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METHODOLOGY

Physical Education Teachers' Fidelity to and Perspectives of a Standardized Curricular Model

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Abstract

Relatively little is known about the use of standardized physical education curricular models and teachers' perceptions of and fidelity to such curricula. The purpose of this study was to examine teachers' perceptions of and fidelity to a standardized physical education curricular model (i.e., Dynamic Physical Education [DPE]). Participants for this study were 20 teachers working in 18 elementary schools in the southwestern United States. Prior to the study, teachers were categorized into high-support or nonsupport district groups using a previously validated instrument. Data collection included formal and informal interviews, as well as classroom observations. Trustworthiness measures included data triangulation, peer review, member checks, and a search for negative cases. Three themes emerged from the data: (a) teachers' support levels influenced their perceptions of and fidelity levels to the curriculum, (b) management techniques emerged as the most important aspect of the DPE curriculum, and (c) teachers' consensus on the primary purpose of physical education.

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This study addressed teachers' perceptions of and fidelity to a standardized physical education (PE) curricular model. The bodies of literature that guided this study were standardized curricula in PE and teachers' fidelity to curricular models.

Standardized Curricula

The No Child Left Behind (NCLB) act in the United States has resulted in increased pressure on school systems to focus on standardized test scores. In turn, school administrators have been placing pressure on teachers to prepare students for taking standardized tests (Reynolds, 2007; Wohlwend, 2009). In response to those pressures, some schools and districts have adopted standardized curricular programs for teachers to use. These curricula vary from rigid programs with detailed scope and sequence plans that attempt to standardize student experiences, to models that provide a generic framework to guide teachers with instructional content.

Advocates of standardized curricula argue that following a common curricular model helps define more explicitly what students need to learn, thereby improving test scores and student learning outcomes (Clifford & Marinucci, 2008). However, there are several criticisms of standardized curricula. Classroom teachers have reported that standardized curricula narrowed their discretion, discouraged effective instruction, and focused on lower order student learning (Owaga, 2006). Furthermore, some teachers have also reported that a standardized curricular model may limit their opportunities to build a flexible, professional knowledge base that they can use in many classroom situations (Milosovic, 2007). Teachers may prefer to use their personal knowledge and expertise to teach, instead of following a curriculum verbatim, which is the case when they are expected to use a "teacher-proof" standardized curriculum written by textbook publishers (Kohn, 2008). When classroom lessons focus on teaching to the test, students may become good at following directions, but less skilled at thinking critically and developing a personal sense of inquiry with "real" world problems (Owaga, 2006).

The standardized curricula trend has recently become more popular within the PE context (Kohn, 2008). Standardized curricular models in PE are not driven by the same testing pressures as traditional academic areas, but appear to be driven by a public health focus and the increased emphasis on providing children with adequate amounts of physical activity (PA). This focus is related to the fact

that childhood and adolescent obesity has more than tripled in the past 30 years (Centers for Disease Control and Prevention, 2010), due in part to lower PA levels in children of all ages. Standardized PE curricula are often designed for trained PE specialists, as well as elementary classroom teachers who are asked to teach PE but may be underskilled and need additional support.

A number of these standardized PE curricula models now exist and are used in the United States, including Dynamic Physical Education (DPE; Pangrazi & Beighle, 2012); Sports, Play, and Active Recreation for Kids (SPARK, 2009); and the Exemplary Physical Education Curriculum (EPEC, 2009). For example, in one southwestern state in the United States, at least one district (all K–12 schools) mandates the use of the DPE curricular model (Pangrazi & Beighle, 2012). Similarly, in the state of California, PE teachers and classroom teachers commonly use the SPARK curricular model (SPARK, 2009), whereas in the State of Michigan, the EPEC curricular model is often used (EPEC, 2009).

Perhaps the most frequently studied of the PE standardized curricular models is the SPARK program. Studies have shown the SPARK curricular model to have positive effects on children's PA levels during PE lessons compared with the PA outcomes of students who did not participate in the SPARK curricular model (McKenzie, Sallis, & Rosengard, 2009; Sallis et al., 1997). Student PA outcomes were compared among classes with trained PE teachers using SPARK, trained classroom teachers using SPARK, and control teachers not using SPARK. The students in the classes taught by the trained classroom teachers were 39% more active than the control group students (McKenzie et al., 2009). Also, students in the classes taught by a PE specialist were 70% more active than students in the control group (McKenzie et al., 2009).

Another PA-driven standardized PE curricular model is DPE. Morgan, Beighle, and Pangrazi (2007) studied the DPE curriculum and found that students taught with the model were physically active for almost 50% of PE class time (measured via pedometry). Davis, Prusak, Pennington, and Wilkinson (2008), studied students' perspectives of the DPE curriculum and found that they generally had positive perspectives of PE in programs using the model. Students also believed that their PE teachers were highly engaged and had strict management procedures. Additionally, Prusak, Pennington, Vincent-Graser, Beighle, and Morgan (2010) reported that the DPE curricular model was a "systemic success"

in one school district in the southwestern United States because (a) the curricular model was district mandated, (b) teachers received systematic ongoing professional development opportunities directly related to the curriculum, (c) there was a strong partnership with the local university, and (d) a highly engaged district coordinator was employed in the district. Although few studies address student learning outcomes from the DPE model, the curriculum has been tested and revised for over 40 years, and teacher feedback and anecdotal evidence have been used to update the model (Kulinna, 2008).

Districts using the EPEC curricular model have reported similar positive outcomes from this mandated curriculum. For example, elementary-aged children taught using the EPEC model improved their healthy behavior knowledge scores in comparison to students taught with other nonstandardized PE curricular programs (Kulinna, 2008). Furthermore, teachers using the EPEC curricular model who received professional development training reported higher teaching efficacy and more positive psychosocial perceptions of the curriculum (McCaughtry, Kulinna, & Cothran, 2006).

Dynamic physical education (DPE): Elementary school. The DPE curricular model includes a resource text with complete lesson plans for each unit. There is a program of lessons for kindergarten to Grade 2, a program for Grades 3 and 4, and lessons for Grades 5 and 6. Skills are taught in progression, from simple to complex, so that each child may be successful. Furthermore, to maximize practice time, it is recommended that each student have her or his own piece of equipment, ranging from jump ropes to beanbags and playground balls. The curricular model focuses on four major instructional elements: (a) physical fitness, (b) rhythmic activities, (c) body management, and (d) visual–tactile coordination. DPE lessons are structured to include four parts: (a) an introductory activity (2 to 3 min), (b) a fitness development activity (7 to 8 min), (c) a lesson focus (15 to 20 min), and (d) a game activity (5 to 7 min; Pangrazi & Beighle, 2012).

Teachers' Fidelity to Curricular Models in General and Physical Education

Fidelity of implementation in a classroom is the placement of a curricular model in the instructional process (Mills & Ragan, 2000). It is distinguishable from adoption because many curricular models are adopted but never implemented as intended by their designers

(Bond, 1988). Findings from investigations of teachers' fidelity to curricula are mixed, showing a range of implementation levels and student outcomes. In a study examining preschool teachers' fidelity to a language-focused curriculum designed to improve at-risk children's language outcomes through targeted improvements to a classroom's activity contexts (e.g., dramatic play, art, storybook reading) and instructional processes, the teachers exhibited fidelity to activity contexts more readily than to instructional processes (e.g., teachers' use of open-ended questions, recasts, and expansions), showing generally high fidelity to the activity context of the curriculum (Pence, Justice, & Wiggins, 2008). Another study investigating teachers' fidelity to a substance abuse prevention curriculum showed that 49% of the teachers implemented one or more of the lessons with students over a 3-year period, suggesting low to moderate fidelity levels (Hahn, Noland, Rayens, & Christie, 2002). Furthermore, in a study measuring whether teachers' fidelity to a curriculum supplement, "MyTeachingPartner," was associated with a growth in children's language and literacy, Hamre et al. (2010) found that when the teachers used the curriculum often and followed lessons (adherence), students made significantly greater gains in early literacy skills across the preschool year than the students who did not receive "MyTeachingPartner" instruction, suggesting that fidelity to the curricular model led to the desired student outcomes. Similarly, the Center for Research on the Educational Achievement and Teaching of English Language Learners (CREATE) examined the effects of teachers' fidelity using the sheltered instruction observation protocol (SIOP) model (Echevarria, Tutor, Chinn, & Ratleff, 2011). Echevarria et al. (2011) reported that when teachers used SIOP with higher levels of fidelity, the performance of English language learners on measures of language and literacy improved.

Last, a study on the Reconnecting Youth drug prevention program sought to "reconnect" high-risk youth to school with the specific objectives of improving academic achievement (GPA and attendance), reducing or preventing drug use, and improving mood management (depression, anger, and anxiety). Findings indicated that although teachers were using the model with high levels of fidelity, the program actually produced the opposite effect (i.e., increased alcohol use and anger in youth; Sanchez et al., 2007).

Fidelity studies of PE curriculum implementation have been rare. This may be because most PE programs are designed and implemented by PE specialists in districts where no specific

curricular model is required to be taught. Dowda, Sallis, McKenzie, Rosengard, and Kohl (2005) studied the sustainability of the SPARK curriculum program in schools that adopted the program through extensive professional development efforts. Study results showed that up to 80% of school personnel were still using the program 4 years after initial training (Dowda et al., 2005; McKenzie et al., 2009). In a similar study, at the 5-year follow-up conducted to evaluate the sustainability of the Coordinated Approach to Child Health (CATCH) program and teachers' use of the SPARK curriculum, results showed that more than half of the teachers trained to use the SPARK curricular model were still using it consistently (McKenzie et al., 2003). Moreover, Kulinna, McCaughtry, Cothran, and Martin (2006) studied the EPEC model and reported that teachers used the district's curriculum about half of their teaching time. In this particular study, findings reflected the difficulties of district-wide curricular adoption and teachers' reluctance to buy in to a program that may not meet the needs of the student population.

Teachers' fidelity to physical education teacher education (PETE) program curriculum. The aforementioned studies mostly looked at the sustainability of curricula use established primarily through the professional development of in-service teachers at the district level. Another closely related area of research is fidelity to the curricula taught in teachers' physical education teacher education (PETE) programs once they are teaching in K–12 schools. This is an important area of research, as it is hoped that beginning teachers will teach curricula and methods learned in their PETE training programs. PETE programs can significantly impact teachers' beliefs, teaching styles, and curricula adoption. In studies of the University of South Florida's PETE program, which is considered to be highly successful in impacting PETE students beliefs about teaching (Graber, 1996; Rovegno, 1993), the following factors helped make the PETE program particularly effective: (a) adoption of a single curricular model, (b) faculty consensus about the training of students in a nontraditional approach, (c) completion of the program in cohort groups, thus allowing more collaboration, (d) compulsory student participation in professional development courses throughout their training, and (e) early and frequent placement of students into internships (Graber, 1996; Rovegno, 1993). These early internships and ongoing professional development opportunities lead students to have more concrete understandings of and commitments to specific curricular models (Rovegno, 1993).

Teachers' fidelity to DPE. Morgan et al.'s (2007) study was a small initial study of students' PA outcomes in classes that used the DPE curricular model. Further studies of students' outcomes and teachers' behaviors and fidelity to DPE and all curricular models are needed. Specifically, to date, there is little empirical evidence on students' outcomes related to the DPE curriculum (Kulinna, 2008) and no studies could be identified that looked at teachers' fidelity to the DPE curricular model. Therefore, the purpose of this study was to investigate teachers' perceptions of and fidelity to a standardized curricular model (i.e., DPE), which had been the focus of their PETE program, 2 to 7 years after their graduation.

Methods

Recruitment, Participants, and Settings

To be included in the pool of potential participants for this study, teachers had to have been teaching between 2 and 7 years and graduated from a PETE program that specifically prepared teachers to employ the DPE curricular model (Pangrazi & Beighle, 2012). Teachers also had to be teaching in districts that mandated DPE usage or that strongly suggested that this model be implemented within their district. Forty-four potential participants were identified that met the inclusion criteria. Teachers were recruited via e-mail, phone calls, and school visits. From this pool, 20 PE teachers working in 18 elementary schools in seven different school districts in a southwestern state volunteered to serve as participants in this study. Ten teachers were working in a high-support district, and 10 teachers were working in low-support districts as determined in a prior study (Kloeppel, Kulinna, Stylianou, & van der Mars, 2013).

In this previous study, teachers were grouped based on the level of support provided by their districts. Districts qualified as providing high levels of support for DPE if they (a) provided regular (at least one time per semester) professional development training directly related to DPE, (b) presented district information stating that the DPE model was adopted, (c) indicated that they require/desire to hire PE teachers trained in the DPE model (e.g., informal interview, district website), and (d) provided the PE programs with adequate levels of equipment (one piece of equipment per student).

Participants

Teachers (male, n = 10; female, n = 10) reported their ethnic backgrounds as White (n = 11), Hispanic (n = 4), Asian (n = 2), African American (n = 2), and Native American (n = 1). Participants' teaching experience ranged from 2 to 7 years, with a mean of 4.7 years (SD = 1.66 years). Ten participants in this project were from high-support districts and 10 participants were from nonsupport districts. Institutional Review Board (IRB) approval was obtained from the University prior to conducting this study. Approval was also obtained from each participating school district and principal. Finally, participants provided their consent.

Data Collection

Field notes. Each teacher was observed teaching PE three times during one semester. Each observation occurred over a half school day. During the lessons, the researcher would type as many phrases, instructions, and student-to-teacher interactions as possible. The researcher also attended the monthly PE teacher professional development trainings held in school districts when they were offered and took additional field notes.

Interviews. Each teacher participated in one to three formal semistructured interviews, which lasted between 30 and 60 minutes. Interviews occurred before or after school hours based on teacher preferences, allowing the participants to expand on ideas without rushing off to teach classes. Interview questions and prompts began very general (e.g., "What do you like best about teaching PE?"). A more specific question that was asked was, "Imagine that you have a student teacher that didn't know anything about your curriculum model. How would you describe it to that person?"

Informal interviews also occurred during each observation with follow-up questions regarding the lessons taught. After the lesson was completed, the researcher reviewed notes and added or elaborated on the reporting. Notes and transcription occurred immediately after each interview so initial patterns or unclear questions and answers could be explored during subsequent school observations and interviews. Interview data were collected using a small digital voice recorder. Formal and informal interviews occurred as needed until data saturation occurred. When no new data evolved from the interviews and observations, data collection concluded.

Data Analysis

Field notes and interviews were examined for disconfirming and confirming cases using a constant comparison technique (Brannen, 2005) that involved recording, coding, and analyzing data. Interviews were immediately transcribed and coded for initial emergent themes and results were used in formulating the next round of interview guides. Themes were then categorized and refined.

Trustworthiness measures included the following procedures. First, peer review and negotiation were used in developing emergent themes and subsequent interview guides. That is, two reviewers independently reviewed the data and subsequently negotiated emergent themes and subthemes. Furthermore, the two reviewers also searched for cases that disconfirmed the emergent themes. Data triangulation occurred by cross-checking research findings using different data sources, including field notes and interview data. Finally, member checks were used, with teachers reviewing and providing feedback on the initial findings, which resulted in minor changes to the themes (Lincoln & Guba, 1985).

Results

Three themes emerged from the field notes and interview data. First, teachers' support levels influenced their perceptions of and fidelity levels to the DPE curricular model. Second, the curriculum "recommended" management techniques were mentioned by all teachers as the most important aspect of the DPE curricular model. The third theme was teachers' consensus on the purpose of PE. Teachers reported that PE should expose students to fitness activities and a variety of physical activities to promote lifelong activity.

More Administrative Support Led to Higher Implementation/ Fidelity to DPE

The 10 high-support teachers had numerous resources available to them. These teachers worked in the same district, which had adopted DPE as the mandated curricular model for PE. This specific district, for instance, had a PE district coordinator who oversaw the teaching and DPE implementation in schools. Additionally, teachers were allocated enough equipment for each lesson so that every student had his or her own piece of equipment. They also had monthly professional development trainings and other resources available to them (e.g., videotaped lesson plans, mentor teachers, curriculum textbook, and university staff).

Rena (high-support) summed up the various levels of support teachers received:

> First of all, your first couple of years of teaching you have a mentor so you always have somebody to refer back and you can call them and ask them for advice and you generally have somebody [who] has been teaching for a large amount of years. If you go into the elementary PE office, there is videotapes of in-services that we've taken. In-services are offered once a month through our district to go over the material of what's upcoming in our curriculum, so you always know what's coming and different ways to teach it.

