



Case study of a health optimizing physical education-based comprehensive school physical activity program

Cate A. Egan^{a,*}, Collin A. Webster^b, Gregory L. Stewart^c, R. Glenn Weaver^b, Laura B. Russ^b, Ali Brian^b, David F. Stodden^b

^a University of Idaho 875 Perimeter Drive, Moscow, Idaho, 83844, United States

^b University of South Carolina 902 Sumter Street, Columbia, SC, 29208, United States

^c Methodist University 540 Ramsey Street, Fayetteville, NC, 28311, United States

ARTICLE INFO

Keywords:

Whole-of-school approach
Physical activity
Physical education
Evaluation

ABSTRACT

In this article, we report a qualitative case study, in which we examined enablers and barriers related to the development, implementation, and sustainability of a comprehensive school physical activity program (CSPAP) aligned with the Health Optimizing Physical Education (HOPE) curriculum model at a middle school. Literature on program-diffusion and school-university partnerships guided data collection and analysis. