pre-ESBI score ($r=.41$, $p<.05$) and pre-TESPE score ($r=.34$, $p<.05$).

The baseline and end TESPE and ESBI subscales for “planning” were examined using Pearson-product correlation to assess whether or not they assessed similar constructs. Baseline TESPE was significantly related to end TESPE ($r=.41$, $p<.01$) and baseline ESBI ($r=.54$, $p<.01$) but unrelated to end ESBI ($r=.12$, $p=.42$). Approximately 90% ($n=24$) of the experimental group increased ESBI score from pre- to post while 57% ($n = 12$) of control group showed an ESBI increase.

DISCUSSION

The purpose of this study was to test Bandura's social cognitive theory as a means to improve physical education teacher efficacy for standards-based physical education. The intervention used two strategies; a face-to-face meeting and the internet for reminders and blogging. Each strategy addressed one or more components of Bandura's model and the framework of information and experiences that contribute to self-efficacy. Quality physical education is a key strategy for increasing physical activity among children and adolescents. Standards-based physical education is one of four characteristics of quality physical education (Lee et. al, 2006). Self-efficacy has been consistently identified as predictive of student outcomes. Therefore, an intervention that increases teacher self-efficacy has the potential to impact physical activity in students through quality physical education.

Increases in self-efficacy. The results of this study underscore the important role professional development opportunities in physical education provide for establishing teachers' efficacy beliefs. A significant interaction (group by time) for ESBI demonstrated that the intervention group increased self-efficacy while the control group did not. The intervention targeted standards-based physical education, and the ESBI was specifically designed to examine teacher efficacy for using standards. The effect size for the intervention group was large as were all subtest effect sizes for the intervention group. The control group did not increase efficacy over time and pre-to-post effect sizes were small for all tests and subtests of self-efficacy (ESBI, TESPE and TSES). A host of personal, social, and situational factors affect how direct and socially mediated experiences are cognitively interpreted (Bandura, 1997). The standards-based intervention developed for this study targeted Bandura's (1986) framework of four main sources of information and experiences that contribute to the development of self-efficacy beliefs;

mastery experience, vicarious experience, verbal persuasion, and emotional arousal. Mastery experiences are the most influential source of efficacy information because they provide the most authentic evidence of whether one can overcome obstacles to succeed (Bandura, 1997).

Increased ESBI self-efficacy levels among the experimental group in this study suggest the intervention was successful in organizing mastery experiences, which were conducive to the acquisition of standards-based knowledge and skills. Approximately 90% ($n = 24$) of the experimental group increased ESBI score from pre- to post while 57% ($n = 12$) of control group showed an ESBI increase. Efficacy appraisals are partly influenced by vicarious experiences mediated through modeled attainments (Bandura, 1997). Since vertical alignment of standards and benchmarks is a shared responsibility, how well districts performed as a group in their vertical alignment may have partially determined individual self-efficacy. Improvement in self-efficacy levels was not limited to those who were initially low in self-efficacy. Consistent with Bandura (1997), even those who were highly self-assured increased their self-efficacy beliefs. Consistent with Coladarci (1992), teaching experience did not contribute to teacher commitment (commitment operationally defined as number of individual or district blog posts).

Two previously developed self-efficacy instruments (TSES and TESPE) were selected for this study because they have received some support (Tschannen-Moran & Woolfolk-Hoy, 2001; Chase, Lirgg, & Carson, 2001) and have been used in physical education research. However, investigators questioned the usefulness of these self-efficacy measures based on their face validity relative to the intent of the intervention. In addition, they do not fully meet Bandura's (2001) guidelines for developing self-efficacy scales. Therefore, the ESBI was devised from PECAT objectives to rate physical educator's confidence in their ability to align district standards, benchmarks, lessons, and assessments according to Bandura's criteria.

The TESPE and TSES scales criteria were not altered in this intervention and that may have decreased the change potential. Mean TESPE and TSES self-efficacy levels did not change in either the experimental or control condition. This was expected because previous literature suggests teacher self-efficacy scales have been “plagued” by methodological and conceptual shortcomings (Woolfolk & Hoy, 2000). Teacher efficacy should be viewed as a domain- and task-specific conceptualization of self-efficacy (Bandura, 1997). Using TESPE and TSES measures for this specific standards-based intervention likely portrayed teacher efficacy as a generalized expectancy; that is, self-efficacy was inadequately assessed with the TESPE and TSES—failing to achieve correspondence with the behavior of interest. Further, the data may suggest that professional development in the form of one face-to-face meeting was not enough to influence general self-efficacy for teaching or teaching physical education. The ESBI is a more useful instrument for assessing physical educator self-efficacy for curricular decisions than the TESPE or TSES.

Collaboration and self-efficacy. Almost half (48%) of the experimental teachers participated in the blog. This virtual collaboration was associated with greater increase in ESBI self-efficacy (e.s. = 1.64) when compared to the entire experimental group (e.s. = .97) or the non-bloggers in the experimental group (e.s. = .77). This suggests the professional development meeting coupled with six-week collaboration in virtual space was more effective than the professional development meeting alone. It is noteworthy that the change in self-efficacy occurred in just six weeks with relatively little intervention. These results have specific implications for methods of teacher education in that weblogs can be used to engage teachers in meaningful activity to improve their confidence in teaching and planning for standards-based instruction. This work supports the idea that self-efficacy is very specific. For example, there

were three measures of self-efficacy used in the current study. At baseline the three measures produced significant correlations accounting for 24-31% of the variance. This suggests that prior to the intervention the instruments captured the same portion of general self-efficacy. By the end of the intervention the three measures were not significantly correlated with each other. However, at the end of the study other relationships with post efficacy scores did emerge with experimental teachers.

Previous studies indicate teacher efficacy has been linked to teacher's willingness to experiment with new methods (Guskey, 1988; Stein & Wang, 1998) and their commitment to their field (Coladarci, 1992; Evans & Tribble, 1986). Standards-based vertical alignment represented a new method for the majority of teachers in this study. Collaboration in virtual space served as a proxy for measuring teacher commitment. Some aspects of self-efficacy were incorporated into online collaboration in the current study; individual blog use was related to post ESBI and post TSES self-efficacy. Blog comments and self-efficacy shared 24-33% of the variance in common at the end of the study. The mechanisms underlying these relationships are still unclear. A lower sense of self-efficacy at baseline may have sent participants searching for vicarious, verbal and other sources of support.

Virtual space statistics indicate districts with teachers higher in baseline self-efficacy viewed the online blog more frequently (Table 2). Unfortunately, the online blog statistics did not allow investigators to identify individual blog views so it was not possible to determine how many times each teacher viewed the blog. Physical education teachers working collaboratively with universities, often in the form of professional development, report that they are rejuvenated and empowered (Rovegno & Bandhaur, 1998). The results of this study are mixed; the

experimental group showed a benefit of collaboration however the control group did not. Both groups reported having viewed the training sessions positively.

Blog views and baseline ESBI ($r=-.41, p<.05$) and TSES ($r=-.34, p<.05$) were related such that low baseline efficacy was associated with more views. This might suggest that less empowered teachers were seeking information from colleagues or seeking collaboration; the views of these teachers were invisible to their colleagues. The blog may have allowed them to seek information and support privately and without fear of disclosure. Blog views were not associated with any post-efficacy measures, thus suggesting that views are not sufficient to fill the vicarious experience role necessary to influence self-efficacy. The relation between individual blog comments posted and end ESBI ($r=.57, p<.05$) and post TSES ($r=.49, p<.05$) indicated that as the number of blog comments increased, self-efficacy also increased. Thus, engagement in blogging activity was one factor contributing to increased self-efficacy beliefs for curricular decisions. The collaborative blog may have served as a resource for influencing self-efficacy beliefs for participants electing to use it. Posting blog comments appeared to be sufficient to provide vicarious experience. A logical question is why collaboration in virtual space was related to end TSES and not end TESPE scores. One possible reason is that the virtual space content was unrelated to the specific TESPE constructs. Consistent with previous physical education literature (Sparkes, 1991; Doutis & Ward, 1999), participants in the current study did not collaborate with colleagues—as evidenced by the low virtual space participation rates (less than 50% of participants posted a single blog comment despite weekly reminders). Bandura (1997) asserts teaching efficacy varies across grade levels and subjects but grade level had no apparent effect on physical educator self-efficacy in the current study. Physical educators are

often isolated and collaborations often are limited because professional development may not be subject specific.

The development of physical educator self-efficacy is a dynamic process involving changes in beliefs as a result of teacher participation in standards-based intervention of mastery, vicarious, persuasive, and physiologically arousing experiences. A key finding is that collaboration in virtual space significantly and meaningfully increased physical educator self-efficacy. An integrated model of physical education teacher self-efficacy is essential for capturing the complex relationships among the beliefs of teachers about their teaching abilities, behavior, and environment. The protocol developed for this study has demonstrated effectiveness in increasing physical educator self-efficacy for curricular decisions and may serve as a guide for future professional development opportunities in physical education where the goal is to improve curricular decisions, collaboration, and/or self-efficacy.

Drop-outs. Some participants in both the intervention and control groups did not complete the study. The major concern with missing data was whether or not the loss of participants biases the results. Three factors suggest there was no bias based on the drop-outs. First, the measures of primary interest (self-efficacy) indicated that the drop-outs were not different from those completing the study. Second, the drop-out rates were similar between the intervention and control groups.

Limitations

Self-efficacy measures were collected at the beginning of a physical education face-to-face meeting and six weeks after the meeting. It would have been helpful to administer an

additional efficacy measurement immediately after the face-to-face meeting and before the collaboration in virtual space to distinguish between experimental effects of the face-to-face meeting and collaboration in virtual space. The latest generation of collaborative web-based tools (i.e. blogs) offer many unique and powerful information sharing and collaborative features. Research is still needed to determine the best ways to leverage this emerging tool to boost teaching, learning, collaboration, and self-efficacy. Future work should explore if and how physical education ESBI self-efficacy is related to teacher practice and ultimately student learning. Follow-up studies could have two separate interventions (i.e. three ARMS: a control, a blog intervention only and an in-person intervention only). Finally, it remains unknown how long the increases in self-efficacy will endure.

In summary, this study demonstrates support for the use of Social Cognitive Theory as the theoretical model for developing interventions to increase physical education teacher self-efficacy. This work confirms the work of Weiss (1999) in that teacher self-efficacy was supported through positive collaboration with other educators but is the first to use physical educator self-efficacy as a dependent variable. Three instruments developed to measure self-efficacy (TSES, TESPE and ESBI) captured a type of self-efficacy toward teaching. However, each instrument is probably best used in specific applications consistent with the intended purpose of the instrument. Finally, the relative success of the blog in enhancing self-efficacy suggests that virtual collaboration and training has potential to address issues of concern to physical educators including lack of training on physical education topics and professional isolation.

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Table 1. Descriptive data for the self-efficacy measures by group and time. Overall effect of Standards-based training intervention on physical educator self-efficacy.

Scale	Control Group (<i>n</i> = 25)			Experimental Group (<i>n</i> = 35)		
	Baseline <i>M</i> (<i>SD</i>) (95% CI)	End <i>M</i> (<i>SD</i>) (95% CI)	ES	Baseline <i>M</i> (<i>SD</i>) (95% CI)	End <i>M</i> (<i>SD</i>) (95% CI)	ES
ESBI	76.92 (10.88) (72.97-83.09)	78.97 (9.95) (74.84-83.10)	.19	70.83 (15.22) (67.77-76.69)	84.31 (8.96) (80.67-87.95)	.97
<i>Assessment</i>	18.12 (4.30) (17.60, 20.09)	18.66 (4.21) (17.18, 20.14)	.13	17.11 (4.05) (15.61, 18.69)	20.93 (2.54) (19.62, 22.23)	1.13
<i>Planning</i>	19.94 (3.28) (18.65, 21.79)	19.75 (2.86) (18.55, 20.95)	.06	17.48 (4.36) (16.27, 19.04)	21.13 (2.65) (20.07, 22.19)	1.01
<i>Instruction</i>	20.01 (1.96) (19.11, 21.68)	20.41 (1.38) (19.75, 21.07)	.23	18.74 (4.31) (18.05, 20.33)	21.65 (1.59) (21.07, 22.23)	.89
<i>Knowledge</i>	18.85 (3.27) (17.60, 20.56)	20.11 (3.61) (18.82, 21.51)	.38	17.5 (4.34) (16.94, 19.55)	20.60 (2.88) (19.42, 21.79)	.87
TESPE	96.3 (10.7) (93.6, 100.9)	95.5 (7.5) (92.7, 98.3)	-.09	92.4 (5.3) (91.3, 97.8)	94.5 (6.6) (89.9, 94.9)	-.35

Table 1. (Continued)

Scale	Control Group (<i>n</i> = 25)			Experimental Group (<i>n</i> = 35)		
	Baseline <i>M</i> (<i>SD</i>) (95% CI)	End <i>M</i> (<i>SD</i>) (95% CI)	ES	Baseline <i>M</i> (<i>SD</i>) (95% CI)	End <i>M</i> (<i>SD</i>) (95% CI)	ES
<i>Skill</i>	24.8 (2.6) (24.3, 26.1)	24.8 (1.9) (24.1, 25.5)	.00	23.9 (2.2) (22.9, 24.6)	22.9 (1.5) (22.2, 23.5)	-.53
<i>Preparation</i>	23.7 (3.5) (22.4, 25.2)	23.9 (3.2) (22.6, 25.2)	-.06	22.9 (2.5) (21.9, 24.3)	22.1 (2.8) (20.9, 23.3)	-.30
<i>Comm.</i>	24.3 (3.2) (23.6, 25.8)	23.5 (1.8) (22.8, 24.1)	.27	24.1 (2.2) (23.2, 25.1)	24.6 (1.1) (23.9, 25.1)	-.29
<i>Motivation</i>	23.5 (2.9) (22.5, 24.6)	23.3 (2.6) (22.3, 24.3)	-.11	23.6 (1.9) (22.6, 24.5)	23.2 (2.2) (22.3, 24.1)	-.20
TSES	83.3 (9.2) (80.7, 88.9)	83.3 (9.1) (80.4, 86.2)	.00	82.5 (10.2) (78.8, 86.0)	83.0 (4.0) (80.4, 85.6)	.06
<i>Instruction</i>	28.2 (4.6) (27.3, 30.7)	27.9 (3.5) (26.7, 29.2)	.07	27.8 (3.3) (26.4, 29.3)	28.9 (2.2) (27.8, 29.0)	-.39
<i>Engagement</i>	23.6 (5.0)	23.6 (5.3)	.00	24.9 (4.7)	24.4 (1.7)	.14

Table 1. (Continued)

Scale	Control Group (<i>n</i> = 25)			Experimental Group (<i>n</i> = 35)		
	Baseline <i>M</i> (<i>SD</i>) (95% CI)	End <i>M</i> (<i>SD</i>) (95% CI)	ES	Baseline <i>M</i> (<i>SD</i>) (95% CI)	End <i>M</i> (<i>SD</i>) (95% CI)	ES
<i>Management</i>	21.7 (25.8) 31.5 (3.3) (30.4, 33.8)	21.9 (25.2) 31.8 (2.8) (30.5, 33.1)	.09	22.8 (26.4) 29.8 (4.4) (28.5, 31.5)	23.0 (25.9) 29.4 (3.2) (28.2, 30.6)	-.10

SD, Standard Deviation; CI, Confidence Interval; ES, Effect Size

Table 2. Pearson-product correlations among blog use, education level and self-efficacy assessments.

Variable	1	2	3	4	5	6	7	8	9	10
1. Individual BC	-									
2. District BV	-.02	-								
3. Rating	-.29	.17	-							
4. Pre-ESBI	-.14	-.41*	-.03	-						
5. Pre-TESPE	.31	-.34*	-.07	.56**	-					
6. Pre-TSES	-.13	-.23	-.18	.49**	.53**	-				
7. Post-ESBI	.57*	.03	.32	-.13	-.11	.07	-			
8. Post-TESPE	-.17	-.10	-.00	-.11	-.07	-.22	.16	-		
9. Post-TSES	.49*	-.08	.08	-.12	.20	.09	-.25	-.08	-	
10. Educ. Level	-.02	.03	-.06	-.20	.16	-.01	-.18	.20	.03	-

Note: * $p < .05$, two-tailed. ** $p < .01$, two-tailed

BV = Blog Views, BC = Blog Comments, Educ. Level = Education

CHAPTER 4 - STUDY 2

ANALYSIS OF PHYSICAL EDUCATION STANDARDS, BENCHMARKS AND RELATED TEACHER DECISIONS FROM SIXTEEN INDEPENDENT SCHOOL DISTRICTS

ABSTRACT

This project assessed the alignment of physical education curricula in 16 school districts. The PECAT instrument was used to assess each school district's written physical education standards and benchmarks. PECAT content coverage scores ranged from 0-64% ($m=35.2\%$), seven districts had scores of 44% or more. The curriculum map analysis of 1060 benchmarks produced 27% fully aligned, 52% partially aligned and 21% autonomous benchmarks. Five districts had at least one fully aligned benchmark for content associated with their district standards. PECAT and the curriculum maps scores were correlated ($r=.58$, $p=.0001$). Teachers reported little to no professional development related to curriculum. Better district curriculum maps and PECAT scores were associated with teacher decisions based on student assessment ($e.s.=.86$) and student needs ($e.s.=.81$).

KEY WORDS: PECAT, curriculum map, vertical alignment, teacher decisions

INTRODUCTION

Quality physical education, as defined in the Physical Education Curriculum Analysis Tool (PECAT), has four components (Centers for Disease Control and Prevention, 2006). One of those is a meaningful curriculum based on standards. Quality physical education has been a key strategy to increase physical activity and reduce health risk. There are two levels of implementation for standards-based curriculum; the standards and benchmarks developed or adopted by the state or district, and the teacher who will use the standards and benchmarks to guide instruction. Standards-based instruction, specifically in physical education, represents a paradigm shift for schools and teachers (National Association for Sport and Physical Education, 2004).

Physical education has a set of competencies that define the skills and knowledge that students are expected to learn through physical education (National Association for Sport and Physical Education, 2004). These competencies have been labeled *content standards*, and specify what a student should know and be able to do as a result of participating in a quality physical education program. While the national content standards describe what students are expected to know and be able to do, they do not define what is considered acceptable performance. That is the role of performance standards, otherwise referred to as *benchmarks*. Benchmarks are specific skills and knowledge that represent progress toward the standards. The revised national content standards (National Association for Sport and Physical Activity, 2004) are:

- Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities

- Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.
- Standard 3: Participates regularly in physical activity.
- Standard 4: Achieves and maintains a health enhancing level of physical fitness.
- Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.
- Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Standards-based program design is a process for designing educational programs that begins at the end and works to the beginning of the curriculum. States have control of their own educational system, each state is responsible for developing its own standards. National Association of Sport and Physical Education (NASPE) has provided national leadership for developing K-12 physical education standards (1995, 2004). The NASPE Standards were based on the document *Outcomes of Quality Physical Education* (National Association of Sport and Physical Education, 1992), which defined a physically educated person. Although each state is responsible for developing its own content standards, many states have adopted or adapted the NASPE National Physical Education Content Standards (2004).

Two paradigms of learning have had an effect on educational program design. The first, *objectives-based program design* (Tyler, 1949) stems from behavioral theory as a foundation of learning, whereas the second, the *standards-based program design*, derived from cognitive theory as a foundation of learning. The objectives-based approach to program design has shaped how teachers contemplate planning and implementing educational programs for decades. Tyler's

(1949) process entailed devising a systematic plan for creating content-driven educational experiences through written objectives indicating the behavior that the student would develop.

Tyler's work is seminal because it led to the dominant curriculum design process of forward mapping of curriculum, designing educational programs from the bottom up (K-12).

Traditionally, programs evolve from bottom up—grade-by-grade, adding forward from the most basic, elemental components at the lower grades to more complex applications at the higher grades. The forward mapping approach created systematic goals and objectives that led to rather narrow and homogeneous learning expectations (Lambert, 2003). Kirk's (1993) analysis of the objectives-based approach to program design identified key limitations of the objectives-based process: (a) objectives lead to “compartmentalization, marginalization, trivialization” of qualitative subjective, and humanistic experiences, and (b) the assumption that motor learning can be easily assessed and measured because of its overt, performance nature and that other forms of learning are not as important.

The standards based approach has fewer components connected across the program, represents the “big ideas,” the concepts and principles, not just facts and single elements. This perspective emphasizes what students should know and be able to do when they exit high school. The standards-based program design process is often termed “backward design” or “reverse mapping” because the process leads to programs that are designed from the end back toward the beginning. A primary goal of standards-based program design is to let the standards guide learning (Lambert, 1999).

The process of curriculum mapping (Jacobs, 1997) allows teachers, schools and school districts to examine their physical education curriculum for the content and assessments that they deliver each month over the school year. They align benchmarks to the curriculum map to

identify any redundancies across grade levels or any instructional gaps that would reduce students' chances of meeting required benchmarks. The goal has been to address each standard systematically across the curriculum in a sequence that demonstrates a logical and developmentally appropriate progression.

Curricular alignment is expressed in two directions—vertical and horizontal (Thomas, Lee, & Thomas, 2008). Vertical alignment describes the relationship of the benchmarks and content across grades and begins with the mapping of the curriculum. The CDC defines curriculum as a sequential system for delivering meaningful content (Center for Disease Control and Prevention, 2006). The focus on appropriate sequencing includes both developmentally appropriate assessments and ensuring that basic skills lead to more advanced skills. In order to demonstrate sequencing, content must have cohesive threads or skills from grade-to-grade. In most school districts, more than one teacher provides physical education, so implementation of vertical alignment is the result of a plan that is developed and then executed by more than one educator. Vertical alignment of standards and benchmarks may be done at the state, district, or building level, so, in many cases, a physical education teacher does not create this part of the plan. In these cases, it is critical that each physical education teacher accepts responsibility for their portion of the plan.

The Centers for Disease Control and Prevention (CDC) developed the *Physical Education Curriculum Analysis Tool* (PECAT) to assist educators in analyzing the strengths and weaknesses of written physical education curricula in terms of content, student assessment and sequence. PECAT is also used to assess alignment of curricula with national standards, guidelines and best practices for quality physical education programs. Finally, PECAT includes guidance on how to improve curriculum based upon the results.

The benchmarks presented in PECAT describe what children should know and do at the end of grades 2, 5, 8, and 12. PECAT provides 4 to 6 benchmarks for each standard at each of the four levels (grades K-2, 3-5, 5-8, and 9-12). Examination of benchmarks for one standard across the grades should provide evidence of progress toward the standard; however expectations become increasingly more difficult or complex and more similar to the standard as children get older. This concept is consistent with developmentally appropriate physical education. The PECAT score represents the breadth of a curriculum (e.g., number of standards covered) and the depth (e.g., number of benchmarks covered).

Developing a standards-based curriculum begins by looking at the standards, recognizing the skills, knowledge, and dispositions that students should demonstrate to meet these standards, and selecting a curriculum model and/or activities that will allow students to reach the outcomes stated in the standards (Lund, 2005). Since time is limited, teachers must carefully choose content and activities that will allow students to reach the standards. Some activities may be eliminated from a program because of their minimal contribution to meeting standards.

Those developing curricula must decide what they are going to accept as evidence that students have met standards (Lund, 2005; Siedentop, 2005). Additionally, they must decide at what point(s) students are going to demonstrate competence. The process of curriculum planning and assessment should occur simultaneously (Huba & Freed, 1999). Therefore, teachers should have been part of the process from the beginning.

Standards-based curricula represent a paradigm shift for many teachers currently in the field (Doolittle, 2003). It forces teachers to select activities and justify their contribution to meeting the standards rather than selecting activities by teacher preference or tradition. Some students experience a thoughtful variety of activities, with sufficient time and progression in each

activity to allow them to achieve the NASPE standards. Other students experience a variety of activities organized with little concern for program goals, and insufficient time in any of the activities to become proficient. The result may be that the students do not meet any NASPE standards.

Little is known about teachers understanding of and attitudes toward the physical education standards. Recent articles (Peterson, Cruzet & Amundson, 2002; Veal, Campbell, Johnson, & McKethan, 2002) have indicated positive results from moving to a standards-based approach in physical education, although these lack empirical evidence. For example, as a result of increased emphasis on standards and accountability measures, authors argue administrators have convinced physical education teachers of the need for, and importance of, standards-based instruction and assessment (Peterson et al., 2002). Administrators have also advocated for resources that will allow teachers to revise curricula and bring programs in line with standards, and for the first time in many districts, teachers were designing specific performance indicators and assessments for how to measure achievement of standards and benchmarks (Veal et al., 2002). States vary widely in how standards and benchmarks are developed; for example Iowa has no state standards and leaves all decisions at the local district level, while Texas has state mandated standards and benchmarks for each grade. Regardless of the origin of the standards and benchmarks, teachers must understand and be able to use the standards and benchmarks for students to meet the standards.

In order for the standards to become guidelines for curriculum, teaching, and assessment, it is important for teachers to gain a keen understanding of the standards. In order to help students achieve desired learning outcomes, it is the teacher's responsibility for embracing and integrating the standards into their daily teaching practices (Fullan, 2001; Glisan, 1996;

Leinwand, 1992; Ravitch, 1992). The theoretical framework of teacher change (Fullan, 2001; Glisan, 1996; Leinwand, 1992) suggests teacher's knowledge about and attitudes toward educational standards, their personal commitment to learning about the standards, and their availability and participation in formal professional development activities influence change in teacher's beliefs, knowledge, and behaviors (Fullan, 2001). Thus, standards and the teachers' use of those standards are important to quality physical education.

Chen (2006) investigated the current levels of teacher's knowledge and views of the NASPE standards and factors that influenced the teacher's understandings and interpretations of the standards. Through 25 formal interviews and 78 lesson observations, findings indicated that: a) personal commitment is a key factor contributing to teachers growing knowledge about the standards, b) active participation in professional development activities helps teachers stay current, and c) understanding of the standards is an influential determinant of the teacher's attitude toward the standards.

Articulation of the curriculum across grade levels is a primary concern when implementing standards-based education. There is evidence of a disturbing misalignment between the standards and actual curriculum offered in some schools (Chen, 2006). The main purpose of this project was to assess the alignment of physical education curricula of sixteen school districts where there were no state standards or benchmarks. A secondary purpose was to examine factors underlying curricular decisions by teachers in light of the district curriculum map.

METHOD

Research Design and Participants

This study was an analysis of physical education standards and benchmarks collected from 16 independent public school districts in one Midwestern state. District administrators were asked to provide copies of their district standards and benchmarks for physical education. All districts were located in one state that does not provide state physical education standards or benchmarks. Initially sixteen districts were invited to participate by letter to the superintendent. The districts represented all geographic regions of the state, and varied on other characteristics for example, larger and smaller enrollment, free and reduced price lunch eligibility, and racial diversity. When a district declined to participate another similar district was invited. The participation rate was 15%, with a total of 110 invited to reach sixteen participants. Standards and benchmarks were required by the state but created at the district level. Some teachers ($n=43$) from each district volunteered to complete a survey. The study was approved by the Institutional Review Board and all participants completed an informed consent.

Measures

Physical Education Curriculum Analysis Tool (PECAT). The PECAT instrument was used to assess each school district's written physical education standards and benchmarks (Centers for Disease Control and Prevention, 2006). PECAT is a content analysis scoring system rating the written curriculum on each of the six national standards for physical education. The content analyses were divided into four subsections corresponding to the grade-level ranges used in the national standards for physical education: K-2, 3-5, 6-8, and 9-12. Each subsection began with a list of what students were expected to achieve by the end of the identified grade-level range related to each of the national standards. PECAT examines curriculum within grade levels

and does not track content across grade levels. A percent of content coverage was calculated using the PECAT protocol. In cases where districts did not have a standard similar to the content of the NASPE standard or did not have benchmarks for any grade within a level the coverage score was zero.

Vertical Alignment. A curriculum map of each district was created tracking cohesiveness of benchmarks across levels (e.g., grades). Reliability for the vertical alignment analysis was previously demonstrated by two trained researchers with agreement over 90% (Thomas, Smith & Buns, 2010). Vertical alignment of district standards and benchmarks was determined by categorizing each series of benchmarks as one of three types based on “tracking” criteria (See Table 1 for examples). *Fully* tracking sequences refer to each series of benchmarks that tracks across all levels (K-12) for a given standard. *Partial* tracking sequences were those that tracked across at least two levels (e.g., K-6) but not across all levels (K-12). *Autonomous* benchmarks were characterized as those that are present once in the entire curriculum.

Procedures

A trained researcher gathered all district standards and benchmarks and followed established PECAT protocols (CDC, 2006). Curriculum maps were completed and shared with district teachers who volunteered to participate in the project. Teachers reviewed and approved the curriculum map for their district. All data was collected during the spring semester of the academic school year. Teachers completed a survey to identify professional development during the previous year and factors that influenced curricular decisions.

Design and Analysis.

This was a descriptive study. Dependent variables were PECAT percent coverage and rating of benchmarks (full, partial or autonomous). Using the PECAT and vertical alignment scores, districts were placed in one of two groups representing better and poorer curricula. Teacher survey data was reported based upon their district grouping.

RESULTS

The number of standards for physical education among districts ranged from three-to-seven standards ($M = 5.6$, $SD = 1.3$). Two of sixteen districts used the 2004 NASPE National Content Standards (NNCS) verbatim or with minor modifications, five used a previous version of the NASPE standards (where there were seven standards) and nine created their own standards. All districts included a standard for skill similar to NASPE standard 1, being physically active (NASPE standard 3), and fitness (NASPE standard 4). Valuing physical activity (NASPE standard 6) was the most frequently omitted content at the local level. Districts divided grades into groups in four ways; clusters (e.g., K-2, 3-5, 6-8, 9-12) similar to the PECAT levels, individual grades (e.g., K, 1, 2, 3, 4, 5, 6, 7-8), early end (benchmarks for elementary grades only), and late start (no benchmarks for grades k-3 or k-6). Districts most frequently ($n=8$) divided grades into three-to-five levels. Three districts did not separate benchmarks by grade level and one district provided no benchmarks. The number of benchmarks ranged from zero to 247 ($M=62.5$, $SD=67.6$).

PECAT Content Analysis

PECAT analysis produces a maximum score of 240 “points”; a score of 240 meant that all content was covered at all four PECAT grade groups. In this study, districts addressed 35.2% of PECAT content (Table 2) or 84 of 240 points ($M=84.4$, $SD=58.6$). The benchmarks most thoroughly addressed critical content of NASPE Standard 1 (46.4%) and Standard 4 (43.1%) while Standard 6 was covered at a lower rate (15.0%).

Grade level (elementary, middle school, or high school) PECAT analysis showed that high schools (grades 9-12) most closely aligned their curricula with national standards ($M = 23.9$, $SD = 17.9$, content coverage = 39.8%) when compared with other grade levels (grades 7-8 $M =$

22.0, $SD = 18.1$, content coverage = 36.7%; grades K-6 $M = 42.8$, $SD = 31.3$, content coverage = 35.6%). District enrollment was not related to PECAT total points ($r = -.16$, $p = .56$), or total number of standards ($r = -.33$, $p = .24$).

The sixteen districts varied in PECAT coverage scores from 0-64% overall coverage across standards and grade levels (Table 3). Nine districts were at or below 45% coverage and seven districts were above 50% coverage. Of those nine lowest districts, one had no benchmarks and four had one set of benchmarks for all grades k-12. The average number of standards for the districts below 44% and greater than 44% on PECAT coverage was equal at 5.6 standards. Using the same groupings the average numbers of benchmarks were 107 and 18 respectively for the two groups of eight districts. Districts with lower PECAT coverage (below 44%) averaged two grade levels, while the average for higher PECAT districts was five grade levels.

Vertical Alignment

Curriculum maps were used to assess vertical alignment; this was an analysis of the sequence of benchmarks across grades or levels based on the district standards. Some of the districts used various versions of the NASPE standards, but most used their own standards. Of the 1060 benchmarks in sixteen curriculum maps, 27% were fully aligned, 52% were partially aligned and 21% were autonomous (Table 3). The curriculum maps identified vertical alignment in five districts where at least one benchmark at each grade level focused on related content for each of the district standards. Those districts had five-to-seven standards. Six districts had no benchmarks that were vertically aligned; one had no benchmarks and four others had one grade level.

PECAT does not examine vertical alignment directly, therefore the district benchmarks were matched based on the curriculum maps. Table 4 displays an overall summary of vertical

alignment by NASPE standard. *Full* sequencing of benchmarks was the most frequently observed ($M=17.9$, $SD=9.2$) accounting for 27.1% benchmark sequences. *Autonomous benchmarks* were less common ($M=13.8$, $SD=7.8$), accounting for 20.9% of all benchmarks. Larger districts had more benchmarks than smaller districts, however enrollment was not statistically related to vertical alignment ($r=.02$, $p=.94$). More benchmarks were present in the lower levels/grades.

Curriculum Maps and PECAT

PECAT coverage scores and vertical alignment based on the curriculum maps were correlated ($r=.58$, $p=.0001$). Five of the eight highest PECAT coverage scores had fully aligned curriculum maps. Four of the districts deemed fully aligned had PECAT scores above 50%, the other had a PECAT score of 45%. All districts ($n=8$) with PECAT coverage scores above 50% averaged seven fully aligned benchmark sequences (4-18 sequences and an average of 30 benchmarks in the sequences) and averaged 10 autonomous benchmarks. The remaining eight districts with the lowest PECAT coverage scores (0-32%) averaged one fully sequenced benchmark (0-6 sequences and an average of 5 benchmarks in the sequences) and an average of eight autonomous benchmarks.

Teacher Decisions and Professional Development

Forty-three teachers across the 16 districts completed a survey with at least one per district. Twenty three teachers surveyed reported serving on the curriculum development committee in twelve of the districts. Most teachers reported that the district standards (96.2%) the NASPE standards (88.9%) and facilities and equipment (85.2%) had a positive influence on what they taught. All teachers (100%) reported student needs as a positive influence on what they taught. Several variables did not influence what teachers taught, for example pre-service

preparation. One variable was a negative influence on what teachers taught; that was parent and community preferences where 22.2% of teachers reported a negative influence (55.6% were neutral).

The PECAT coverage scores were used to place districts into one of two groups. The best ($n=8$) and poorest ($n=8$) standards based on PECAT coverage score. Thus, the answers of the teachers were compared based on the quality of the district standards and benchmarks. There were 14 potential influences in the teacher survey, 7 produce essentially the same response for districts regardless of the quality of the standards and benchmarks (e.g. small effect sizes and overlap of the upper and lower confidence intervals). Those factors included district standards, pre-service preparation, parent and/or community preferences, preparing students for the next grade, training to perform the activity, training to teach the activity, and instructional time. Six produced effect sizes favoring the districts with better standards and benchmarks. Those teachers reported making decisions based on NASPE standards ($e.s.=.30$), a textbook or other instructional materials ($e.s.=.57$), professional development ($e.s.=.58$), the local school wellness policy ($e.s.=.60$), student's needs ($e.s.=.81$) and classroom assessment results ($e.s.=.86$). In addition teachers were asked about professional development activities within the previous year. Six areas of professional development topics (state content standards, national content standards, alignment of instruction to standards, individual differences in student learning, and use of technology to support student learning) did not differ when comparing better to poorer curriculum groups. Professional development focused on assessment was moderately higher in districts with poorer standards and benchmarks ($e.s.= -.50$). There was no clear pattern for teachers serving on the curriculum development committee for better and poorer district

curricula whether considering surveyed teachers represented (five of 8 and seven of 8 respectively) or the average number of teachers ($m=2$ and $m=1.9$ respectively) on the committee.

DISCUSSION

A meaningful standards based curriculum has been included as an indicator of quality physical education (Centers for Disease Control and Prevention, 2006). One goal of quality physical education has been to increase physical activity and improve public health. The quality of the curriculum and the teacher's implementation of the curriculum have been identified as problematic in the literature (Chen, 2006). This study examined 16 school district curricula and surveyed teachers in those districts to determine what factors influenced their decisions about what to teach and their professional development.

NASPE has provided national leadership for developing K-12 physical education standards (1995, 2004). Although each state is responsible for developing its own content standards, many states have adopted the NASPE National Physical Education Content Standards (1995), as did the International Council for Health, Physical Education, Recreation, Sport, and Dance (CHPERSD), an international physical education organization. The districts in this study did not have a state physical education curriculum with either standards or benchmarks as these decisions are made at the local level. This provided a unique window into curriculum development at the local level where the curriculum was delivered. This system has the potential advantage of greater teacher buy-in because the teachers were likely to participate in the development of the curriculum when compared to situations where the state mandates a curriculum. However, a potential challenge was whether or not local districts have the resources in terms of time and knowledge to develop a well-designed and meaningful curriculum.

PECAT

Curriculum has been characterized by meaningful content that is appropriately sequenced. The content coverage scores are based on the notion that districts will have

benchmarks across all grade levels (k-12) with equal weighting at each level. Therefore districts with fewer than four levels would seem to be at a disadvantage. The districts in this study with at least four grade levels averaged 45% coverage (16-64%). Three districts had three grade levels with an average of 50% coverage (45-52%). These three districts demonstrated more depth of coverage than the four districts with four levels. Four of the districts had one grade level, the average coverage in those districts was 8%. The percent coverage for that one level was 33% when not scored against all levels (e.g., against 60 rather than 240 points). To optimize PECAT coverage, having at least three or more levels was helpful. There was no clear relationship between district created standards, the 1995 NASPE or 2004 NASPE standards and PECAT score. This is likely because all districts, regardless of the source of the standards covered skill, physical activity and fitness.

The number of benchmarks was related to higher PECAT coverage scores. The six lowest PECAT coverage scores had 26 or fewer benchmarks. While the PECAT coverage scores above 50% all had over 60 benchmarks. Calculating percent coverage of critical content is one way of clarifying gaps that exist in physical education curriculum. Considering that these districts had no state standards or benchmarks to use as a model for their curricula and many did not use the national standards, PECAT coverage was surprising. Clearly, PECAT was designed in a way that accommodated standards other than the NASPE standards.

The PECAT coverage of standards increased across grade levels for all NASPE standards except standard 1 which focuses on motor skills. Districts may perceive skill as the basis for later activities and therefore focus on skill in the early grades and emphasizing other factors such as tactics in later grades. The coverage for the remaining NASPE standard increased across grade levels. Districts may have had more benchmarks at later grades because of perceptions of

student readiness in later grades for the target competencies. Alternatively the fitness, being activity, responsible and so forth may have had a higher priority in the upper grades than in the lower grades. It is also possible that a practical reason such as number of teachers or minutes per week of physical education may have contributed to the increases in coverage. There were not simply more benchmarks at the upper levels. Equal numbers of districts had no benchmarks in elementary grades as those with no benchmarks for high school. It is beyond the scope of this study to know what caused the trend. The increases were small but consistent.

Measuring standards 5 and 6 may have been a barrier in developing benchmarks. Huba and Freed (1999) suggested that learning outcomes, that are the same as standards in this situation, should be developed with both instruction and evaluation (measurement) in mind. Valid and reliable measures of valuing (standard 6) and responsibility (standard 5) may have been a barrier and therefore explain the weakness in district benchmarks and resulting PECAT scores. The mechanisms underlying district selection of standards and benchmarks remain unknown.

These districts would benefit from examining the PECAT coverage scores to increase coverage of critical physical education content. At this time it is not known what content coverage would be appropriate to achieve the standards and to assure a physically active population.

Vertical Alignment

Curriculum develop was a challenge for the districts in this study because it was a local responsibility. Five district physical education curricula had one fully aligned benchmark for each of their standards. Across all districts 27% of the benchmarks will fully aligned. These benchmarks map a path to achieving the standard and define how good is “good enough” (Lund

& Tannehill, 2010) for the students. What remains unknown is the definition of “good enough” when we consider articulation of the curriculum vertically. Expecting all benchmarks to track across all levels could narrow the curriculum because some content would not be developmentally appropriate at all grade levels. For example, tactics would be introduced in upper elementary grades but not in the lower elementary grades. Tactics would be appropriate for team and individual sports in middle school and likely seen as part of lifetime sports in high school. Therefore, in this study partial alignment, where a benchmark related to benchmarks at adjacent grade levels but not across all levels was not viewed as poor mapping. Only 21% of all benchmarks were autonomous. These are benchmarks without a clear connection to any previous or later benchmark. Some autonomous benchmarks seem to be related to a “pet project” or specific unit. In light of the near absence of vertical curriculum planning time and professional development about curriculum the number of autonomous benchmarks was relatively low. The overall goal of curriculum mapping was to assure that there are no “gaps” in the curriculum so that students will have a reasonable chance to achieve the standards at the end.

Eight districts had more benchmarks fully aligned than autonomous, with appropriate grade levels for four-to-seven standards. In other words half of these districts had acceptable curriculum maps. Three additional districts had six or seven standards and the appropriate number of grade levels. However, only one had more fully aligned benchmarks than autonomous benchmarks. The number of benchmarks was not a key determinant in these three districts. In one district there were 73 benchmarks, none were fully aligned, and 67 were sequence in partial alignment. In this case it was likely that based on the writing style in the benchmarks that three different teachers or groups of teachers wrote each level of the benchmarks. The third district in this group had half of their 26 benchmarks in fully aligned

sequences and the rest were autonomous. These districts had clearly attempted to create effective curriculum maps.

Five of the districts did not have a curriculum map, one because there were no benchmarks and the others because benchmarks were presented for only one grade level. Clearly, these curricula are not comprehensive and developmentally appropriate k-12 programs. In addition, some districts had few standards (*one* with three standards; *two* with four standards). Few standards probably meant a narrow curriculum with less opportunity for all students to become physically educated. Nearly one in three of these districts missed the mark for standards, benchmarks and associated levels. These curriculum maps were consistent with Chen's (2006) findings of "disappointing". Further, these district maps were not "good enough".

Curricular Decisions

Teachers in districts with poorer standards and benchmarks reported a moderate amount of professional development focused on assessment, while teachers in districts with better standards and benchmarks reported minor emphasis on assessment. Better standards were associated with a positive (versus neutral) influence of students' needs and classroom assessment for teacher decisions about what to teach. Conversely for teachers in districts with poorer standards and benchmarks those factors tended to have little or no influence. It is unknown whether teachers actually in the two groups of districts actually had different amounts of professional development on assessment. It could be that districts with poor curriculum maps and therefore poor performance standards did more professional development around assessment with a goal of improving. Another explanation might be that in those districts without a culture of planning and assessment, as indicated by poor curriculum maps, teachers perceived more emphasis on assessment in professional development. In either case, clearly some districts

would benefit from professional development about assessment and the relationship of benchmarks to assessment and instruction.

PECAT and Curriculum Maps

While there was overlap between district performance on PECAT and the articulation of their standards across grade levels, each provides slightly different information. PECAT provides a picture of coverage within a grade level and the summed coverage of a broad curriculum based on the content defined in the six NASPE standards. Curriculum mapping focuses on the relationship of one grade level to the next grade level and how cohesive the benchmarks are. Curriculum mapping does not judge breadth while PECAT does. Of course a perfect PECAT score would indicate both cohesive sequences and breadth, assuming the PECAT benchmarks are correct. The goal of both methods was to assist districts to improve their programs so no acceptable score has been established. In this study considering both the curriculum map and PECAT half of the districts were acceptable, three more had attempted to use best practices and remaining five districts had little to no evidence of a developmentally appropriate, meaningful or sequential curriculum. While disappointing, that any district would be unable to produce an acceptable physical education curriculum, it is clear that some districts and their teachers are on the right track.

Summary

The results of this study partially support Chen's (2006) observation of a "disturbing" misalignment of standards for physical education offered in some schools today. This study goes beyond previous work by providing empirical evidence about curriculum alignment by using PECAT and curriculum mapping.

Agencies (Centers for Disease Control and Prevention, State Departments of Education) and organizations (NASPE) should support physical education curriculum development in four ways:

- Provide materials with examples of vertical and horizontal alignment that are readily available to districts at little or no cost.
- Emphasize developmentally appropriate practice.
- Train state or district personnel focusing on vertical and horizontal alignment of physical education curricula could be provided.
- Revise national standards and materials (e.g., PECAT) with particular attention to standards 5 and 6. Particularly how to instruct and measure outcomes (benchmarks) related to these standards.

Professional development and vertical curriculum meetings for physical educators in the district with a focus on vertical alignment may be one avenue to improve physical educator knowledge of the standards and benchmarks (Chen, 2006) and the articulation of district standards and benchmarks.

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Table 1. Examples from participating districts to demonstrate definitions of tracking of benchmarks across grades for vertical alignment of NASPE “Standard 1. Students will demonstrate competency in many movement forms and proficiency in a few movement forms”.

K-2 Benchmark	3-5 Benchmark	6-8 Benchmark	9-12 Benchmark	Type of Tracking
Use simple combinations of fundamental movement skills	Use mature form and appropriate sequence in combinations of fundamental locomotor object control and rhythmical skills that are components of selected modified games, sports and dances	Perform a variety of simple rhythmic dances	Demonstrate competency with a variety of complex social dance forms	Full*
Use control in weight-bearing and balance activities on a variety of body parts	Use mature form in balance activities on a variety of apparatuses			Part*
	Use basic sport-specific skills for a variety of physical activities	Use beginning strategies for net and invasion	Participate in sporting activities with consistency all of the basic skills, rules and strategies.	Part*
Use a variety of basic object control skills				Autonomous**

Note: * indicates acceptable sequencing; **indicates unacceptable sequencing

Table 2. Descriptive statistics for raw scores and PECAT percent coverage by grade level and overall from analysis of 16 school districts

NASPE Standard	PECAT Percent Coverage for Each Grade Level				Overall (K-12)
	K-2	3-5	6-8	9-12	
	Raw Score (<i>SD</i>) (%)	Raw Score (<i>SD</i>) (%)	Raw Score (<i>SD</i>) (%)	Raw Score (<i>SD</i>) (%)	
Standard 1 ¹	78.0 ± 22.3 48.8	67.0 ± 19.5 41.9	65.0 ± 21.8 40.6	68.0 ± 21.6 42.5	69.5 ± 21.3 46.4
Standard 4 ²	65.0 ± 31.4 40.6	68.0 ± 34.0 42.5	71.0 ± 33.5 44.4	72.0 ± 33.3 45.0	69.0 ± 33.1 43.1
Standard 2 ³	61.0 ± 29.5 38.1	61.0 ± 32.1 38.1	60.0 ± 31.6 37.5	67.0 ± 31.4 41.9	62.3 ± 31.2 38.9
Standard 3 ⁴	41.0 ± 28.0 25.6	51.0 ± 30.6 31.9	59.0 ± 30.1 36.9	69.0 ± 29.9 43.1	55.0 ± 29.7 34.4

¹ Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.

² Achieves and maintains a health enhancing level of physical fitness.

³ Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.

⁴ Participates regularly in physical activity.

Table 2. (Continued)

Standard 5 ⁵	42.0 ± 29.4 26.3	40.0 ± 31.9 25.0	52.0 ± 31.5 32.5	59.0 ± 31.3 36.9	48.3 ± 31.0 30.2
Standard 6 ⁶	22.0 ± 25.7 13.8%	21.0 ± 28.3 13.1	24.0 ± 27.8 15.0	29.0 ± 27.6 18.1	24.0 ± 27.4 15.0
TOTAL	51.5 ± 27.7 32.2%	51.3 ± 29.4 32.1%	55.2 ± 29.3 34.2%	60.7 ± 29.2 39.8 %	54.7 ± 28.9 35.2 %

PECAT, Physical Education Curriculum Analysis Tool; NASPE, National Association of Sport and Physical Education; SD, standard deviation

⁵ Exhibits responsible personal and social behavior that respects self and others in physical activity settings.

⁶ Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Table 3. Descriptive information by district including source of the standards, number of standards, number of benchmarks, number of grade levels with benchmarks, number of benchmarks labeled as fully aligned, partially aligned and autonomous, PECAT percent coverage score, and number of teachers in the district completing the survey.

District ID	Standard source	Number standards	Number benchmarks	Number of grade levels	Fully aligned	Partially aligned	Autonomous	Percent of fully aligned standards	PECAT percent coverage	Teachers completing survey
1	District	4	176	8	4	32	18	75%	64%	3 ³
12*	District	5	91	4	8	12	10	100%	64%	2 ²
6	NASPE '95	7	63	4	3	18	3	43%	64%	3 ¹
4	NASPE '95	7	247	8	6	41	16	43%	63%	2 ¹
2*	District	5	82	3	18	8	19	100%	52%	5 ³
3*	District	5	80	5	5	16	6	100%	52%	3 ⁰
5*	NASPE '95	7	66	3	11	7	8	100%	52%	5 ⁰
8*	District	5	54	3	4	9	19	100%	45%	3 ⁰
15	NASPE	6	60	6	6	9	1	67%	32%	1 ¹

Table 3 Continued

	2004									
13	NASPE '95	7	73	4	0	16	6	0%	26	3 ³
16	District	6	26	4	1	3	13	0%	16%	2 ²
10	District	6	16	1	0	0	16	0%	13	1 ⁰
7	District	3	12	1	0	0	12	0%	10	3 ²
14	District	4	8	1	0	0	8	0%	7	1 ¹
9	NASPE '95	7	6	1	0	0	6	0%	3	2 ²
11	NASPE '04	6	0	0	0	0	0	0%	0	3 ²

⁰ indicates no teachers from study were involved in standard/benchmark development

¹ indicates 1 teacher from study was involved in standard/benchmark development

² indicates 2 teachers from study were involved in standard/benchmark development

³ indicates 3 teachers from study were involved in standard/benchmark development

*indicates full alignment of the district standards (one benchmark that tracked across all levels for each standard)

Table 4. Descriptive data from vertical alignment by NASPE standard and overall for 16 school districts including number of full, part, and autonomous benchmarks.

Type of Alignment	Vertical Alignment by NASPE Standard												overall	%
	Standard 1 ^[1]		Standard 2 ^[2]		Standard 3 ^[3]		Standard 4 ^[4]		Standard 5 ^[5]		Standard 6 ^[6]			
	#	%	#	%	#	%	#	%	#	%	#	%		
Full	74	24.0%	39	20.6%	36	28.1%	53	23.9%	57	48.7%	28	29.2%	287	27.1%
Part	159	51.6%	104	55.0%	50	39.1%	121	54.5%	38	32.5%	53	55.2%	552	52.0%
Autonomous	48	15.6%	46	24.3%	42	32.8%	48	21.6%	22	18.8%	15	15.6%	221	20.9%
Total	308	100%	189	100%	128	100%	222	100%	117	100%	96	100%	1060	100%

Full, benchmarks track across all levels (K-12) for a given standard; Part, benchmark sequences track across at least two levels, but not all levels (K-12); Autonomous, a single benchmark is present at one grade level only.

^[1] Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.

^[2] Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities

^[3] Participates regularly in physical activity.

^[4] Achieves and maintains a health enhancing level of physical fitness.

^[5] Exhibits responsible personal and social behavior that respects self and others in physical activity settings.

^[6] Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

CHAPTER 5 - GENERAL DISCUSSION

A high quality physical education program is defined by a written physical education curriculum, meaningful content, regular student assessment, and policies and environmental actions (Centers for Disease Control and Prevention, 2006). The curriculum is a map that charts the route to what students will know and do at the end of their education. A critical goal for physical education is to assist students with the skills and knowledge for the development and maintenance of good health. Appropriate and effective physical education curriculum can improve the ability of schools to positively influence motor skills and physical activity behaviors among school-age youth, but is of no value if it is merely a paper document and is not used as the foundation for physical education classes. Further, teachers interpret the curriculum with instruction, so two teachers working with the same curriculum framework may produce different results. According to Social Cognitive Theory (Bandura, 1997), major determinants of the choices teachers make are their self-efficacy judgments. The implementation of the NASPE (National Association for Sport and Physical Education, 2004) standards will not occur without teachers understanding, acceptance, and support of the standards.

Meaningful professional development has been highlighted as one of the empowering vehicles for equipping teachers with adequate knowledge of educational standards (Borko, Elliott, & Uchiyama, 2002; Glisan, 1996; Leinwand, 1992). Physical education teachers traditionally avoid long term collaboration with their colleagues and resist involvement in whole school decision making (Sparkes, 1991). Blog technology has the capacity to engage people in collaborative activity (Hiler, 2003) but its usefulness in physical education is unknown. Little evidence is currently available regarding the effect of blog technology or self-efficacy

interventions in physical education. The purpose of this dissertation was to develop and test the effect of a standards-based training program and six-week weblog in order to assist physical education teachers in standards-based instruction and increase self-efficacy levels. Physical educators often work in isolation, are afforded little time for professional development focused on physical education and are often marginalized in the educational setting.

Study 1 of the dissertation included a professional development workshop and six-week blog with a focus on collaboration and the national physical education standards. Previous self-efficacy scales were found in the literature but the concept of self-efficacy is very context specific. Therefore, to best measure the variable of interest, study 1 also included the creation of the Efficacy for Standards-based Instruction (ESBI) scale used to evaluate teacher's confidence in standards-based curricular decisions—which formed the basis of the workshop and blog. The protocol developed for study 1 demonstrated effectiveness in increasing physical educator self-efficacy for curricular decisions (effect size =.97) in only six weeks with limited blog use. There was no significant effect when self-efficacy was measured with the previously developed TSES or TESPE self-efficacy instruments. This work supported the notion that self-efficacy is very specific. These results may serve as a guide for future professional development opportunities in physical education where the goal is to improve curricular decisions, collaboration, and/or self-efficacy.

Pilot work and Chen (2006) identified a “disturbing” misalignment between the standards and curriculum offered in some schools today. A curriculum that is standards-based focuses on meaningful content related to the National Standards. The Centers for Disease Control and Prevention [CDC] (2006) supported the development of the Physical Education Curriculum Analysis Tool (PECAT) because quality, daily physical education is a key CDC strategy in the

reduction and prevention of childhood obesity. Sequencing of standards and benchmarks is critical, so the purpose of study 2 of the dissertation was to assess the alignment of physical education curricula. PECAT and curriculum mapping were used to assess the standards and benchmarks from sixteen independent school districts. Half of the districts presented maps that had some vertically aligned benchmarks and PECAT scores above 50% coverage. Five of those district maps were deemed fully aligned because each of the district standards had at least one benchmark that articulated across all grade levels. Unfortunately the remaining districts did not provide curriculum plans that were well designed. Five had either no benchmarks or benchmarks for only one grade level. The remaining three had some good qualities but had low PECAT scores and few fully aligned benchmarks. Teachers in the districts with acceptable curriculum maps were more likely to base curricular decisions on assessment data and student needs. It is possible that these teachers had that data and also knew what to do with the data when compared to the teachers in the other districts. Teachers reported little professional development specific to physical education curriculum.

Evaluating behavior change depends on the factors of environment, people, and behavior. Social Cognitive Theory (SCT) provides a framework for designing, implementing and evaluating programs. The SCT defines human behavior as a triadic, dynamic, and reciprocal interaction of personal factors, behavior, and the environment (Bandura, 1986). SCT explains how people acquire and maintain certain behavioral patterns, while also providing the basis for intervention strategies (Bandura, 1997). Since a primary goal of this study was to change the behavior (self-efficacy and alignment) of physical education teachers, the possible ways through which Bandura's (1986) conceptual model of SCT may be applied to physical education curriculum, self-efficacy, and administrator support was warranted as part of this summary. The

model shown in Figure 1 explores the possible pathways through which a dynamic interaction of the person (self-efficacy), the behavior (PECAT) and the environment (administrator support) based on Bandura's (1986) conceptual model of Social Cognitive Theory was tested.

Pearson product-moment correlation analyses were conducted to examine the interrelations between teacher self-efficacy (ESBI, TESPE, and TSES), administrator (principal) support and the written curriculum (PECAT). Figures 2-4 display the pathways through which an interaction of the person (ESBI, TESPE and TSES self-efficacy), the behavior (PECAT) and the environment (perceived administrator support) were related. Results indicated physical education teacher self-efficacy (ESBI) was related to principal support ($r=.31, p=.03$). PECAT was not related to ESBI or principal support (see Table 1). TESPE and TSES were not related to PECAT or principal support.

The model proposed that the *person-behavior* (path *a*) interaction involves the bi-directional influences of one's instructional self-efficacy and curricular alignment. Teachers with a strong sense of efficacy tend to exhibit greater levels of planning and organization (Allinder, 1994). Results indicate that there is no relationship between ESBI, TESPE or TSES self-efficacy and PECAT. This is not all that unexpected in light of the fact that half of the curricular models examined (mean PECAT percent coverage = 35%) were weak. For example, self-efficacy might decrease for someone who was involved in developing standards and benchmarks that were found to be "lacking" at the professional development workshop. Many participants ($n=36, 60\%$) were not involved in the development of standards and benchmarks so PECAT score wouldn't be expected to influence them at all. A bi-directional relationship between the *environment* and *personal* characteristics (path *b*) was also examined. Consistent with previous literature (Ashton & Webb, 1986; Chester & Beaudin, 1996) principal support was

related to the self-efficacy of physical education teachers in this study (ESBI only). The final interaction explored was the *behavior* and the *environment* (path *c*). Bandura contends that people are both products and producers of their environment (Bandura, 1977; 1986) and that teacher's planning behavior and preparation can affect the way in which they are perceived by their administrators (Bandura, 1997). However, there was no relationship between the behavior (PECAT) and environment (principal support). If participants were not involved with or aware of their standards and benchmarks it is unlikely this would be affected by administrator support.

Self-efficacy research is rare in general education and rarer in physical education. The results from these studies provide important information about self-efficacy characteristics of physical education teachers. To date, this is the first study to include physical educator self-efficacy as an outcome measure. A standards-based workshop coupled with a collaborative weblog was able to meaningfully increase self-efficacy levels in just six weeks with minimal blog use. In addition, these studies helped to validate three self-efficacy scales and helped to clarify the specificity of self-efficacy assessment and intervention. According to Social Cognitive Theory (Bandura, 1997), major determinants of the choices teachers make are their self-efficacy judgments. While self-efficacy towards standards-based instruction is important, the implementation of the NASPE standards will not occur without teachers understanding, acceptance, and support of the standards.

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Figure 1. Hypothesized model linking physical educator self-efficacy level at baseline to curricular alignment and perceived administrator support.

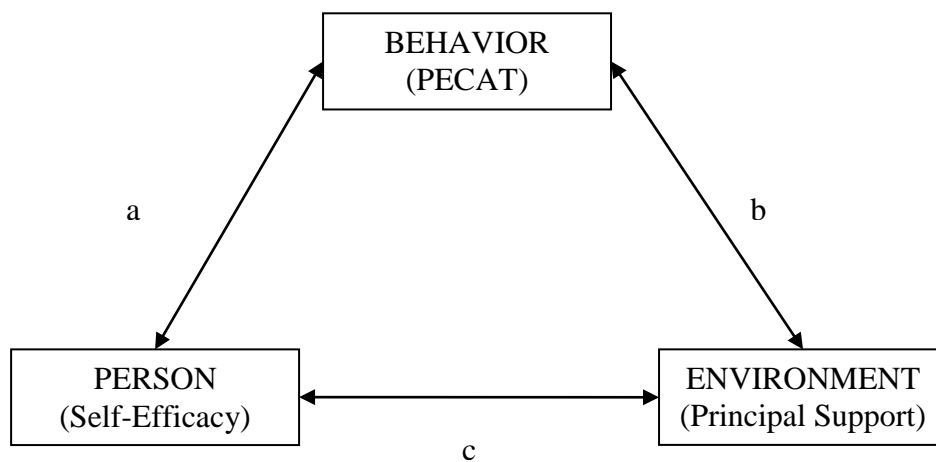
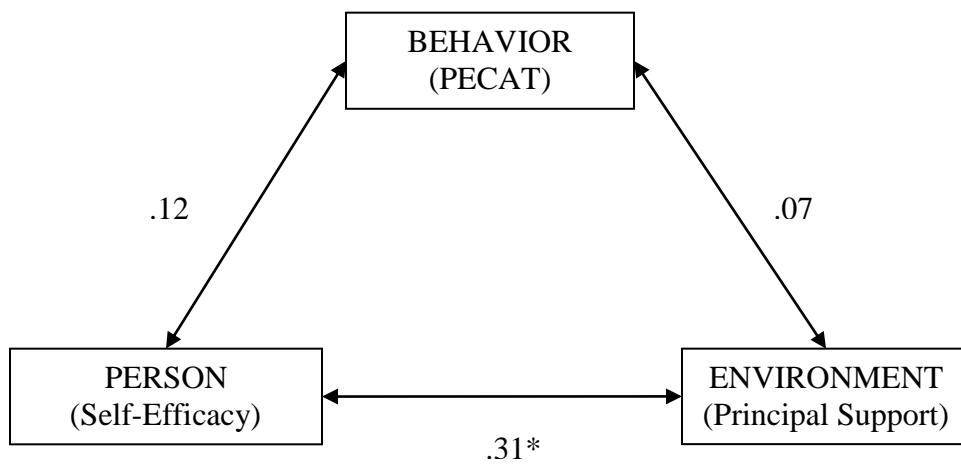


Figure 2. Test of Social Cognitive Theory. Pearson's product moment correlation coefficients for ESBI, PECAT, and Principal Support.



* $p < .05$,

Figure 3. Test of Social Cognitive Theory. Pearson's product moment correlation coefficients for TESPE, PECAT, and Principal Support.

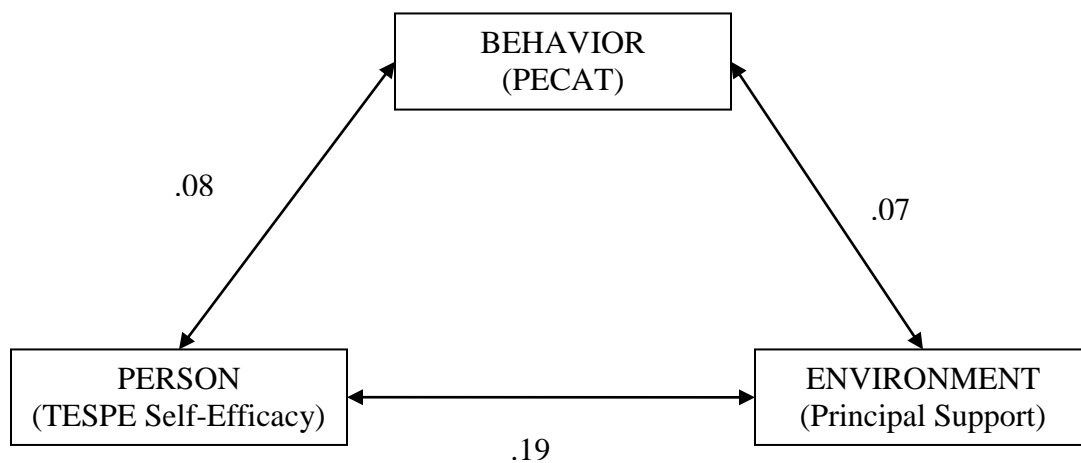


Figure 4. Test of Social Cognitive Theory. Pearson's product moment correlation coefficients for TSES, PECAT, and Principal Support.

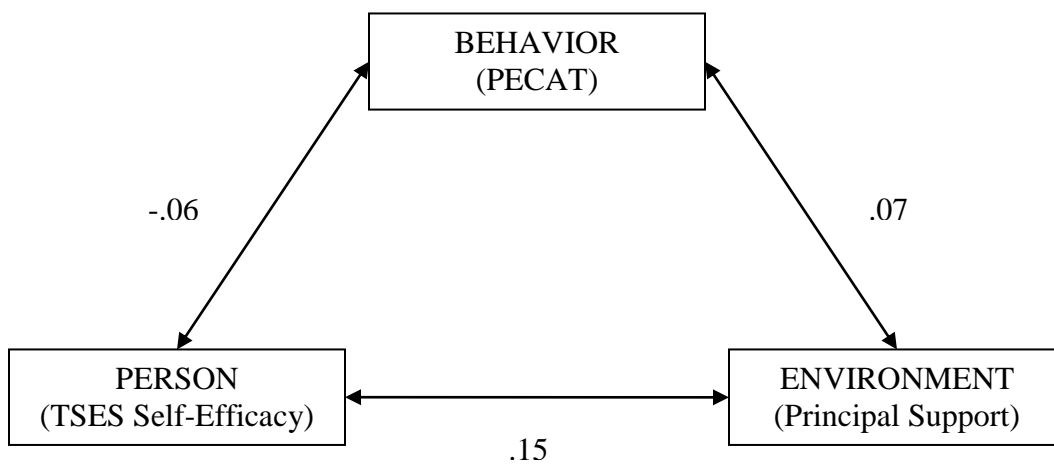


Table 1. Pearson Correlations for personal (ESBI, TESPE and TSES self-efficacy), behavioral (PECAT) and environmental (principal support) factors of Social Cognitive Theory.

Variable	1	2	3	<i>3b</i>	<i>3c</i>	<i>3d</i>	<i>3e</i>	4	5
1. PECAT	-								
2. Principal Support	.07	-							
3. ESBI Total	.12	.31*	-						
<i>3b. Understanding</i>	.00	.28*	.83**	-					
<i>3c. Planning</i>	.22	.16	.92**	.68**	-				
<i>3d. Teaching</i>	.26*	.31*	.90**	.65**	.83**	-			
<i>3e. Assessment</i>	.04	.36**	.86**	.58**	.71**	.71**	-		
4. TESPE Total	.08	.19	.49**	.33**	.50**	.45**	.45**	-	
5. TSES Total	-.06	.15	.44**	.24	.41**	.45**	.44**	.58**	

Note: * $p < .05$, two-tailed. ** $p < .01$, two-tailed; 3a-3d, ESBI Subscales

APPENDIX A: District Superintendent Approval Letter

Dear Superintendent:

Your district was recently recognized for efforts in student wellness as a model program in Iowa. I am hoping your district will agree to participate in my dissertation research. The goal of this project is to assist physical education programs by increasing collaboration among teachers and assist teachers in assessing how closely the written physical education curricula align with national standards, guidelines, and best practices for quality physical education programs using PECAT, a tool developed by the CDC. Your district will benefit by receiving the results of the PECAT. The PECAT identifies strengths of the physical education curriculum, aspects that might be improved and produces a numeric indicator of each standard.

I am asking you to approve this project in your district, contact physical education teachers about the project and provide a space for me to meet with physical educators once. At that meeting I will provide the PECAT results to teachers, ask teachers to volunteer for my project and discuss one of two current issues of particular importance to physical educators in Iowa (either the Healthy Kids Act or collaborative teaching). All physical educators in your district are welcome to attend the meeting, whether or not they volunteer for the research. I will provide an announcement of the project and face-to-face meeting for you to share with teachers, if you approve this project. The key information about the project is

- The research involves completing 3-4 questionnaires at two points in time. Each questionnaire is brief so the time involved is short. Teachers will receive technical assistance, and may be compensated. Participation should not interfere with the teachers' school district duties. Participation may have a positive impact on their teaching and on the district's curriculum.
- Principals in your district will be asked to complete a brief survey about physical education in his/her building. Completing the survey is voluntary and will take only a few minutes.
- The Institutional Review Board at Iowa State University has approved contacting you. This research will be approved by the IRB, pending your approval. I have provided a sample approval statement at the end of this page.

To summarize, I am requesting your approval of this research project. To demonstrate approval, please fax or mail an approval statement on district letterhead to me. I have provided a self-addressed postage paid envelope and a sample approval statement for your use. Your district will provide a copy of physical education standards and benchmarks. At a later time I will contact you regarding the face-to-face meeting, I will provide you and your physical education teachers with a copy of the PECAT results.

Thank you for considering this request. If you have additional questions, please contact me at your convenience.

Sincerely,

Matt Buns
Ph.D. Candidate, Department of Kinesiology
Iowa State University

Ames, IA 50011
mattbuns@iastate.edu
Phone: 515-294-2953
Fax: 515 294-8740

“Our district will provide a copy of the district physical education standards and benchmarks. In return for contacting teachers about the meeting, the district will receive a review of the alignment of physical education standards and benchmarks. We will contact our district physical education teachers inviting and encouraging them to attend a meeting introducing the research project. We understand that participation in the research is voluntary and that information about who does and does not participate will not be provide to the district. The district will provide a location for the meeting in a district building. Optional: We will schedule the meeting during faculty development time. “

Superintendent Signature_____

District_____ Date_____

Appendix B:

Physical Education Workshop Announcement

You are invited to participate in a work shop in your district. There is no cost of attending the workshop. The workshop has two goals; one is to share the results of an analysis of your district physical education standards and benchmarks. The other goal is to ask your assistance with my dissertation research. The workshop will last less than 2 hours. All physical education teachers in the district are welcome to attend. You do not have to participate in my research to attend the workshop. To complete the PECAT, teachers will need to provide sample assessments and lesson plans.

The focus of my research is to assist physical education programs by increasing collaboration among teachers and assist physical education teachers in assessing how closely the written physical education curricula align with standards, guidelines, and best practices for quality physical education programs using PECAT. PECAT is the physical education curriculum analysis tool developed by the CDC and physical educators. The tool guides curricular decisions, identifies strengths and program needs.

More information about the research and how to volunteer will be provide at the workshop. Physical education teacher research participants will receive technical assistance and may receive compensation.

The workshop details:

Date

Time

Location

RSVP regarding workshop attendance to Matt Buns, workshop leader.

Workshop leader:

Matt Buns

PhD Candidate, Department of Kinesiology

Iowa State University

Ames, IA 50011

mattbuns@iastate.edu

Cell: 402.990.3128

APPENDIX C:**INFORMED CONSENT DOCUMENT**
For Principal

Title of Study: Effect of Standards-based Training on Physical Education Teacher Self-Efficacy and Curriculum Alignment

Investigator: Matthew Buns, Dr. Katherine Thomas Thomas, Dr. Amy Welch

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION

The purpose of this study is twofold; to analyze the vertical and horizontal alignment of the physical education curriculum from independent school districts and share the results with the physical education teachers and district administrators; identify the effect of standards-based collaboration training on physical educator self-efficacy. You are being invited to participate in this study because you are a principal at an Iowa school district.

DESCRIPTION OF PROCEDURES

If you agree to participate in this study, your participation will last the length it takes to complete a 15-item questionnaire. It should take less than 10 minutes to complete. The questionnaire will be mailed to you directly with a postage-paid return envelope. The purpose of this questionnaire is to gather information regarding your beliefs about physical education. **You may skip any question that you do not wish to answer or that makes you feel uncomfortable.**

RISKS

In this project, you will not have any more risks than you would in a normal day of life.

BENEFITS

If you decide to participate in this study there may not be a direct benefit to you. Overall, we hope to gain information on administrator philosophical and financial support. We will use that information to better understand how to assist other schools with their ongoing professional development.

COSTS AND COMPENSATION

You will not have any costs from participating in this study. You will not be compensated for participating in this study.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken. We will keep your records private to the extent allowed by law. We will not retain your name or the name of your school in the project records. We will use randomly-generated numbers as a code for your school. Only project personnel will have access to the information you provide. It will be stored in a locked cabinet/password- and firewall-protected computer. The key code for your school will be stored separately from the data to protect privacy. Only the principal investigator will have access to the key code. The key code will be destroyed when the project is complete. Your name and other facts that might point to you will not appear in project reports or publications. If the results are published, your identity will remain confidential.

QUESTIONS OR PROBLEMS

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Matt Buns (515-233-2891, mattbuns@iastate.edu), Katherine Thomas Thomas, PhD (940-565-2235, Katherine.Thomas@unt.edu), or Amy Welch, PhD (515-708-3932, amywelch@iastate.edu) if you have questions about this project.
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

PARTICIPANT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant's Name (printed) _____

(Participant's Signature)

(Date)

INVESTIGATOR STATEMENT

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

(Signature of Person Obtaining
Informed Consent)

(Date)

Two informed consent documents follow. The first is for experimental participants, the second for control participants.

INFORMED CONSENT DOCUMENT For Physical Education Teacher

Title of Study: Effect of Standards-based Training on Physical Education Teacher Self-Efficacy and Curriculum Alignment

Investigator: Matthew Buns, Dr. Katherine Thomas Thomas, Dr. Amy Welch

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION

The purpose of this study is twofold; to analyze the vertical and horizontal alignment of the physical education curriculum from independent school districts and share the results with the physical education teachers and district administrators; identify the effect of standards-based collaboration training on physical educator self-efficacy. You are being invited to participate in this study because you are a physical education teacher at an Iowa school district.

DESCRIPTION OF PROCEDURES

If you agree to participate in this study, your participation will last for 6 weeks. During the study you may expect the following study procedures to be followed:

- 1) Provide lesson plans and assessments used in your physical education class that relate to the physical education benchmarks and standards for your district at your grade levels.**
- 2) Complete a physical educator questionnaire that will take about 10-15 minutes to complete**
- 3) Complete three self-efficacy questionnaire's at two different time points that will each take about 3-5 minutes to complete**
- 4) Attend a standards-based training workshop lasting no more than 2 hours at a school building in your district**
- 5) Regularly participate for six weeks in a private online support blog with other physical education teachers from your district. You will be asked to discuss how you might apply a different NASPE national content standard each week. You will work with pseudonyms and passwords and asked to keep all blog postings confidential. While you and all participants are asked to keep blog postings confidential, complete confidentiality cannot be guaranteed because of the nature of blogs.**
- 6) Towards the end of the study, answer questions regarding lessons and assessments you taught during that week.**
- 7) The only information from the research that will be shared with the district (e.g., administrators, teachers not in the research) is the vertical and horizontal alignment of the standards and benchmarks and the PECAT numeric. No information from**

PECAT will be shared that can be associated with individual teachers based on participation in this study.

For questionnaires, you may skip any question that you do not wish to answer or that makes you feel uncomfortable.

RISKS

In this project, you will not have any more risks than you would in a normal day of life.

BENEFITS

If you decide to participate in this study there may not be a direct benefit to you. Overall, we hope to gain information on how teacher self-efficacy is related to professional development activities with an online blog may increase teacher efficacy. We will use that information to better understand how to assist other schools with their ongoing professional development.

COSTS AND COMPENSATION

You will not have any costs from participating in this study. Compensation of \$150 will be provided to the research participant teachers in your district that can be divided equally among the teachers or used for a mutually agreed upon expenditure. Full payment will be provided even if you drop out of the study at any time.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken. We will keep your records private to the extent allowed by law. We will not retain your name or the name of your school in the project records. We will use randomly-generated numbers as a code for your school. Only project personnel will have access to the information you provide. It

will be stored in a locked cabinet/password- and firewall-protected computer. The key code for your school will be stored separately from the data to protect privacy. Only the principal investigator will have access to the key code. The key code will be destroyed when the project is complete. Your name and other facts that might point to you will not appear in project reports or publications. If the results are published, your identity will remain confidential.

QUESTIONS OR PROBLEMS

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Matt Buns (515-233-2891, mattbuns@iastate.edu), Katherine Thomas Thomas, PhD (940-565-2235, Katherine.Thomas@unt.edu), or Amy Welch, PhD (515-708-3932, amywelch@iastate.edu) if you have questions about this project.
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

PARTICIPANT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant's Name (printed) _____

(Participant's Signature)

(Date)

INVESTIGATOR STATEMENT

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

(Signature of Person Obtaining
Informed Consent)

(Date)

INFORMED CONSENT DOCUMENT For Physical Education Teacher

Title of Study: Effect of Standards-based Training on Physical Education Teacher Self-Efficacy and Curriculum Alignment

Investigator: Matthew Buns, Dr. Katherine Thomas Thomas, Dr. Amy Welch

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION

The purpose of this study is twofold; to analyze the vertical and horizontal alignment of the physical education curriculum from independent school districts and share the results with the physical education teachers and district administrators; identify the effect of standards-based collaboration training on physical educator self-efficacy. You are being invited to participate in this study because you are a physical education teacher at an Iowa school district.

DESCRIPTION OF PROCEDURES

If you agree to participate in this study, your participation will last for 6 weeks. During the study you may expect the following study procedures to be followed:

- 1) Provide lesson plans and assessments used in your physical education class that relate to the physical education benchmarks and standards for your district at your grade levels.**
- 2) Fill out a physical educator questionnaire that will take about 10-15 minutes to complete**
- 3) Complete three self-efficacy questionnaire's at two different time points that will each take about 3-5 minutes to complete**
- 4) Attend a physical education workshop lasting no more than 2 hours at a school building in your district, where the Iowa Healthy Kids Act will be discussed**
- 5) Towards the end of the study, you will be asked what, if any changes have been made in the curriculum since the beginning of the study**
- 6) The only information from the research that will be shared with the district (e.g., administrators, teachers not in the research) is the vertical and horizontal alignment of the standards and benchmarks and the PECAT numeric. No information from PECAT will be shared that can be associated with individual teachers based on participation in this study (e.g., lesson plans and assessments).**

For questionnaires, you may skip any question that you do not wish to answer or that makes you feel uncomfortable.

RISKS

In this project, you will not have any more risks than you would in a normal day of life.

BENEFITS

If you decide to participate in this study there may not be a direct benefit to you personally. Overall, we hope to gain information on how teacher self-efficacy is related to administrator support and if professional development activities with an online blog may increase teacher efficacy. We will use that information to better understand how to assist other schools with their ongoing professional development.

COSTS AND COMPENSATION

You will not have any costs from participating in this study. The participants in your district will receive \$100 that can be divided among participants or used for a mutually determined expenditure. Full payment will be provided even if you drop out of the study at any time.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken. We will keep your records private to the extent allowed by law. We will not retain your name or the name of your school in the project records. We will use randomly-generated numbers as a code for your school. Only project personnel will have access to the information you provide. It will be stored in a locked cabinet/password- and firewall-protected computer. The key code for your school will be stored separately from the data to protect privacy. Only the principal investigator will have access to the key code. The key code will be destroyed when the project is complete. Your name and other facts that might point to you will not appear in project reports or publications. If the results are published, your identity will remain confidential.

QUESTIONS OR PROBLEMS

You are encouraged to ask questions at any time during this study.

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PARTICIPANT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant's Name (printed) _____

(Participant's Signature)

(Date)

INVESTIGATOR STATEMENT

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

(Signature of Person Obtaining
Informed Consent)

(Date)

APPENDIX D: TESPE

Teacher Efficacy Scale for Physical Education

Teaching efficacy is defined as how confident you are that you can positively affect the learning of your students. Reflect upon a typical teaching situation and then rate how sure you are about your teaching ability for each of the items below. Please be honest in your evaluation. **Please note that a low number does not mean you are a below average teacher, just less confident in that area of teaching.** Your answers will be kept completely confidential.

1 = no confidence at all 4 = moderately confident 7 = extremely confident

- | | | | | | | | |
|---------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| 1. adjust your teaching style, when necessary, to motivate your students..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. analyze what is wrong with a movement..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. prepare lesson plans using behavioral objectives that promote learning..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. provide students information feedback about their performance
in a positive manner..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. motivate your students to persist after failing in skill attempts..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. watch students perform skills and analyze what improvements
they should make..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. plan a developmentally appropriate curriculum for all grades that you teach..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. explain instructional cues and strategies to your students
in ways that they will understand..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. break down or extend certain skills to match the ability level
of your students..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. prepare lessons that match the ability levels of your students..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. correctly explain technique cues for skills to your students..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. talk with students in ways that allows them to feel that you care
about them as a student..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. appropriately describe ways in which your students can improve
their performance..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. organize quick transitions from one activity to another..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. organize activities in class so that your students frequently feel successful..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. motivate your students to attempt new skills..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

APPENDIX E: TSES

Teachers' Sense of Efficacy Scale¹ (short form)

Teacher Beliefs		How much can you do?									
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.		Nothing									
			Very Little				Some Influence			Quite A Bit	A Great Deal
1.	How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
2.	How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
3.	How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
4.	How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
5.	To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
6.	How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
7.	How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
8.	How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
9.	How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
10.	To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
11.	How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
12.	How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	

APPENDIX F: ESBI

Efficacy for Standards-based Instruction (ESBI)

Directions: The attached form lists different teaching activities. In the column **Confidence**, rate how confident you are that you can do them **as of now**. Rate your degree of confidence by recording a number from 0 to 100 using the scale given below. Please be honest in your evaluation. Your answers are confidential.

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately certain can do					Certain can do

Confidence
(0-100)

Understanding the Curriculum in the District

- Can analyze the strengths and weaknesses of written curricula _____
- Understand the framework and content of my district’s physical education curriculum _____
- Understand the standards and benchmarks used in my district’s physical education curriculum _____
- Am able to determine how feasible and affordable it is for the school district and physical education teachers to implement the curriculum successfully _____
- Understand the overall goals or focus on the physical education curriculum in my district _____

Planning Based on the Curriculum Model

- Can align objectives, content, practice, feedback, and assessments for my specific grade level(s) _____
- Collaborate with colleagues to develop a district curriculum that meets national standards _____
- Plan lessons that help students master the content _____
- Develop multiple lesson plans that address each benchmark so students have many opportunities to master the content _____
- Can align lesson plans and curriculum with current local, state, and/or national standards _____

Teaching the Curriculum Model

- Base instruction on local, state and /or national physical education standards _____
- Clearly communicate instructional goals to students _____
- Provide content and tasks that are developmentally appropriate and properly sequenced _____
- Provide meaningful physical education content _____
- Provide instruction that facilitates student learning _____

Assessment

- Continually assess student performance to guide instruction _____
- Base assessment on mastery of learning expectations which are outlined in district standards and benchmarks _____
- Can document student learning in physical education _____
- Use multiple assessment strategies to monitor student learning _____
- Modify lessons and/or instruction in response to information from assessment _____

APPENDIX G:**Physical Education Teacher Survey**Teaching Context.