The curriculum guide and schedule were viewed by these 10 teachers as another area of support. Whitney (high-support) said, "We're given a curriculum and it's pretty much broken down from August to May what we're going to be teaching." Tammy elaborated, "We have a written curriculum handed out every year when you start and it is outlined as detailed as the actual week that you're doing this and we have a corresponding textbook." As a result, the teachers working in the supportive district with strict district oversight to the adherence of the curriculum and numerous resources available followed the curricular model with high levels of fidelity. Whitney, a teacher in the high-support district, stated, "Usually I stick to a curriculum as much as possible. If there are any changes that need to be made, I call [district coordinator] and see if its okay and get the clearance." Reya (high-support) agreed, "We always teach the four parts." Jessica (high-support) stated, "We definitely follow the four part lesson. That is huge. Every lesson that we do incorporates the four parts in the lesson."

The other 10 teachers, who worked in seven surrounding districts, had less support. For example, they lacked equipment, a district coordinator, administrative support within their own school, or quality professional development opportunities. For these teachers, it was not that they did or did not want to follow the DPE curricular model, but that they often felt like they lacked support and/or resources for full curricular adoption. Jake (nonsupport), for instance, stated that his modified version of DPE was due to the following: "Equipment, not having enough equipment for every kid. That's one thing that's emphasized [in DPE], that every kid gets a piece—has a piece of equipment. Well, not every kid has a piece of

equipment, so you have to modify." Craig (nonsupport) agreed that although he would like to teach DPE with higher fidelity, he simply could not: "We don't have benches to do a bench unit. We don't have near enough mats to do gymnastics unit….I don't have a lot of playground balls….I don't have a lot of long jump ropes." Due to the lack of district support, oversight, and lack of resources, the teachers working in the nonsupport districts were not following the model as closely. For instance, Omar (nonsupport) said,

> I follow it for the most part. There are some things that I do not [follow]. I changed, I tweaked stuff around a little bit… like the intro or warm-up, whatever that is…we warm up in different ways and instead of playing game, we just move and breath or just jog.

Additionally, Jake (nonsupport) stated, "I would say mine [curriculum] is a modified version of the DPE model." Finally, Alex (nonsupport) commented, "I typically do three parts to my lesson… because [the district is] a little different." According to these teachers, the model is a great resource and something that they implement at least parts of into each lesson plan.

Students Cannot Learn Without Management

All 20 teachers stated that the most important aspect of the DPE curricular model was the management techniques that they were taught during their PETE training, including (a) grouping students, (b) transitioning students to a new activity, (c) dealing with misbehaving students, and (d) placing equipment on the outside of the teaching perimeter. One teacher even bluntly stated, "Its [DPE's] purpose is for management" (male, nonsupport). Some teachers stated that the management techniques were needed so that student learning could occur. Linda (high-support), for example, stated, "Because we've always been told, which I've seen throughout my years of teaching, of that if a class is not managed, they [students] are not learning."

These teachers agreed that student learning cannot occur if management is not in place. Mary (high-support) stated, "One thing that I do emphasize a lot with the kids is management comes first…. the lesson comes second." "If you don't have management you can't teach anything," Tammy (high-support) stated. Jan (high-support) concurred, "If you can't manage, you can't teach." For

these teachers, management was essential for the PE lesson to run smoothly.

Kurt (nonsupport) summarized the DPE curriculum as "management, management, management….Without management, the kids are just going to do whatever they want." Finally, Jacob (nonsupport) gave an overview of teachers' perceptions to the DPE model:

> I would describe it [DPE] to them [teachers unfamiliar with the model] as an organized simple way of managing a PE class in terms of where your equipment is laid out, how it's laid out, and what you're doing, what the order is of how you're going to do things.

Purpose of Physical Education

Many PE programs have been pushing to incorporate more PA and fitness-building activities to decrease the growing overweight and obesity in youth (McKenzie & Kahan, 2008). Within DPE, 7 to 8 min of every 30-min lesson are devoted to fitness-based activities. Therefore, it is not surprising that the teachers using the curriculum felt strongly about incorporating more PA and fitness-building into PE as a major student learning objective.

When one teacher (female, high-support) was asked what the most important aspect of the DPE model was, she replied, "The fitness because it's something that they [the students] can really take with them and see the importance and see how we incorporate all, you know, the different fitness components." Mary (high-support) agreed, "The fitness is like a key part through every lesson just that there is that consistency. We're always building our strength, always building our endurance, and always moving at our own pace." Another teacher, Jessica (high-support), expanded the role of fitness in her curriculum and discussed how students could transfer the knowledge learned in PE outside of school:

> We introduce the components of fitness and how to design their [students] own exercise plan. And so, I think for us, our goal is to get them to understand what those components are and how they can incorporate them to, you know, design something for themselves.

Finally, Whitney (high-support) summarized the district's perspective of fitness within PE: "We always say the most important is the fitness part because we always state that PE is educating students about how to be physical."

Teachers working within both high-support and nonsupport districts agreed the purpose of PE was to promote a lifetime of PA participation, something they thought the DPE curricular model did well. Besides engaging students in fitness-related activities, the DPE curriculum offers students choices in their PA participation. Tammy (high-support) thought,

> [The DPE curriculum] gives each child an opportunity to experience all different kinds of physical activities so that while they're here they feel that they reach some sort of success and they are motivated to go and continue this activity outside the PE class.

Similarly, Omar (nonsupport), a teacher who did not always have the greatest things to say about DPE agreed, "[The DPE] gives them [students] a variety of activities and let's them find something that they might be interested in other than just the regular team sports that they are used to." Mary (high-support) also concurred, pointing out the need to provide numerous opportunities for students to try activities and feel successful:

> What I like kids to get out of our PE program is an enjoyment of being active. They need to feel successful at what we do and have a chance to try different things that they can enjoy and hopefully take on their own no matter what level they are at.

Along the same lines, Rena (high-support) shared, "We're trying to encourage kids to be active the majority of the time, providing a variety of skills so that no one feels left out." Finally, Clay's (nonsupport) comment provides a nice overview of the teachers' perceptions of the purpose of PE: "The whole idea is just to get them [students] to appreciate living a healthy lifestyle throughout their lives instead of just well around PE or at recess. It's just learning how to be active throughout their life."

Discussion

This study gives insight into two interrelated areas of research that have not received much attention in the field of PE: (a) teachers' fidelity to and (b) teachers' perspectives of a standardized curricular model. In terms of fidelity to curricular model within the field of PE, the limited number of existing studies in this area focused on fidelity to curricular models that had been established mainly through in-service teacher professional development. This study is, therefore, unique in two ways. First, it investigated teachers' fidelity to a curriculum model (i.e., DPE) that had been the focus of the participating teachers' undergraduate PETE program, and second, it investigated fidelity across both supportive and nonsupportive school districts.

Research study results have shown that when teachers have significant teacher preparation on a specific curricular model, ongoing professional development opportunities, and administrative support, curricular models are taught with higher fidelity levels (Brown, Pitvorec, Ditto, & Randall-Kelso, 2009; Graber, 1996; Prusak et al., 2010). This study seems to corroborate these findings. Although in the current study all participating teachers received the same undergraduate PETE training that focused on the DPE model, they received various levels of support in their teaching setting, which influenced their fidelity levels to the DPE curriculum. Specifically, teachers who worked in a high-support district demonstrated high levels of fidelity to the model, whereas teachers in nonsupport districts followed the model less closely, either not using the four-part lesson format or using modified activities and/or activities not included in the curriculum guide.

A significant difference between teachers working in high-support and nonsupport districts was that the high-support district adopted DPE as a mandated curriculum, which enabled them to maintain district-wide accountability. Teachers in the high-support district had strict oversight regarding their adherence to the curriculum (i.e., from a district coordinator) and had limited flexibility to deviate from the curriculum guide (i.e., they were required to use the curriculum guide and were only allowed to deviate from it only 2 weeks of the school year with approval by the district coordinator). On the other hand, teachers working in nonsupport districts reported enjoying more freedom in developing their own curriculum and deviating from the DPE guide.

Beyond the mandated curriculum and oversight/accountability aspect, however, another determinant of fidelity levels to DPE was the available resources reported by teachers. Although all teachers had access to the curriculum guide, teachers in nonsupport districts reported having insufficient amounts of equipment and thus did not have the option of following DPE as closely as high-support teachers did. In this aspect, therefore, fidelity was not a matter of teachers' choice. Related to this, of course, is administrative support. Although the budget/resource allocation for PE is commonly scarce (California Association for Health, Physical Education, Recreation, & Dance, 2008), the administrators and the PE department coordinator in the high-support district worked together to ensure that each student had his or her own piece of equipment for the activities taught (Prusak et al., 2010). Additionally, although most PE programs struggle with their minimal or nonexistent budget, the PE program in the high-support district has expanded the range of activities taught (e.g., golf) and has been resourceful enough to acquire more equipment over the last 20 years.