1. How many physical education teachers are in your building? _____
2. Do you share the following space with other physical education teachers on a regular basis: Office (yes no), Teaching space (yes no), Equipment (yes no)
3. How often do you have informal contact with another physical education teacher as a teacher (not counting potential coaching contact).
 - a. Frequently during the day
 - b. Daily
 - c. Weekly
 - d. Monthly
 - e. 1-2 times per semester
 - f. 1-2 times per year
4. How often do physical education teachers in your district meet? _____
5. Do you co-teach with a physical education teacher?
6. Do you share materials or ideas with another physical education teacher? If so how often?
7. Are you a member of a physical education organization (e.g., IAHPERD or AAHPERD)?

Perceptions of Support from Principals

For items 1 to 10, please indicate your opinion about each of the statements below.

- 1- Strongly Disagree
 2- Disagree
 3- Neutral/Undecided
 4- Agree
 5- Strongly Agree

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. Compared to most principals, my principal is more supportive of the physical education program. | 1 2 3 4 5 |
| 2. Compared to most principals, my principal is more Supportive of me as a physical education teacher | 1 2 3 4 5 |
| 3. Compared to the classroom teachers in any building, my principal is supportive of purchasing equipment to conduct my physical education program | 1 2 3 4 5 |
| 4. I have a similar class load/schedule compared to classroom teachers in my building | 1 2 3 4 5 |
| 5. The number of students in my classes is similar to the classroom teacher's | 1 2 3 4 5 |

- | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 6. My principal encourages me to conduct public relation programs to promote physical education as much or more than other teachers | 1 | 2 | 3 | 4 | 5 |
| 7. It is common for physical education classes in my building to be canceled when special programs are conducted | 1 | 2 | 3 | 4 | 5 |
| 8. Compared to classroom teachers in my building, my principal is supportive of me attending professional conferences/conventions. | 1 | 2 | 3 | 4 | 5 |
| 9. Compared to other principals, my principal is more likely to encourage students to be physically fit | 1 | 2 | 3 | 4 | 5 |
| 10. Compared to other principals, my principal is more likely to support the state administration rules for the time allotment for physical education | 1 | 2 | 3 | 4 | 5 |

Rationale for Curricular Decisions

For items 11 to 25, please indicate the degree to which each of the following influences what you teach in physical education class.

- 1- Strong Negative Influence
- 2- Somewhat Negative Influence
- 3- Little or No Influence
- 4- Somewhat Positive Influence
- 5- Strong Positive Influence

- | | | | | | |
|-------------------------------------------------------------------|---|---|---|---|---|
| 11. Your districts curriculum framework, standards, or guidelines | 1 | 2 | 3 | 4 | 5 |
| 12. Textbook or instructional materials | 1 | 2 | 3 | 4 | 5 |
| 13. National Physical Education Standards | 1 | 2 | 3 | 4 | 5 |
| 14. Your pre-service preparation | 1 | 2 | 3 | 4 | 5 |
| 15. Students' special needs | 1 | 2 | 3 | 4 | 5 |
| 16. Parental or community preferences | 1 | 2 | 3 | 4 | 5 |
| 17. Preparation of students for next grade or level | 1 | 2 | 3 | 4 | 5 |

18. Local priorities or school wellness policies	1	2	3	4	5
19. Your professional development experiences	1	2	3	4	5
20. Classroom assessment results	1	2	3	4	5
21. Level of training to perform the activity	1	2	3	4	5
22. Level of training to teach the activity	1	2	3	4	5
23. Amount of available instructional time	1	2	3	4	5
24. Existing physical education facilities and equipment	1	2	3	4	5
25. Student interest/choice	1	2	3	4	5
Other (Specify :_____)	1	2	3	4	5

Professional Development

In answering the following items, consider all the professional development activities or in-service training related to physical education that you have participated in **since this date last year**. Professional development refers to a variety of activities intended to enhance your professional knowledge and skills. In-service training is professional development offered by your school or district to enhance your professional responsibilities and knowledge.

Since this date last year, how frequently have you engaged in each of the following activities focused on physical education?

- 0- Never
- 1- Once or twice a year
- 2- Once or twice a semester
- 3- Once or twice a month
- 4- Once or twice a week
- 5- Almost daily

26. Attended conferences related to physical education	0	1	2	3	4	5
27. Participated in teacher networks or collaboratives	0	1	2	3	4	5
28. Used teacher resource centers or Internet resources to enrich your knowledge and skills	0	1	2	3	4	5

- | | | | | | | |
|-------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|
| 29. Worked on a committee or task force focused on curriculum and instruction | 0 | 1 | 2 | 3 | 4 | 5 |
| 30. Engaged in informal self-directed learning (e.g., discussions with colleagues about physical education) | 0 | 1 | 2 | 3 | 4 | 5 |

Since this time last year, how much emphasis have your professional development activities placed on the following topics?

- 1- None
2- Minor
3- Moderate
4- Major

- | | | | | |
|------------------------------------------------|---|---|---|---|
| 31. State content standards | 1 | 2 | 3 | 4 |
| 32. National content standards | 1 | 2 | 3 | 4 |
| 33. Alignment of instruction to curriculum | 1 | 2 | 3 | 4 |
| 34. Alignment of standards and benchmarks | 1 | 2 | 3 | 4 |
| 35. Individual differences in student learning | 1 | 2 | 3 | 4 |
| 36. Assessment | 1 | 2 | 3 | 4 |
| 37. Technology to support student learning | 1 | 2 | 3 | 4 |

38. Please indicate the number of professional development days allowed per physical education teacher per year for physical education.

_____ Within the district

_____ Outside of the district (i.e. conferences, meetings, workshops)

39. What professional development opportunities will your school offer (and include any already provided this school year) as in-service specifically for physical educators this school year?

40. What types of professional development opportunities will your district offer (and include any already provided this school year) as in-service specifically for physical educators in your school and district this school year?
41. What type of in-service or professional development opportunities would be most useful for the PE teachers in your school?

Curriculum

42. Does the school have a written physical education curriculum? Yes No
43. Does the school use NASPE's PE-CAT to guide curriculum and programming decisions? Yes No
44. Do you use district standards/benchmarks to guide curriculum and programming decisions? Yes No
45. Is there a Physical Education Coordinator in your building? Yes No
46. Is there a Physical Education Coordinator for all schools in your district? No Yes
47. How would you rate your level of involvement in the development of your district standards and benchmarks (1 = no involvement, 5 = extremely involved)? 1 2 3 4 5
48. How familiar are you with your district standards and benchmarks for physical education? 1 2 3 4 5
49. How are you using district standards/benchmarks (i.e., how do the standards and benchmarks influence your teaching?)
50. Describe how the physical education curriculum for grades k-12 is planned in your district.

Collaboration

Since this date last year, have you participated in professional development activities in the following ways?

51. I participated in professional development activities along with most or all of the teachers from my district. Yes No
52. I participated in professional development activities along with most or all of the teacher from the physical education department. Yes No
53. I participated in professional development activities NOT attended by other staff from my school. Yes No
54. I discussed what I learned with other teachers in my school or department who did NOT attend the activity. Yes No
55. Developed curricula or lesson plans with others Yes No
56. Developed assessments or tasks with others Yes No

Teacher Characteristics

57. How many years have you taught physical education prior to this year?
58. How long have you been teaching physical education at your current school?
59. What is the highest degree you hold?
60. What was your major field of study for the bachelor's degree?

APPENDIX H:**Principal Survey**

The following questions will help us get to know you.

1. What subject area(s) did you teach before moving to administration?
2. How many years did you teach?
3. How long have you been a principal? _____ In this building? _____

The questions in this section focus on the physical education program in your school.

4. What is the typical student-to-teacher ratio in your PE classes?
 - a. 1 teacher to _____ students
 - b. Do most physical education classes have special needs students integrated into the class? Yes No
5. How many minutes per week does the typical student have physical education in your school?
_____ (minutes/week)
 - a. In your school, is physical education required for the typical student every semester?
 Yes No
 - b. In your school, is physical education required for the typical student every year?
 Yes No
6. Are exemptions available from physical education for athletes?
 Yes No

If yes, what percent of your school's athletes use the exemption? _____
7. Is physical education required for graduation?
 Yes No
8. Is physical education graded in the same format as other subjects?
 Yes No
9. Is the physical education grade included in the overall GPA for students in your school?
 Yes No

10. Is gymnasium space used exclusively for PE during school hours as compared to a space shared for other purposes? (e.g. lunch, band)

- Yes the gym is used exclusively for PE during school hours
 No

11. Which of the following reflect the role of physical education in your school (check all that applies)?

- “blow off steam” before returning to the classroom
 “focus on attributes like cooperation, sportsmanship, and fairness
 Accrue all or part of the daily moderate to vigorous physical activity
 Improve physical fitness
 Provide planning time for teachers

12. Were you on the district wellness policy development committee?

- Yes No

13. Does your school have a policy or procedure that prohibits using physical activity as punishment?

- Yes Yes, but only in physical education No

14. What professional development opportunities are available for physical educators in your district?

15. If you could change one thing about your physical education program, what would that be?

APPENDIX I:

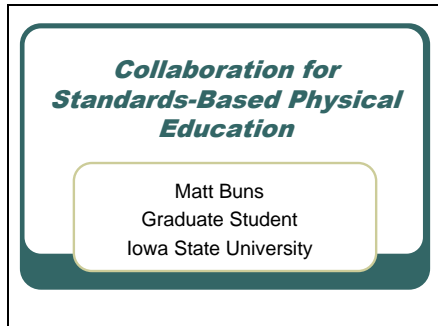
Standards-based Intervention Workshop Protocol and Materials

AGENDA

1. Physical Activity Discussion (Hoffman, 2009) [10 minutes]
2. Importance of Physical Education [5 minutes]
3. Administrator Support [5 minutes]
4. Collaboration Model (Friend & Cook, 2000) [15 minutes]
5. Curriculum Mapping (PE-CAT) [15 minutes]
6. Goal-Setting [10 minutes]
7. Evaluating YOUR Alignment [40 minutes]
8. Collaboration in Virtual Space Debriefing [15 minutes]
9. Satisfaction of Training Evaluation [2 minutes]

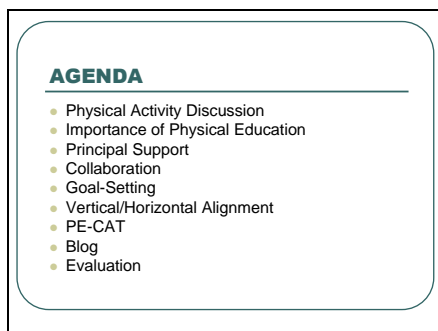
Standards-Based Intervention PowerPoint

Slide 1



Mention that in the spirit of collaboration we can act as a team—they are helping me, I am working with them, etc
Use verbal persuasion to increase self-efficacy by verbally convincing them that they are already excellent and committed professionals by simply choosing to attend this meeting

Slide 2



Slide 3



Discuss ways peoples experience PA related to standards (7 ways, 6 standards)

How? Duty or Play.

Don't classify specific types of physical activity
The “Spheres” highlight aspects of our lives in which physical activity plays an important part.
Show us that some activates may be common to more than one sphere.
Provide a general framework for thinking about the importance and pervasiveness of PA

Are not intended to
compartmentalize PA

SELF SUFFICIENCY

To live functional, independent lives, we must perform ADLs and IADLs, the latter of which tend to be more physically demanding. We also become self-sufficient by performing physical activities intended to maintain or improve the home. These activities are called home maintenance activities.

Injury or disease can hinder a person's ability to perform daily physical activities. Physical therapists create therapeutic strategies based on activity analyses to help people recover their functioning within the limits of the disease or injury.

Limitations in the performance of ADLs and IADLs among elderly people require them to depend on others or institutions to perform the tasks of daily living. This problem is of great personal and economic importance. A discussion of physical activity focusing on these seven reasons (and that it is not the same for all people—often creating issues between students and teachers) and the idea of “duty” versus “play” will be addressed

SELF-EXPRESSION

We use physical activity as a form of communication and expression in a combination with or in place of words. Gestures can supplement or substitute for spoken words.

Dance is an art form that uses physical activity to express attitudes and feelings that may be difficult or impossible to express in normal verbal communication. Rituals

often employ physical activity to express symbolically sacred values or beliefs.

WORK

As technology continues to shape the character of work, the amount of physical activity required on the job is likely to decrease, placing workers at higher risk for diseases brought on by physical activity.

EDUCATION

The education sphere includes that aspect of our lives in which we set out to learn new skills or knowledge. Usually, physical activity plays an important role in this sphere, whether in connection with learning cognitive material or learning to perform physical skills. Physical education is the only near-universal program of sport and exercise instruction available to young people. For this reason it should be of the highest quality possible.

Data suggests that America and Canada are experiencing an epidemic of adult and childhood obesity. Increasing time allotted to physical education programs in the schools would seem to be one way to counteract this trend, but simply requiring physical education may not lead to a reduction of overweight and an increase in physical activity in youths.

LEISURE

Leisure is a state of being, and free-time activities can help us attain this state. Large-muscle physical activities such as sport and exercise have the potential for nourishing and maintaining a leisure

disposition.

Although participating in some recreational activities involving moderate to vigorous physical activity remains high, the rate of growth appears to have slowed and in some cases declined, whereas participation in more sedentary activities appears to be on the rise.

HEALTH

When pursued in moderation with an eye toward a balanced life, physical activity is desirable. When performed under circumstances that put the integrity of the body at risk or induce questionable behavior patterns and psychological states, it is undesirable.

COMPETITION

Participation in many kinds of sports has decreased dramatically over the past 10 years. This development is apparent in participation by both the 7-year-old to 11-year-old group. More encouraging participation rates are seen in high school athletics, particularly among high school girls.

Slide 4

We know the reasons

- May change across the lifespan
- Some people have multiple reasons at one time
- Successful PE programs will recognize all reasons in curriculum and instruction
- Successful programs will nurture multiple reasons

A challenge is that teachers have their own reason and may have trouble identifying with the reasons of some students. A critical goal is to help students find their own reason.

Slide 5

“Duty” versus “Play”

- Duty-Like Sport
- Play-Like Sport
- Two Potent Combinations

Duty is physical activity done because one “has to”, for example for health reasons. While play is physical activity done for the intrinsic value of the activity (e.g., fun, enjoyable

This is critical because duty maybe associated with “education”, “work”, “health” and may “turn off” some students. While leisure, competition, self-expression etc. may be motivating for those students and are associated with “play”. Fun is a critical predictor in successful programs.

Slide 6

(file too large to show here, but is a copy of multiple, anonymous newspaper ads)

As these headlines show, Americans are becoming aware of obesity rates

Slide 7

Importance of Physical Activity

10 Leading Health Indicators, *Healthy People 2010*

1. Physical activity
2. Overweight and obesity

Physically active lifestyles begin during childhood

Healthy People 2010, USDHHS, 2000

PA & obesity over tobacco use, substance abuse, access to health care, etc.
 (Specific physical and psychological benefits of PA likely already well known
 By PE teachers)

Adults who are physically active report having learned sport skills as children and
 Developing confidence as a result of those experiences (Welk, 1999)

Clearly PA is related to lifelong health, and PA lifestyles begin during childhood

Slide 8

Importance of Physical Education

- Delivers PA to millions of children and adolescents in the U.S. (Lee, Burgeson, Fulton, & Spain, 2007).
- Recommended as a primary strategy to fight obesity and reduce risk of other diseases (AAP, 2006; NASBE, 2006)

Most children attend school, so schools are the best place to reach children
 -may be the only PA they get

Slide 9

Quality of Life

Overweight and out-of-shape children viewed their quality of life as low as those children who were dying from a terminal illness, such as cancer (JAMA, 2003)

Slide 10

Principal Support

- Barriers to increasing PE minutes
 - Budget
 - Time
 - Facilities
- Value of physical education
 - Fitness
 - Cooperation
 - Motor skills

PE teachers and principals agreed on both components
 Discuss Pilot Studies...Principals expressed support and Protection for PE minutes, despite tough economic times.

Slide 11

Challenges for Physical Education Teachers

- Meeting the standards
- Health concerns
- Validation of programs
- Support
- Class size

Meeting the Standards=To cover the necessary instructional components and to provide opportunities for adequate skill practice and health-enhancing physical activity, quality physical education should be offered every day to all students from prekindergarten through grade 12. Unfortunately, most U.S. students do not participate in daily physical education, and the proportion of students with daily physical education has been declining over time. Finding time to plan is also an issue.

Health Concerns=quality daily PE has been shown to be effective in addressing health concerns
 Of children but it is difficult for teachers to plan lessons that effectively address such concerns
 With limited PE minutes

Validation = decline of PE participation in schools, disparities that exist between PA levels and disease

according to gender, ethnicity, age, etc...perhaps spending too much time trying to show the program

Is important by written work when PE is important for PA's sake alone

Support/time= so much to do and little support and time given to develop standards, lessons,etc

Designing, implementing, and assessing curricula takes time. Pilot study. (teacher's perceived support vs. expressed support from principals.

Class Size=PE should have the same class sizes as other subjects. Difficulties with shared space.

Slide 12

Principal Support

- Physical education teachers may feel less valued and more pessimistic than necessary
 - Planning time
 - Blowing off steam
- Principals
 - Valued the role of physical education
 - Reported efforts to protect physical education

In a study of parents, 81% supported the concept of daily PE

Slide 13

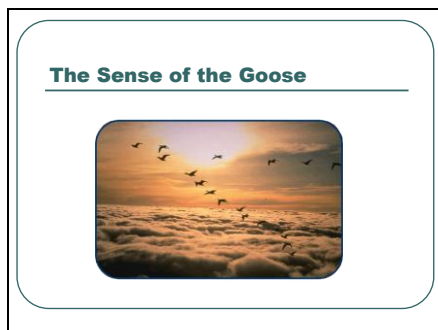
Collaboration

"collaboration" = Latin "colaborare" — "to labor together."

a process by which entities (people, organizations, and organisms) work together to accomplish a common goal.

Each other as collaborators

Slide 14



Fact 1

As each goose flaps its wings, it creates “uplift” for the birds that follow. By flying in a “V” formation, the whole flock has 71% greater flying range than if each bird flew alone.

Lesson

People who share a common direction and sense of community can get where they are going quicker and easier, because they are traveling on the thrust of each other.

Fact 2

When a goose falls out of formation, it suddenly feels the drag and resistance of flying alone. It quickly moves back into formation to take advantage of the lifting power of the bird immediately in front of it.

Lesson

If we have as much sense as a goose, we stay in formation with those headed where we want to go. We are willing to accept their help and give our help to others.

Fact 3

When the lead bird tires, it rotates back into the formation to take advantage of the lifting power of the bird immediately in front of it.

Lesson

It pays to take turns doing the hard tasks and sharing leadership. As with geese, people are interdependent on each others’ skills, capabilities, and unique arrangement of gifts, talents, or resources.

Fact 4

The geese flying in formation honk to encourage those up front to keep up their speed.

Lesson

We need to make sure our honking is encouraging. In groups where there is encouragement, the production is much greater. The power of encouragement (to stand by one’s heart or core values and to encourage the heart and core values of others) is the quality of honking we seek.

Fact 5

When a goose gets sick, wounded, or shot down, two geese drop out of formation and follow it down to help and protect it. They stay with it until it dies or is able to fly again. Then, they launch out with another formation to catch up with the flock.

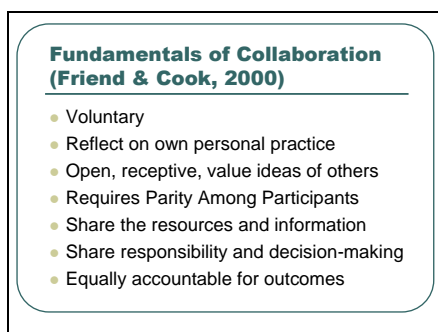
Lesson

If we have as much sense as geese, we will stand by each other in difficult times as well as when we’re strong.

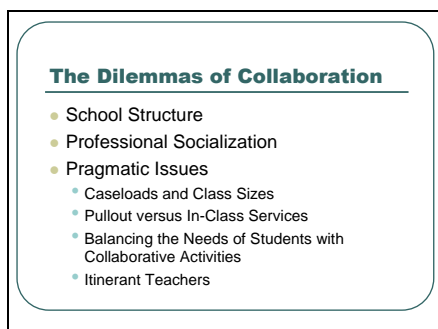
Slide 15



Slide 16



Slide 17



Slide 18

High Quality Physical Education

Has four components

1. Curriculum (meaningful content)
2. Appropriate Instruction
3. Assessment
4. Opportunity to Learn (Policies and Environment)

Use PAST PERFORMANCE ATTAINMENT to increase self-efficacy by discussing with teachers all the ways they have demonstrated quality physical education.

Discuss control of parts of high quality PE

Give this as handout
What is High Quality Physical Education?

Appropriate actions must be taken in four main areas to ensure a high quality physical education program: (1) curriculum, (2) policies and environment, (3) instruction, and (4) student assessment

Slide 19

Instructional strategies

- The need for inclusion
- Adaptations for students with disabilities
- Active most of the time
- Well-designed lessons
- Assignments to support learning
- Not using physical activity as punishment

Instructional strategies that support high-quality physical education emphasize the following:

The need for inclusion of all students,

Adaptations for students with disabilities,

Opportunities to be physically active most of the class time,

Well-designed lessons,

Out-of-school assignments to support learning, and

Not using physical activity as punishment.

Slide 20

Assessment

- Appropriate use of fitness tests
- Ongoing opportunities for self-assessment and self-monitoring
- Communication with students about assessment
- Clarity concerning the elements used for grading

Regular student assessment within a high-quality physical education program features the following:

The appropriate use of physical activity and fitness assessment tools, Ongoing opportunities for students to conduct self-assessments and practice self-monitoring of physical activity, Communication with students and parents about assessment results, and Clarity concerning the elements used for determining a grading or student proficiency system.

Slide 21

Curriculum

Emphasizes meaningful content

- Instruction in a variety of skills
- Fitness for understanding & well-being
- Cognitive concepts
- Social and cooperative skills
- Valuing physical activity

Appropriate sequencing

- Developmentally appropriate
- Basic to advanced skills
- Monitoring, reinforcing and plan for student learning

Physical Education Curriculum

A curriculum is a sequential system for delivering learning experiences to students. A physical education curriculum is the framework that provides guidance for teaching skills and providing physical activity instruction. A high quality physical education curriculum will be based on the national standards in the document *Moving Into the Future: National Standards for Physical*

Education (6), which describes what a physically educated student should know and be able to do. It

emphasizes meaningful content, which includes the following:

Instruction in a variety of motor skills designed to enhance child and adolescent development,

Fitness education and assessment that allows for understanding and improvement of physical well-being,

Development of cognitive concepts related to motor skills and fitness,

Opportunities to improve social and cooperative skills, and

Opportunities to increase the value placed on physical activity for health, enjoyment, self-expression, and confidence.

Appropriate sequencing of learning activities is critical to developing a high-quality physical education curriculum. Appropriate sequencing involves the following:

- Ensuring that motor skills, physical activity, and fitness assessments are age and developmentally appropriate,
- Methods of teaching motor and movement skills that ensure that basic skills lead to more advanced skills, and
- Plans to appropriately monitor, reinforce, and plan for student learning.

Slide 22

Policies & Environment

- Adequate instructional time
- Qualified PE specialists
- Class size
- Equipment and facilities

Policy and environmental actions that support high quality physical education require the following:

- Adequate instructional time (at least 150 minutes per week for elementary school students and 225 minutes per week for middle and high school students),
- All classes be taught by qualified physical education specialists,
- Reasonable class sizes, and
- Proper equipment and facilities.

Slide 23

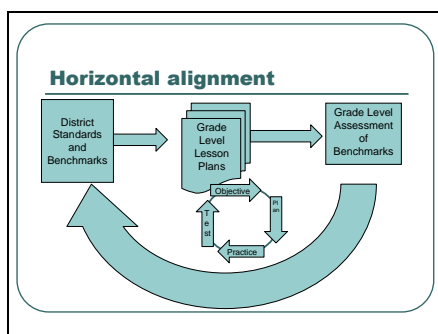
Curriculum Mapping

- 2 directions
 - Vertical Alignment
 - Horizontal Alignment

Using a process known as curriculum mapping (Jacobs, 1997), teachers, schools, and school districts examine their physical education curriculum for the content and assessments that they deliver each month over the school year. They then align benchmarks to the curriculum map to identify any redundancies across grade levels or any instructional gaps that would reduce students' chances of meeting required benchmarks. Vertical alignment is usually a shared responsibility. Horizontal alignment is vested in individual

teachers.

Slide 24

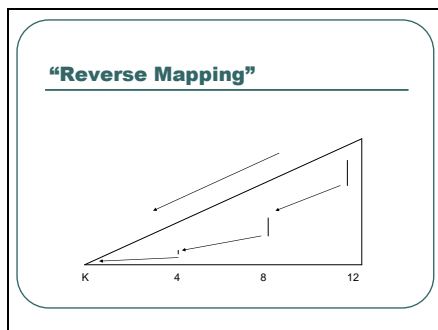


Vertical alignment applies at the district level where standards and benchmarks define the curriculum and are informed by assessment at grade levels.

Vertical alignment applies in the grade level as well, where the objective, content, practice, feedback and assessment are also aligned.

Ultimately multiple lesson plans will address each benchmark so that students have many opportunities to master the content.

Slide 25



Backward design or reverse mapping

The process leads to programs that are designed

From the end (grade 12) back to the beginning (K)

Slide 26

Vertical alignment

- Standards describe what students know and do at the end (of 12th grade)
- Benchmarks describe the steps necessary to reach the standard
 - Increasingly challenging
 - Increasingly complex
 - Combine skills and knowledge


So content or critical content will track across grade levels. Some benchmarks may phase in or out across 12 grades but generally there should not be “holes” where a benchmark is present a one grade level, not at the next and then reappears later.

Slide 27

What Are Goals?

Effective goals are SMART...

- **S**pecific
- **M**easurable
- **A**ttainable
- **R**ealistic
- **I**angible



Goals provide direction

They tell us what needs to be accomplished and by when

They help us focus our effort, energy, and the quality of our performance

Slide 28

What are Goals?

Types of Goals

- Outcome vs. Performance
- Short-term vs. Long-term
- Individual vs. “Team”

Slide 29

Identifying Your Goals

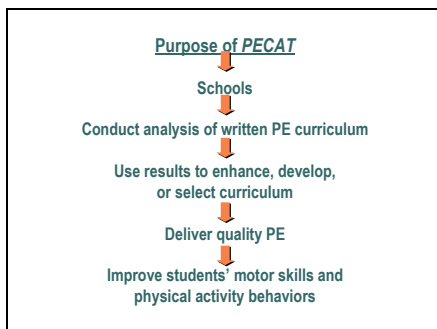
- Why do you teach physical education?
- What do you want to get out of teaching?
- Where do you want your physical education program to be next year?...In 2 years...in 5 years?
- Handout, PE Teacher Eval Tool

Slide 30

STANDARD	Pre-K-2 BENCHMARK	3-5 BENCHMARK	6-8 BENCHMARK	9-10 BENCHMARK	11-12 BENCHMARK
Standard 1: Students will demonstrate competency in motor movement forms and proficiency in a few movement forms.	Use a variety of basic locomotor activities (e.g., running, skipping, sliding)				Demonstrate proficiency in a variety of running activities when facilities permit and when equipment requirements when facilities allow.
	The simple combination of fundamental locomotor and non-locomotor skills (e.g., control, body control and physical skills)	The learner finds and explores responses to combinations of fundamental locomotor skills, control and physical skills that are components of selected modified games, sports and dances (e.g., combining steps in partner control dance, combining running, skipping, hopping, sliding, and kicking for obstacle course)	Proficiency in a variety of single rhythm dances	Demonstrate competency with a variety of social dance forms	Demonstrate competency with a variety of social dance forms.
	The control in weight-bearing and balance activities on a variety of body parts (e.g., jumping and landing using combination of one and two air take-offs and landings)	The learner finds in balance activities in a variety of apparatus (e.g., balance beam, pommel horse, uneven bars, and others)			
	The control in travel activities on a variety of body parts (e.g., crawl, inchworm, and others)	The student transitions between supported movement skills (e.g., standing from a jump)			

Shows how benchmarks can “track” across grade levels. Blank spaces represent misalignment.

Slide 31



The purpose of the *PECAAT*, developed by the CDC

The purpose of the *PECAAT* is to help schools conduct a clear, complete, and consistent analysis of written physical education curricula. Then, the results can help schools select a published curriculum, develop their own curricula, or enhance existing curricula to support the delivery of **quality physical education** in schools. In turn, this will improve the ability of schools to positively influence motor skills and physical activity behaviors among school age youth.

Slide 32

OVERALL PECAT SCORECARD

To complete the overall PECAT assessment and examine strengths and weaknesses of a single certification, transfer each of the individual scores from the completed content and student assessment analysis worksheets to the corresponding location below.

STANDARD	Content Analysis Score for Each Grade Level				STANDARD	Student Assessment Analysis Score for Each Grade Level			
	K-1	2-5	6-8	9-12		K-1	2-5	6-8	9-12
Standard #1	9	6	9	10	Standard #1	6	5	9	5
Standard #2	8	7	7	9	Standard #2	7	8	9	9
Standard #3	6	5	5	6	Standard #3	10	7	5	6
Standard #4	7	7	6	7	Standard #4	8	5	5	5
Standard #5	5	5	5	5	Standard #5	0	2	1	0
Standard #6	6	5	6	6	Standard #6	0	2	2	2
Additional Standards:					Additional Standards:				
#1					#1				
#2					#2				
#3					#3				
#4					#4				

Example

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YOUR Alignment

- Present an analysis of the district standards and benchmarks to stimulate discussion and begin “work”

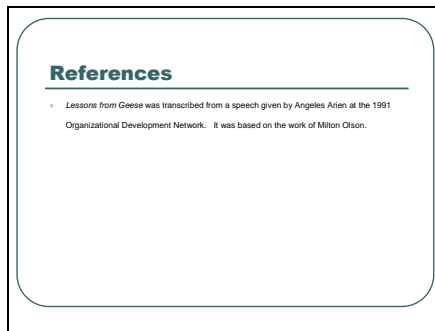
Slide 34

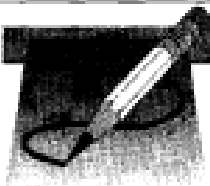


Demonstrate how to use blog.
Show how their accounts have
already been set up for them.

Will present benchmarks for one
different standard each week for 6
weeks for you to discuss.

Slide 35





Finding Shared Planning Time. Professional educators struggle to find the time needed to create and sustain collaborative work relationships. Here are ten examples of how some schools address the issue of time:

- Teachers working together are scheduled for a shared lunch and preparation period. By scheduling these times back-to-back, teachers have a 90-minute block of shared planning time.
- In a junior–senior high school, students spend one morning per week in community service. Teachers use this time for shared planning.
- In a large school district, increasing class size by one or two students can provide enough additional resources to hire a permanent substitute teacher who is then available to release teachers for planning.
- In a year-round school, the three weeks between each quarter are used by teachers for day-long meetings. Teachers receive compensation for this time.
- Instead of using professional development days for large-group workshops, one district permits teachers to use this time for two-hour release periods throughout the school year for collaborative activities.
- In an elementary school, students are dismissed 45 minutes early once each week so that teachers can jointly plan. The instructional time is added to the other school days.
- A variation of the above includes lengthening one school day by 20 minutes and releasing students at noon one day per week. The gained time is used for teacher collaboration.
- In a large school, fine and related arts staff (e.g., art, music, and physical education) work with each other and with teachers to arrange schedules so that teachers receive a half day of collaboration time every two or three weeks.
- In a variation of the above, in some schools, fine and related arts occur in one grade level at one time in order to release the team of teachers for collaboration.
- In an alternative high school, classes are scheduled from 7:30 to 3:30. Even though the earliest classes are special (e.g., tutoring, clubs), the school can meet minimum time requirements in 4.5 days. They use the additional time to collaborate.

Adapted from Raywid, M. A. (1993). Finding time for collaboration. *Educational Leadership*, 51(1), 30–34.

Handout, PECAT

PECAT

The Physical Education Curriculum Analysis Tool (PECAT) is an assessment tool developed by the Centers for Disease Control and Prevention's Division of Adolescent and School Health (DASH), in partnership with physical education experts representing state education agencies, school districts, schools, colleges, and national organizations.

The PECAT helps school districts to conduct a clear, complete, and consistent analysis of written physical education curricula (grades K-12), for the delivery of **high-quality physical education** in schools.

Need for the PECAT

Schools have the opportunity to increase participation in physical activity through physical education. Schools can help improve the physical activity habits and health of young people by providing quality curriculum and instruction, programs, and services that promote enjoyable, lifelong physical activity. A high-quality physical education program is the cornerstone of a school's physical activity programming, and a well-written physical education curriculum is the foundation of a physical education program. The PECAT enables users to conduct a thorough analysis of the written physical education curriculum and create a curriculum improvement plan.

Standards-based Physical Education

The PECAT is based upon the National Standards for Physical Education, found in the document *Moving Into the Future: National Standards for Physical Education* from the National Association for Sport and Physical Education. These standards are a widely accepted guidance tool that frames physical education curriculum content at state and local levels.

The National Standards emphasize meaningful content, including:

- Instruction in a variety of motor skills designed to enhance child and adolescent development.
- Fitness education and assessment that allows students to understand and improve their physical well-being.
- Development of cognitive concepts related to motor skills and fitness.
- Opportunities to improve social and cooperative skills.

PECAT Users

Users of the PECAT include:

- Curriculum committees or physical educators in school districts, schools, or community organizations.
- State education agency staff.
- Other curricula developers.
- Institutions of higher education.
- School-level physical education departments.

Organization of the PECAT

The contents of the PECAT are organized as follows:

- **Introduction**
- **Instructions**
- Part One includes preliminary curriculum considerations: accuracy, acceptability analysis, feasibility analysis, and affordability analysis.
- **Part Two** includes content and student assessment analyses.
- **Part Three** consists of the curriculum improvement plan.
- **Appendices** include an example of a completed scoring sheet, the National Physical Education Standards, a glossary of terms, and a comprehensive list of resources.

Use of the PECAT

Follow these steps:

1. **Select a PECAT coordinator, form a PECAT committee, and identify the roles and responsibilities of each member.** The PECAT coordinator will lead the committee's efforts. The committee might include: an existing curriculum review committee, physical education coordinators, curriculum specialists, physical education teachers, college professionals, parents, students, public health practitioners, health education teachers, and school administrators.
2. **Review curriculum materials, the PECAT, and any additional state or local standards.**
3. **Complete the curriculum description form and the preliminary analyses for accuracy, acceptability, feasibility, and affordability of the curriculum.**
4. **Review the instructions for scoring, and then complete the Content and Student Assessment Analyses.** The analyses determine whether the content described in the curriculum matches the national physical education standards, and whether there are protocols matched with each national physical education standard to guide the assessment of student skills and abilities.
5. **Create a plan for improvement.** The curriculum improvement plan guides users through a process of:
 - Interpreting and evaluating PECAT scores.
 - Completing and implementing the improvement plan.

To obtain a copy of the PECAT, choose one of the following options:

- **Download from the CDC Website:** <http://www.cdc.gov/healthyyouth/PECAT>
- **Request by e-mail:** cdc-info@cdc.gov
- **Request by phone:** (800) CDC-IN



National Association for Sport & Physical Education

an association of the American Alliance for Health, Physical Education, Recreation and Dance

NASPE Sets the Standard

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PHYSICAL EDUCATION TEACHER EVALUATION TOOL

Introduction

The National Association for Sport and Physical Education (NASPE), the preeminent national authority on physical education and a recognized leader in sport and physical activity, has origins that date back to 1885. A central aspect of this leadership is the development of national standards, guidelines, and position statements that set the standard for quality physical education programs. Quality physical education requires appropriate infrastructure (opportunity to learn), meaningful content defined by curriculum, appropriate instructional practices including good classroom management, student and program assessment, and evaluation.

All teachers benefit from meaningful, ongoing assessment and evaluation. The NASPE-developed **Physical Education Teacher Evaluation Tool** identifies the knowledge, skills, and behaviors needed to provide sound instruction in the K-12 physical education classroom. Its purpose is to assist principals, school district curriculum specialists, and others who evaluate physical education teachers as well as to guide physical education teachers in reflection and self-assessment, and serve as an instructional tool in college/university physical education teacher education programs. Specific examples of how this tool can be used include.

Specific Uses for This Tool

K-12 Administrator

- Prioritize and rearrange the items on the evaluation tool to emphasize certain teaching knowledge/skills/behaviors
- Modify the tool to meet needs for formative or summative observation and feedback
- Customize the tool to target areas identified in a professional growth plan

School District Curriculum Specialist

- Assist teachers with using the tool for professional growth
- Provide in-service programs to help teachers address point of emphasis or areas of needed improvement
- Incorporate the tool into the mentoring program for new teachers
- Use the tool for formal or informal observation of teachers

K-12 Physical Education Teacher

- Use the tool for self-assessment (e.g., videotape a lesson and review)
- Study and prioritize the list of tool items to work on specific points of emphasis during instruction
- Ask a colleague to observe a class and complete the evaluation tool for peer feedback

College/University Physical Education Teacher Education Programs

- Use the tool to teach program candidates about critical instructional skills, for discussion and practice purposes
- Make the tool available to program candidates for reflection and self-assessment in practical experiences
- Utilize the tool as part of the student teaching process

Evaluation Principles

The following principles serve as guidelines for conducting observations and evaluations of physical education teachers and are strongly encouraged by NASPE.

Physical educators should:

- Be evaluated with standards, expectations, procedures, and rigor that parallel teachers of other curricular areas.
- Be observed, assessed, and evaluated by trained evaluators.
- Be observed multiple times during the academic year.
- Be observed for the entire class period, from beginning to end.
- Be observed and evaluated as part of a comprehensive assessment plan, which should include formal conferences, professional growth plans, etc.
- Be accountable for student achievement of state standards in physical education or the National Standards for Physical Education (NASPE, 2004) in the absence of state standards.

National Standards for Physical Education

- 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.
- 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.
- 3: Participates regularly in physical activity.
- 4: Achieves and maintains a health-enhancing level of physical fitness.
- 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.
- 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Prior to observing a physical education class/teacher, NASPE requests that you review its online guidelines, *Appropriate Practices for Physical Education*, which are available for early childhood, elementary school, middle school, and high school at:

<http://www.aahperd.org/naspe/template.cfm?template=peappropriatepractice/index.html>

These booklets describe physical education practices that are in the best interest of children. They address curriculum design, learning experience, fitness activities, fitness testing, assessment, participation levels, forming groups, competition, and much more.

Resources for Additional Information

Visit the NASPE position statement: *What Constitutes a Highly Qualified Physical Education Teacher?* Go to: http://www.aahperd.org/naspe/pdf_files/HiQualified.pdf

Other key NASPE publications can be found at www.naspeinfo.org, under Publications, in the Online Store, or call 1-800-321-0789 to order your copy:

National Standards for Physical Education, 2nd Edition (2004)

National Standards for Beginning Physical Education Teachers (2003)

Opportunity to Learn Standards for Elementary School Physical Education (2000)

Opportunity to Learn Standards for Middle School Physical Education (2004)

Opportunity to Learn Standards for High School Physical Education (2004)

Appropriate Practices for Elementary School Physical Education (2000)

Appropriate Practices for Middle School Physical Education (2001)

Appropriate Practices for High School Physical Education (2004)

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*National Association for Sport and Physical Education, an association of the
American Alliance for Health, Physical Education, Recreation and Dance*

Physical Education Teacher Evaluation Instrument

The following chart provides a five-level scoring guide and a selection of descriptive terms to use in an evaluation. When giving feedback, provide a number in the “rating” column adjacent to the statement. Use N/A if the statement is not applicable to this observation. Comment sections can be added under each statement or, as provided, under each broad section. Provide identifying information as necessary for records. Customize for specialized uses.