Regular in-service professional development was another factor that contributed to the differences among teachers' fidelity levels. Specifically, teachers in nonsupport districts had minimal or no professional development opportunities, whereas teachers in the high-support district enjoyed monthly professional development meetings, some of which focused on preparation for upcoming units. Additionally, teachers in the high-support district had access to videotaped in-service meetings. These, of course, supported teachers' ability to maintain high levels of fidelity to the curricular model.

An additional aspect of support that teachers in the high-support district mentioned frequently was mentor teachers. In the high-support district, new teachers are assigned a mentor teacher. In the interviews, however, the teachers in the high-support district often used the term *mentors*, which might indicate that, over time, these teachers unofficially developed mentor-type relationships with other teachers as well (e.g., professional network). According to Armour and Yelling (2007), informal, collaborative learning plays a central role in teachers' learning and professional development over time. Similarly, this type of support may facilitate teachers' fidelity as well.

The aforementioned support factors contributed to the fidelity levels of teachers in high-support and nonsupport districts. The

investigators, however, cannot differentiate among them in terms of their significance to the fidelity outcomes of the study. On the contrary, it seems that all the support factors function in a synergistic fashion to influence fidelity levels.

The current study also examined participating teachers' perceptions of DPE. How teachers feel about implementing a standardized PE curricular model is a pivotal issue within the field of PE and one that has also been studied very little (Prusak et al., 2010). In this study, despite differences in support and fidelity levels, teachers had similar perceptions of DPE. First, the vast majority of teachers mentioned management as the most important aspect of the DPE curricular model. Teachers agreed that without having students under control or managed in classes, student learning could not occur. It seems that training in DPE provided teachers with confidence that they had the tools necessary to effectively manage a PE class, which they thought was essential in providing appropriate instruction. This result is corroborated by a previous study of the DPE curricular model, in which teachers reported that that most critical aspect of DPE was the recommended "management techniques" (i.e., moving and freezing students in between activities, warnings and time-outs for misbehaviors; Kloeppel et al., 2013).

Additionally, teachers reached a consensus regarding the purpose of PE, which, they stated, should be to expose students to fitness activities and physical activities that they can enjoy for a lifetime. This reflects the purpose of PE as stated in the DPE textbook and is also aligned with the contemporary focus of PE and Standards 3 and 4 of the National Association of Sport and Physical Education (NASPE, 2004; Pangrazi & Beighle, 2012).

The findings of this study have several implications. First, universities and school districts may find it beneficial to develop a partnership to train undergraduate students in one highly prescriptive, high-supported curricular model, such as DPE. Research findings (e.g., Graber, 1996; Rovegno, 1993) have demonstrated that adopting and focusing on one curricular model during PETE is a factor that positively contributes to the PETE program's impact on students' beliefs. Second, a district coordinator position can be pivotal in the fidelity of implementation of curricular models, particularly for PE programs that are facing unique challenges, such as limited time and resource allocation. Prusak et al. (2010) identified the role of district coordinator as decisive for the systemic and long-term success of a particular PE program. Third, PE teachers should have

access to regular professional development that is directly related to their subject matter and the activities they are teaching, which many scholars in our field have already stressed (Armour & Duncombe, 2004). Fourth, because resources seem to play a substantial role in the fidelity of curricular model implementation, the district coordinator, as well as the teachers, need to be resourceful, securing funding and equipment for their program through grant applications and fund-raising events. Last, the development of professional learning communities or networks should be encouraged, at least at the district level, as it may enhance teacher collaboration, learning, and fidelity levels.

Overall, this study provides evidence that teachers using a mandated PE curricular model require multidimensional support (e.g., administration, district coordinator, fellow teachers, regular professional development) to be successful in their implementation of the curriculum over time, similar to findings about resources from McCaughtry, Martin, Kulinna, and Cothran (2006).

Future Research

Additional research studies are needed to fully understand teachers' fidelity to and views of standardized curricular models. It would be beneficial to study teachers using curricular models with high and low levels of teacher fidelity and student learning and PA outcomes. Furthermore, it may be beneficial to study undergraduate training programs, as well as in-service training opportunities, for physical educators to better understand how perceptions and fidelity levels change over time.

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