5	4	3	2	1
Outstanding	Above Average	Satisfactory	Below Average	Unsatisfactory
Mastery	Proficient	Basic	Needs Improvement	Unacceptable
Clearly exceeds standards	Strong	Meets standard	Developing	Does not meet standards
Exemplary	Very good	Good	Poor	Needs significant attention

Teacher’s name _____

Evaluator’s name _____

Date _____ Class observed _____

F = Formative

S = Summative

1.	Instruction	Rating
a.	Instruction is based on local, state and/or national physical education standards	
b.	Supports school improvement goals	
c.	Supports physical education program goals	
d.	Lesson introduction is appropriate	
e.	Learning expectations/objectives/instructional goals are clearly communicated to students	
f.	Content is accurate and current	
g.	Content and tasks are developmentally appropriate and properly sequenced	
h.	Content and tasks are presented concisely and clearly, emphasizing key elements	
i.	Engages students in learning by enabling all learners to participate through multiple modalities	
j.	Opportunities for teachable moments are recognized and utilized	
k.	Instruction is differentiated for all learners	
l.	Specific, meaningful and timely feedback is provided to students	
m.	Content is linked to and promotes the transfer of learning within physical education units and among other subject content areas	
n.	Student performance is continually assessed to guide instruction	
o.	Lesson presentation is changed in response to observation of student performance and/or information from formative assessment	

p.	Independent learning is promoted ,encouraged, and reinforced through daily assessments	
q.	Technology enhances instruction	
r.	Lesson pace is appropriate	
s.	Appropriate closure is provided	
Comments:		
2.	Evidence of Student Learning	
a.	Assessment is based on mastery of learning expectations which are aligned with local, state and national standards	
b.	Grading is based on assessment of student learning	
c.	There is ongoing formal and informal assessment	
d.	Assessment criteria is communicated to students	
e.	Multiple assessment strategies and tools are used (formative and summative) to monitor student learning	
f.	Students can self assess and are aware of their own progress toward learning goals	
g.	Students are able to articulate relevance and transfer of learning	
h.	Students demonstrate creative and critical thinking skills	
i.	Evidence of students' independent learning outside of class is part of assessment	
j.	Student progress is documented in a retrievable record-keeping system	
k.	Student progress and achievement is communicated regularly to relevant stakeholders	
Comments:		
3.	Management/Organization	
a.	Lesson plans and curriculum are aligned w/ current local, state, and national standards	
b.	Instructional area is safe, orderly, and supports learning activities	
c.	Adequate and developmentally appropriate equipment is accessible and utilized	
d.	Instructional support materials are utilized to enhance the lesson.	
e.	Students understand and adhere to class rules, routines and behavioral expectations	
f.	Class routines maximize instructional time	
g.	There is a behavior management plan that is fair, firm, and equitable	
h.	Appropriate behaviors are reinforced consistently	
i.	Effective management strategies are used	
j.	Students are actively monitored and closely supervised	
k.	Students are appropriately grouped	
l.	Effective and smooth transitions are apparent	

Physical Education Teacher Evaluation Guide

1.	Instruction	
a.	Instruction is based on local, state and/or national physical education standards	Current NASPE standards are presented and followed in the lesson. Instruction is aligned with state and local standards.
b.	Supports school improvement goals	Teacher is familiar with and assists in meeting school or campus goals with active participation. The teacher does not isolate him/herself in the gymnasium or from school committees.
c.	Supports physical education program goals	Teacher is familiar with and assists in meeting physical education department goals with active participation. The teacher does not isolate him/herself from involvement from physical education department meetings and/or committees.
d.	Lesson introduction is appropriate	Teacher provides an introduction that is appropriate for the lesson focus and developmental levels of the students. The introduction can be provided in the form of an instant activity relating skill, concept, and/or health-related fitness or verbally.
e.	Learning expectations/ objectives/ instructional goals are clearly communicated to students	Teacher states the skill or concept the students are to learn. It might also be posted or written on the board. Students know the learning expectations.
f.	Content is accurate and current	Skills and concepts are taught accurately. Skills are explained and demonstrated with proficiency. Concepts taught reflect current knowledge and research in physical education and health.
g.	Content and tasks are developmentally appropriate and sequenced properly	All activities are developmentally appropriate and/or completed in a logical, progressive sequence. Skills and concepts are explained and demonstrated at the developmental levels of the students. Skills are broken down into learnable segments. Components of the skill are taught before the entire skill is performed, and concepts and skills are taught before they are incorporated into an activity or game. Rules and activities are modified to match the cognitive levels of the learners.
h.	Content and tasks are presented concisely and clearly, emphasizing key elements	Activities, drills, lead-ups are clearly understood by the students. Directions for each activity are explained and modeled. Students are not inactive for more than brief periods of time to listen to information.
i.	Engages students in learning through multiple modalities	The lesson promotes maximum participation and students remain on-task and motivated to participate through multiple modalities that allow all students to be engaged. There are few, if any, instances of off-

		task or disruptive behavior. All students are given opportunities to practice the skill. Students do not wait in line for a turn or wait to perform. Teacher calls equally on non-volunteers during questioning.
j.	Opportunities for teachable moments are recognized and utilized	Teacher recognizes teachable moments and capitalizes on the moment to modify, add, delete, or extend lesson content to maximize opportunity for learning. For example, when teaching about frequency and duration of physical activity, the teacher may ask students to spontaneously think-pair-share examples of family fitness activity choices experienced the evening/weekend before.
k.	Instruction is differentiated for all learners	Teacher adjusts teaching and expectations based on individual differences and needs. Accommodations and modifications are made for students with disabilities or varied learning styles. Teacher uses alternative instructional strategies to assist students who are not mastering the skill or concept. Alternate cues (e.g., “Throw your elbow to the wall,” as opposed to “Lead with your elbow”) are provided. All students are included.
l.	Meaningful and timely feedback is provided to students	Teacher analyzes each student’s performance to provide appropriate corrective feedback or reinforcement. Students are provided information on their performance at a time and in ways that they can improve their skill. Feedback is provided in ways (verbal, visual, tactile, etc.) that facilitate success.
m.	Content is linked for transfer of learning within physical education units and among other subject area content	Teacher connects skills to relevant activities. For example, the teacher may connect the overhand throwing motion to baseball, football, volleyball, etc. The teacher connects content to prior and future learning within physical education and across disciplines. For example, the teacher relates the scientific principle of Newton’s Laws of Motion with rotation in gymnastics. The mathematical concept of elapsed time is connected to timekeeping and place performance in games and sports.
n.	Student performance is continually evaluated to guide instruction	Teacher actively monitors during the lesson to assess understanding of the skill or concept. This is done during guided practice, questioning, independent practices (drills, lead-ups, games, etc.) consistently. Student learning and performance guides the planning and instruction for teaching. For example, if “opposition” for the overhand throw is not demonstrated, the teacher reinforces the concept of opposition in cues, demonstrations, explanations,

		lead-ups, and possible future lessons. Teacher adapts activities, drills, lead-ups, etc. according to student success.
o.	Lesson presentation is changed in response to observation of student performance and/or information from formative assessment	Teacher actively monitors student progress throughout the lesson, (through observation of student performance, questioning for understanding, student worksheets, etc.), and changes lesson presentation based on current levels of performance and content understanding. The teacher may choose to refocus instruction on a single component of the skill, such as opposition.
p.	Independent learning is promoted, encouraged and reinforced through daily assessments	The students use resources within and outside the school to increase their knowledge and skills. For example, a bulletin board is created using pictures, activity logs, and/or reflections of students applying skills and content outside of class.
q.	Technology enhances instruction	Teacher is aware of latest trends and availability of technology for physical education. Teacher incorporates available technology (e.g., heart rate monitors, computer-based fitness assessments, pedometers, music, etc.) to facilitate learning the skill or concept. Posters, pictures, video clips or other media of the skill are used appropriately.
r.	Lesson pace is appropriate	The pace of the activities, instruction, transitions, etc. is appropriate to keep students engaged. The pace is not too fast or too slow such that students go off task and become disruptive.
s.	Appropriate closure is provided	There is a closure which includes a review, discussion, or summary of the skills or concepts learned.

2.	Evidence of Student Learning	
a.	Assessment is based on mastery of learning expectations and aligned with local, state and national standards	Assessments are aligned with local, state and NASPE national standards. For example, when assessing mastery of NASPE Standard # 2 (movement concepts and principles) the teacher has second graders state three critical cues for dribbling with the hand (use fingerpads, dribble waist high, look forward). For the secondary learners the students could engage in peer teaching.
b.	Grading is based on assessment of student learning	Grading is based on mastery criteria for skills and concepts. Grading based only on attendance and class participation is unacceptable.
c.	There is ongoing formal and informal assessment	Teacher consistently monitors students' performance and re-teaches or provides reinforcement. Success or non-success of the skills or concepts can be observed

		and measured.
d.	Assessment criteria is communicated to students	Students clearly understand what is expected for mastery of the skill or concept. Demonstrations are provided for skills and expectations for quality and quantity of performance is clearly explained. For example, students are fully aware of the mastery criteria for the overhand throw.
e.	Multiple assessment strategies and tools are used (formative and summative) to monitor student learning	Teacher monitors and documents students' progress toward mastery of the skills and concepts. Summative assessments are used to document mastery or non-mastery. Teacher incorporates a variety of assessments. These may include skill tests, peer observation checklists, self-assessments, portfolio assignments, event-task projects, fitness concept application assignments and scores. Student work and assessments are available upon request.
f.	Students can self-assess and are aware of their own progress toward learning goals	Students are familiar with skill expectations and are provided accurate and timely feedback such that they can self assess as appropriate. Teachers might use student self-checklists so that students can document their progress.
g.	Students are able to articulate relevance and transfer of learning	Students describe how learned skills or concepts are applied to other sports, personal fitness goals and daily life.
h.	Students demonstrate creative and critical thinking skills	Students are given opportunities for choice. For example, students generate strategies in games and activities, or students select the distance from the wall to throw. Teacher allows students opportunities for inquiry learning and divergent learning. For example, when teaching rhythms and dance, students are given opportunities to create rhythmic sequences. Students understand positive choices regarding their behavior.
i.	Evidence of students' independent learning outside of class is part of assessment	Teacher maintains student generated portfolios with examples of independent learning (fitness/activity logs, PowerPoint presentations, journal reflections, videos).
j.	Student progress is documented in a retrievable record-keeping system	Teacher can produce records (e.g., skill tests, fitness assessments, checklists, etc.) which document student performance. Assessments are properly recorded.
k.	Student progress and achievement is communicated regularly to relevant stakeholders	What students know and are able to do in physical education is communicated. For example: Individual data is shared with students and/or parents. School- wide data is shared with administrators and/or legislators. Data can include fitness, progress toward mastery of benchmarks, etc.

3.	Management/Organization	
a.	Lesson plans and curriculum are aligned w/ current local, state and national teaching standards	Teacher refers to local curricular documents, state standards, and <i>Moving Into The Future – National Standards for Physical Education</i> (NASPE) when developing lesson plans.
b.	Instructional area is safe, orderly, and supports learning activities	Teacher makes appropriate decisions regarding selection and arrangement of instructional area. Instructional area is properly prepared for the lesson. There is adequate safe space to facilitate the learning of the skill or concept. Activities are structured and oriented in a way for safe, maximum participation and success. Equipment is ready and accessible, and equipment not in use is stored.
c.	Adequate and developmentally appropriate equipment is accessible and utilized	There is enough equipment for maximum participation. Students do not wait for a turn to use equipment and it is easily accessible such that time is not wasted retrieving it or readying it for activity. Equipment coincides with the developmental levels of the learners. For example, “nerf” balls, larger targets, smaller space, etc. are used for pre-control learners.
d.	Instructional support materials are utilized to enhance the lesson	Instructional support materials such as word walls, pictures of children and/or adults performing skills, charts, instruction packets, and other media resources technology are utilized to enhance the lesson.
e.	Students understand and adhere to class rules, routines and behavioral expectations	Students understand behavior expectations and consequences for misbehaviors. Rules are posted in the gymnasium. The teacher uses positive reinforcement to acknowledge appropriate behavior and performance. Students are motivated to follow rules. There are few, if any, instances of off-task or disruptive behavior.
f.	Class routines maximize instructional time	Students are familiar with the routines. There is orderly entry to the gymnasium, distribution and collection of equipment, grouping, locker room procedures, attendance taking, dismissal, etc.
g.	There is a behavior management plan that is fair, firm, and equitable	Teacher has established rules and behavior expectations, which are clearly understood by the students. There are clearly defined consequences for misbehaviors. Behavior problems are dealt with immediately and on a personal level. Positive reinforcement is issued consistently to those following rules. Students are handled in a compassionate and equitable, yet firm way.
h.	Appropriate behaviors are reinforced consistently	Teacher recognizes and acknowledges appropriate behavior. Students appear motivated to follow rules

		and instructions. Teacher may use reinforcements such as allowing students to begin activity, allowing students to assist with equipment, or allowing students to select equipment for appropriate behavior.
i.	Effective management strategies are used	Teacher is aware of and effectively responds to all situations in class. The teacher does not rely on proximity to manage entire class. For example, individual or groups of students should not be behind the teacher (back –to-the-wall). The students perceive that the teacher has eyes in the back of his/her head and is aware of everything being said and done in class.
j.	Students are actively monitored and closely supervised	Teacher actively observes each student’s performance of the skill to facilitate maximum success. Teacher does not rely only on proximity to monitor student performance and behavior. The teacher actively monitors students across the gymnasium/field/teaching area to enforce and reinforce behavior and skill expectations. Teacher is not just a referee or score keeper in the lesson.
k.	Students are appropriately grouped	The grouping facilitates maximum participation and maximum success. Students work individually, in partners, in small groups, or in larger groups appropriate to the learning. In skill learning, the grouping allows for maximum practice trials. For example, students throw individually to a wall or with a partner instead of having only one ball for a large group, which minimizes practice trials for each student. Students are pre-grouped by the teacher.
l.	Effective and smooth transitions are apparent	Transitions from activity to activity are purposeful and efficient. Students are not confused and time is not wasted. Equipment is situated in ways to facilitate smooth transitions. Changes in grouping and organization are efficient.
m.	Allocated time is used effectively and efficiently allowing students to remain focused on lesson and task expectations	Class begins promptly. Class is not dismissed early. There is no wasted or “free” time. Students are not made to wait for the teacher to set up activities or get out equipment. Every minute is used for instruction reflecting the lesson focus and task expectations. Students do not wait in line or wait for a turn. There are no elimination activities.
n.	Students are engaged in relevant, meaningful physical activity a minimum of 60% of the instructional time	Teacher plans and delivers instruction that allows students the opportunity to be engaged in physical activity a minimum of 60% of the time. The physical activity tasks are aligned with the lesson focus and expected outcomes of the lesson.

o.	Progress toward school improvement goals is documented	As required, data is collected, recorded and displayed for documentation purposes of how physical education contributes to the school-improvement and department goals. Information is analyzed to re-evaluate and establish future goals.
p.	Accurate records are maintained	Teacher can produce accurate records of student attendance, assessment, grades and any other documentation required by stakeholders.

4.	Learning Climate	
a.	Lifelong physical activity and skillful movement are promoted	The learning environment promotes physical activity through the display of posters, pictures, bulletin boards and student work. Teacher uses positive motivational strategies to encourage physical activity. The teacher encourages lifelong physical activity and makes students aware of activity opportunities outside of class. Exercise is never used for punishment. Timeout is not a primary form of punishment. There are no elimination activities.
b.	There is a safe, secure, learning environment that promotes success, appropriate risk taking, positive self-expression and enjoyment	The teaching space is free from clutter, unused equipment, and other safety hazards. Activities are organized and structured to minimize the chance of injury from collision with people or objects, moving equipment, or immovable obstacles (e.g., walls, posts). There is adequate space for the activities selected. Students appear motivated to participate and are willing to take appropriate risks in attempting new skills or incorporating skills into activities. Students accept mistakes as part of learning and eagerly accept teacher feedback. Appropriate music is used to motivate students and enhance the lesson.
c.	High expectations for learning and behavior are evident	Expectations and activities challenge students. Students work hard and remain motivated. Students do not become bored at the lack of challenge or frustrated by too much challenge. The teacher acknowledges the work of all students, not only those who are talented or need remediation.
d.	Climate of courtesy and respect is established	All interactions (teacher to student, student to teacher, student to student, teacher to teacher) are respectful and courteous.
e.	Students demonstrate respect and appreciation for individual differences	Teacher adjusts teaching and expectations based on individual differences and needs. Accommodations and modifications are made for students with disabilities or varied learning styles. All students are included. Teacher is respectful and appreciative of cultural differences and backgrounds. Commonly,

		teachers will incorporate cues and frequently used commands (e.g., “stop,” “go,” etc) in different languages and will teach activities/dances from different cultures.
f.	Students accept responsibility for their learning and actions	Teacher teaches good manner and self discipline by example. The teacher creates a feeling of trust and openness with students. Students exhibit responsibility for the safety of self and others. Students have high expectations of their own behavior. Students give maximum effort.
g.	Students support the learning of others	Students are accepting of others. Students celebrate others. Students foster others’ self esteem. Students regularly encourage others and refrain from bullying and put-downs. Students use maximum effort when working with others.
h.	Students are recognized and praised for efforts and positive contributions	Students are positively reinforced consistently for efforts and skill performance, correct responses, and appropriate behavior. Good sportsmanship and cooperative behaviors are promoted. Inappropriate comments and behaviors are corrected.
i.	All interactions are positive	All interactions (teacher to student, student to teacher, student to student, teacher to teacher) are respectful and courteous. The teacher consistently interacts verbally and with proximity, and uses positive reinforcement to acknowledge appropriate behavior and performance. When negative interaction occurs, teacher intervenes in a proper manner.

5.	Professionalism	
a.	Teacher is a lifelong learner within the profession	Teacher assumes responsibility for professional growth. Teacher accepts that becoming a master teacher is a lifelong process. Teacher is a member of professional organizations (AAHPERD, NASPE, state AHPERD), subscribes to professional journals, and is knowledgeable of current trends.
b.	Teacher is an advocate for the profession	Teacher conveys knowledge of and enthusiasm for the discipline of physical education to students, parents, administrators, colleagues, and other constituents. Teacher communicates the value and importance of the discipline. The teacher is perceived as an ambassador for physical education and its impact on a healthy lifestyle.
c.	Teacher adheres to professional and ethical standards	Teacher understands his/her legal responsibilities. Teacher understands legal and ethical issues as they apply to responsible and acceptable use of internet

		resources. Teacher exercises good judgment in all aspects of teaching and professional activities. Teacher interprets and complies with school policies.
d.	Teacher is receptive to feedback and seeks opportunities for personal growth	Teacher embraces feedback as an opportunity to improve. Welcomes the opportunity to be a better teacher for his/her students. Teacher is receptive to constructive criticism and suggestions.
e.	Teacher participates in professional development organizations	Teacher attends professional conferences such as state, district and/or national AAHPERDs.
f.	Teacher establishes professional objectives each year	Teacher sets goals for his/her teaching and professional development (e.g., based on NASPE standards, school/district goals, personal growth plan, etc.) and monitors progress toward these goals. Teacher regularly analyzes his/her teaching and makes appropriate changes.
g.	Teacher reflects upon and incorporates new learning into practice	As the teacher learns new content, activities, concepts, strategies, etc. he/she integrates them into his/her teaching. The teacher is familiar with the newest trends and research in the physical education profession and adjusts his/her teaching to reflect them.
h.	Teacher shares information, resources and expertise with peers	Teacher willingly and enthusiastically shares health, fitness and physical education information with colleagues, staff, and interested parties.
i.	Teacher is collegial and interacts appropriately with staff, parents and school volunteers	Teacher solicits and encourages interactions and/or assistance from parents and volunteers. Parents and volunteers can assist with Field Days, fitness assessments, etc.
j.	Teacher is an integral, contributing member of the school community	Teacher is an active member of staff meetings and school-based committees. Participates in school-wide activities. Teacher is an active member of the professional learning community at large.
k.	Teacher collaborates with community, colleagues, staff, and resource persons	Teacher establishes collegial relationships with peers, school staff, parents, and community members to meet school goals, enhance his/her teaching, and facilitate student learning.
l.	Teacher models appropriate appearance and behavior	Teacher models behavior expectations, a physically active lifestyle, healthful practices, and correct oral and written expression consistently.

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National Association for Sport and Physical Education, an association of the American Alliance for Health, Physical Education, Recreation and Dance

Intervention Satisfaction Score

Please evaluate how positively you viewed the training session.

- | |
|-----------------------------------------------------------------------------------------------------------------------|
| 1- Very satisfied
2- Satisfied
3- Neither satisfied nor dissatisfied
4- Dissatisfied
5- Very dissatisfied |
|-----------------------------------------------------------------------------------------------------------------------|

1 2 3 4 5

Six-weeks in Virtual Space

Directions: Each week you will be asked to logon to the private blog site located at _____ . Only physical education teachers from your district will access this site. When you “leave a comment” use the name _____ to help ensure privacy. When posting comments, **DO NOT** use your real name or provide an email address. The goal of this activity is to help you collaborate at the K-12 level with physical education teachers in your district. Please do this regularly. As a starting point for discussion, you will be asked to discuss how you are using (or could use) the following NASPE national content standards each week for each of the next six weeks. You will also be provided with sample benchmarks for each standard. Please direct any questions you might have to mattbuns@iastate.edu.

BLOG SCHEDULE

Week	Standard
1 Date:	Standard 1: Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities.
2 Date:	Standard 2: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.
3 Date:	Standard 3: Participates regularly in physical activity.
4 Date:	Standard 4: Achieves and maintains a health-enhancing level of physical fitness.
5 Date:	Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.
6 Date:	Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Post-Baseline Questions

- 1. For each grade, what did you teach this week?**
- 2. Did you assess this week? If so, how and what?**
- 3. Have you contacted teachers from other districts?**
- 4. What changes have you made to your district curriculum since the beginning of this study (if any)?**
- 5. Have you had contact with other physical education teachers in your district in the previous 6 weeks? If yes, please explain (e.g., formal curriculum meetings, share office, co-teach, general faculty meeting, social contact, informal in the hallway, email, etc.)**

APPENDIX J: Agenda and Materials for Iowa Healthy Kids Act Discussion...

What is the Healthy Kids Act Requirement for K-5 graders? For 6-12 graders?

How are schools to keep track of student physical activity as required by the Healthy Kids Act?

Does this mean that school officials may not withhold recess as a disciplinary measure?

If a school allows marching band, drill team, and other non-sport activities to count as physical activity, does the activity also count for the physical education waiver?

May a school refuse to allow non-school activities to count as physical activity?

What if a student is physically unable to fulfill the physical activity requirement?

May a parent ask that the parent's child be exempt from the physical activity requirement?

What if a school's grade alignment doesn't match the time requirements in the Healthy Kids Act? (For example, the school district has a middle school with students in grades 5-8.) Are students required to have 30 minutes of physical activity each day?

May a school average out of the 120 minutes a week of physical activity in grades 6-12 over a month, semester, or year?

May a school refuse to graduate a student who has not met the physical activity requirement?

Why is the State Board of Education imposing these new requirements?

Do you think the Iowa Healthy Kids Act will help reduce childhood obesity?

What is the timeline for the Healthy Kids Act?

Where can the adopted rules for the Healthy Kids Act be found?

How are you dealing with the Healthy Kids Act?

How are schools to keep track of student physical activity as required by the Healthy Kids Act?

When does the physical activity requirement become effective?

What is the requirement for CPR in the Healthy Kids Act?

When does the CPR requirement become effective?

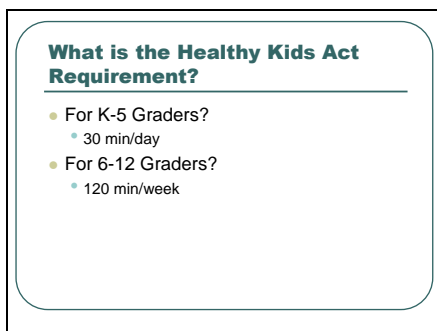
Control Meeting, Healthy Kids Act Legislation PowerPoint

Slide 1



Mention that in the spirit of collaboration we can act as a team—they are helping me, I am working with them, etc

Slide 2



Physically able students in grades K – 5 must have a minimum of 30 minutes each school day of physical activity. This can be easily met in these grades between physical education class and recesses. There is no requirement that schools mandate a specific activity during recess, but schools are urged to have recess supervisors encourage students to participate in games and appropriate activities.

Physically able students in grades 6 – 12 must be physically active a minimum of 120 minutes per week in which there are five school days

Slide 3

How are schools to keep track of student physical activity as required by the Healthy Kids Act?

- Elementary Possibilities
- Secondary Possibilities

For students in grades K – 5, one way to demonstrate this is through a building schedule showing the times for recess and physical education on a school day. Public schedules for higher elementary grades will also suffice if a reader can reasonably see that physical activity time is provided.

For students in grades 9 – 12 (and 6 – 8, if necessary), non-school activities are eligible to be included as physical activities. Non-school activities do not have to be adult-supervised or formally structured, but should include physical activity such as individualized exercise plans for students. One way to track the requirement is by means of a form such as the one included at the end of this document. A school may customize the form by adding or deleting examples of activities; give to students at registration or homeroom; and keep on file to demonstrate that the school is expecting students to take this requirement seriously.

Slide 4

Does this mean that school officials may not withhold recess as a disciplinary measure?

- No

No. School officials may still – within reason – use the withholding of recess as a disciplinary measure.

Slide 5

May a school refuse to allow non-school activities to count as physical activity?

- Yes

Yes, but the school may not require students to participate in interscholastic sports or other school activities, and the school must make sure that it offers students the opportunity to meet the physical activity requirement without reducing instructional time for academic courses.

Slide 6

What if a student is physically unable to fulfill the physical activity requirement?

- Should be excused by administration

That student should be excused by school administrators. The requirement is mandated only for “physically able” students, and determining who is physically able is left to the judgment of local school officials.

Slide 7

May a parent ask that the parent's child be exempt from the physical activity requirement?

- Yes

Yes. The Healthy Kids Acts allows a student to be excused from the physical activity requirement if the child's parent or guardian files a written statement with the school principal stating that the requirement conflicts with their child's religious belief. As with the “religious belief” exemption for P.E. and health, the school is not to demand proof of the parent's statement and has no obligation to provide an alternative activity.

Slide 8

What if a school's grade alignment doesn't match the time requirements in the Healthy Kids Act?

- self-contained classrooms = 30 min/day
- multiple teachers = 120 minutes a week.

The breakdown of K-5 and 6-12 reflects the basic intent of the law that students in self-contained classrooms must have 30 minutes a day; those with multiple teachers must have 120 minutes a week. Generally speaking, then, students in a K-6 elementary building must have 30 minutes of physical activity daily. Students in a 5-8 middle school may adhere to the weekly requirement of 120 minutes.

Slide 9

May a school average out of the 120 minutes a week of physical activity in grades 6-12 over a month, semester, or year?

- No

No, The legislation states that it is a weekly requirement. "Week" includes only those weeks in which there are at least five school days.

Slide 10

May a school refuse to graduate a student who has not met the physical activity requirement?

- No

No. The physical activity requirement is an accreditation requirement, not a student-specific requirement. Schools are to monitor this requirement, and failure to substantially monitor is an accreditation issue, but individual students are not to be punished.

Slide 11

Why is the State Board of Education imposing these new requirements?

- In 2008 the Iowa Legislature passed legislation known as the Healthy Kids Act.

Slide 12

Where can the adopted rules for the Healthy Kids Act be found?

- Handout

The adopted rules are available electronically at <http://www.legis.state.ia.us/asp/BulletinSupplement/bulletinListing.aspx> (May 20, 2009 Bulletin). All of the DE's rules are available at <http://www.legis.state.ia.us/asp/ACODocs/chapterList.aspx?pubDate=05-06-2009&agency=281>. After May 20, the new CPR and physical activity requirements are in chapter 12; the nutrition content standards in chapter 58.

Slide 13

When does the physical activity requirement become effective?

- 2009-2010 school year

This part of the Healthy Kids Act is effective for the 2009-2010 school year.

Slide 14

What is the requirement for CPR in the Healthy Kids Act?

- Do not need to receive certification
- The course must include components that would lead to certification

Prior to graduating, a student in a school district or accredited nonpublic district must complete a course in CPR. There is no requirement that the student receive a certification for having completed the course. However, the course must include components that one would find in a course that leads to certification. The purpose is to provide students with the skills to assist a classmate or staff member in cardiac distress. If a course meets that purpose, the DE believes that the course is acceptable.

The rules do not permit an infant-only CPR course for the reason that such a course would not equip a student with the skills necessary to assist a peer or adult.

Slide 15

When does the CPR requirement become effective?

- Graduating class of 2012

This part of the Healthy Kids Act becomes effective with the graduating class of 2012.

Slide 16

How are you dealing with the Healthy Kids Act?

Slide 17

Do you think the Iowa Healthy Kids Act will help reduce childhood obesity?

Handout, Healthy Kids Act Legislation

Senate File 2425

DIVISION XI HEALTHY KIDS ACT

Sec. 139. SHORT TITLE. This Act shall be known and may be cited as the "Healthy Kids Act".

Sec. 140. Section 256.7, Code Supplement 2007, is amended by adding the following new subsection:

NEW SUBSECTION . 29. Adopt rules establishing nutritional content standards for foods and beverages sold or provided on the school grounds of any school district or accredited nonpublic school during the school day exclusive of the food provided by any federal school food program or pursuant to an agreement with any agency of the federal government in accordance with the provisions of chapter 283A, and exclusive of foods sold for fundraising purposes and foods and beverages sold at concession stands. The standards shall be consistent with the dietary guidelines for Americans issued by the United States department of agriculture food and nutrition service.

Sec. 141. Section 256.9, Code Supplement 2007, is amended by adding the following new subsections:

NEW SUBSECTION . 57. Convene, in collaboration with the department of public health, a nutrition advisory panel to review research in pediatric nutrition conducted in compliance with accepted scientific methods by recognized professional organizations and agencies including but not limited to the institute of medicine. The advisory panel shall submit its findings and recommendations, which shall be consistent with the dietary guidelines for Americans published jointly by the United States department of health and human services and department of agriculture if in the judgment of the advisory panel the guidelines are supported by the research findings, in a report to the state board. The advisory panel may submit to the state board recommendations on standards related to federal school food programs if the recommendations are intended to exceed the existing federal guidelines. The state board shall consider the advisory panel report when establishing or amending the nutritional content standards required pursuant to section 256.7, subsection 29. The director shall convene the advisory panel by July 1, 2008, and every five years thereafter to review the report and make recommendations for changes as appropriate. The advisory panel shall include but is not limited to at least one Iowa state university extension nutrition and health field specialist and at least one representative from each of the following:

- a. The Iowa dietetic association.
- b. The school nutrition association of Iowa.
- c. The Iowa association of school boards.
- d. The school administrators of Iowa.
- e. The Iowa chapter of the American academy of pediatrics.
- f. A school association representing parents.
- g. The Iowa grocery industry association.
- h. An accredited nonpublic school.
- i. The Iowa state education association.
- j. The farm-to-school council established pursuant to section 190A.2.

NEW SUBSECTION . 58. Monitor school districts and accredited nonpublic schools for compliance with the nutritional content standards for foods and beverages adopted by the state board in accordance with section 256.7, subsection 29. School districts and accredited nonpublic schools shall annually make the standards available to students, parents, and the local community. A school district or accredited nonpublic school found to be in noncompliance with the nutritional content standards by the director shall submit a corrective action plan to the director for approval which sets forth the steps to be taken to ensure full compliance.

Sec. 142. Section 256.11, subsection 6, Code Supplement 2007, is amended to read as follows:

6. a. A pupil is not required to enroll in either physical education or health courses , or meet the requirements of paragraph "b" or "c", if the pupil's parent or guardian files a written statement with the school principal that the course or activity conflicts with the pupil's religious belief.

b. (1) All physically able students in kindergarten through grade five shall be required to engage in a physical activity for a minimum of thirty minutes per school day.

(2) All physically able students in grades six through twelve shall be required to engage in a physical activity for a minimum of one hundred twenty minutes per week. A student participating in an organized and supervised athletic program or non-school-sponsored extracurricular activity which requires the student to participate in physical activity for a minimum of one hundred twenty minutes per week is exempt from the requirements of this subparagraph.

(3) The department shall collaborate with stakeholders on the development of daily physical activity requirements and the development of models that describe ways in which school districts and schools may incorporate the physical activity requirement of this paragraph into the educational program. A school district or accredited nonpublic school shall not reduce instructional time for academic courses in order to meet the requirements of this paragraph.

c. Every student by the end of grade twelve shall complete a certification course for cardiopulmonary resuscitation. The administrator of a school may waive this requirement if the student is not physically able to successfully complete the training. A student is exempt from the requirement of this paragraph if the student presents satisfactory evidence to the school district or accredited nonpublic school that the student possesses cardiopulmonary resuscitation certification.

Sec. 143. Section 273.2, Code 2007, is amended by adding the following new subsection:

NEW SUBSECTION . 7. The board of an area education agency or a consortium of two or more area education agencies shall contract with one or more licensed dieticians for the support of nutritional provisions in individual education plans developed in accordance with chapter 256B and to provide information to support school nutrition coordinators.

Sec. 144. DEPARTMENT OF EDUCATION - FITNESS WORKING GROUP. The department of education shall convene a working group comprised of elementary and secondary education and fitness professionals and stakeholders to assist the department in developing daily physical activity opportunities and requirements and developing models that describe ways in which school districts and schools may incorporate physical activities for students into the educational program as provided in section 256.11, subsection 6, paragraph "b", as enacted by this Act. The working group shall also develop recommendations for a system of implementation that offers every student the opportunity to become physically active. The department of education shall

submit its findings and recommendations, including any recommendations for changes in policy or statute, in a report to the general assembly by January 15, 2009.

Sec. 145. EFFECTIVE DATE. The section of this division of this Act that amends section 256.11, subsection 6, takes effect July 1, 2009.

TEACHAER BELIEFS ABOUT IOWA HEALTHY KIDS ACT

Directions. This questionnaire is designed to help us gain a better understanding of the influence of the Iowa Healthy Kids Act requiring minimum amounts of physical activity for students which was passed in July, 2009. Please indicate your beliefs about each of the statements below. Your answers will remain confidential.

1. For what grade(s) do you teach physical education (circle all that apply)?
 - a. Elementary
 - b. Middle school
 - c. High School

2. Has the Healthy Kids Act influenced physical activity for students in your school?
 - a. Yes, increased physical activity
 - b. Yes, decreased physical activity
 - c. No change

3. Does your school keep track of student physical activity?
 - a. Yes
 - b. No
 - i. If yes, how?

4. For students not enrolled in physical education, does your school **ensure** that students are receiving adequate amounts of physical activity outside of school?
 - a. Yes
 - b. No
 - i. If yes, how?

5. Do school officials or teachers withhold recess as a disciplinary measure in your school?
 - a. Yes
 - b. No

6. Does your school offer students the opportunity to meet the physical activity requirement without reducing instructional time for academic courses?
 - a. Yes
 - b. No
 - c. I don't know

7. In your school, who is responsible for determining "physically able" students?
 Job Title(s): _____

8. Do you agree or disagree with the State Board of Education's decision to impose the new requirements of the Healthy Kids Act?
 - a. Agree
 - b. Disagree

9. Have you read the adopted rules for the Healthy Kids Act?

- a. Yes
 - b. No
10. What percentage of students in grades K-5 receive 30 minutes per day of physical activity?
_____%
11. What percentage of students in grades 6-12 receive 120 minutes per week of physical activity?
_____%
12. Would you find assistance in developing physical activity models that describe ways in which your district may increase physical activity to be helpful?
- a. Yes
 - b. No
13. Has your school district successfully implemented the Healthy Kids Act requirements?
- a. Yes
 - b. No
 - c. I don't know
14. Who is responsible for the implementation of the Healthy Kids Act in your district?
Job Title(s):_____
15. How would you rate your level of involvement in the implementation of your district physical activity assessment plan? (1 = no involvement, 5 = extremely involved)?
- | | | | | | |
|--|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
16. How familiar are you with the Iowa Healthy Kids Act requirements for physical activity? (1 = not familiar, 5 = extremely familiar)?
- | | | | | | |
|--|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
17. What do you perceive as **barriers** that make it difficult to meet requirements of the Healthy Kids Act, if any?
18. What do you perceive as **benefits** as the result of the Healthy Kids Act, if any?

Appendix J

Table 1. Baseline characteristics and mean self-efficacy scores for dropouts and completers in control and experimental group (all participants).

Variable	Dropouts (<i>n</i> = 12)		Completers (<i>n</i> = 48)		
	Baseline Mean (<i>SD</i>)	95% CI (Lower, Upper)	Baseline Mean (<i>SD</i>)	95% CI (Lower, Upper)	ES
ESBI	67.75 (19.70)	55.23, 80.27	74.76 (11.77)	71.35, 78.18	.43
<i>Knowledge</i>	15.88 (5.38)	12.46, 19.29	18.61 (3.36)	17.63, 19.58	.61
<i>Instruction</i>	17.48 (5.25)	14.24, 20.72	19.71 (2.96)	18.85, 20.58	.52
<i>Planning</i>	17.43 (5.29)	14.07, 20.78	18.78 (3.78)	17.68, 19.87	.29
<i>Assessment</i>	16.97 (4.91)	13.85, 20.09	17.67 (3.98)	16.52, 18.83	.16
TESPE	93.17 (9.20)	87.32, 99.01	95.73 (8.35)	93.31, 98.15	.21
<i>Skill</i>	23.83 (3.24)	21.77, 25.89	24.39 (2.14)	23.77, 25.02	.15
<i>Preparation</i>	22.42 (2.50)	20.83, 24.01	23.40 (3.04)	22.51, 24.28	-.35
<i>Communication</i>	23.25 (3.17)	21.24, 25.26	24.38 (2.45)	23.66, 25.09	.40
<i>Motivation</i>	23.67 (2.46)	22.10, 25.23	23.56 (2.36)	22.88, 24.25	-.05
TSES	82.70 (12.44)	76.87, 88.53	82.17 (12.57)	75.24, 89.17	.04
<i>Instruction</i>	27.55 (3.36)	25.98, 29.12	29.08 (2.07)	27.77, 30.40	.55

Table 1. (Continued)

Variable	Dropouts (<i>n</i> = 12)		Completers (<i>n</i> = 48)		ES
	Baseline Mean (<i>SD</i>)	95% CI (Lower, Upper)	Baseline Mean (<i>SD</i>)	95% CI (Lower, Upper)	
<i>Engagement</i>	25.15 (4.67)	22.96, 27.34	24.67 (4.78)	22.02, 27.32	-.10
<i>Management</i>	30.00 (4.41)	27.93, 32.07	29.40 (4.56)	26.82, 31.93	.13

Dropped, participants that provided baseline self-efficacy data but not post-baseline self-efficacy data; Completers, those who completed baseline and end data thus, were in the repeated measures analysis; *SD*, standard deviation; ES, effect size; TSES, Teachers' Sense of Efficacy Scale; TESPE, Teacher Efficacy Scale in Physical Education; ESBI, Efficacy for Standards-based Instruction

Appendix K

The best and poorest standards based on vertical alignment score.

	Best District Standards (n=8) top 8 Teacher n=26		Poorest District Standards (n=8) Teacher n=17		Overall mean (SD)	ES
	M (SD)	UB-LB	M (SD)	UB-LB		
Rationale						
District standards	4.10 (0.88)	3.47- 4.73	4.06 (0.83)	3.63-4.48	4.07 (0.85)	.05
Textbook	3.50 (0.85)	2.89- 4.11	3.12 (0.49)	2.87-3.37	3.26 (0.66)	.57
NASPE Standards	4.30 (1.06)	3.54- 5.06	4.00 (0.94)	3.52-4.48	4.11 (0.97)	.30
Pre-service preparation	3.71 (0.69)	3.35- 4.06	3.60 (0.97)	2.91-4.29	3.67 (0.78)	.13
Students' needs	4.33 (0.50)	3.95- 4.72	3.82 (0.64)	3.50-4.15	4.00 (0.63)	.81
Parents/Community	2.80 (1.32)	1.86- 3.74	2.94 (0.66)	2.60-3.28	2.89 (0.93)	-.13
Prepare for next grade	4.20 (1.03)	3.46- 4.94	3.76 (0.56)	3.48-4.05	3.93 (0.78)	.53
School wellness policy	3.80 (0.79)	3.24- 4.36	3.35 (0.70)	2.99-3.71	3.52 (0.75)	.60
Professional development	3.50 (0.85)	2.89- 4.11	3.12 (0.49)	2.87-3.37	3.26 (0.66)	.58
Classroom assessment	4.00 (.67)	3.52- 4.48	3.47 (0.51)	3.21-3.74	3.67 (0.62)	.86
Training to perform	3.80 (0.92)	3.14- 4.46	3.76 (0.75)	3.38-4.15	3.78 (0.80)	.05
Training to teach	3.81 (0.90)	3.12- 4.39	4.00 (0.71)	3.64-4.36	3.93 (0.78)	-.23
Instructional time	3.88 (0.93)	3.41- 4.36	3.70 (1.16)	2.94-4.46	3.81 (0.96)	.17
Facilities & equipment	4.10 (0.99)	3.39- 4.81	4.00 (1.23)	3.37-4.63	4.04 (1.13)	.09
State content	2.67 (1.00)	1.90- 3.44	2.47 (0.94)	1.99-2.96	2.54 (0.95)	.21
National standard	2.59	2.07-	2.30	1.47-3.13	2.48 (1.10)	.27

Appendix K. (continued)

	(1.16)	3.10	(1.00)			
Alignment of instruction to standards	2.60 (1.27)	1.70- 3.50	2.18 (0.81)	1.76-2.59	2.33 (1.00)	.39
Align standards to benchmarks	2.80 (1.23)	1.92- 3.68	2.65 (0.79)	2.24-3.05	2.70 (0.95)	.15
Individual differences in student learning	2.10 (1.29)	1.18- 3.02	2.47 (0.87)	2.02-2.92	2.33 (1.04)	-.34
Assessment	2.16 (1.17)	1.24- 2.96	2.76 (0.97)	2.27-3.26	2.52 (1.19)	-.50
Technology	2.90 (0.99)	2.19- 3.61	2.88 (0.99)	2.37-3.39	2.89 (0.97)	.02
Student interest/ choice	3.50 (0.97)	2.80- 4.20	3.76 (0.75)	3.38-4.15	3.67 (0.83)	-.30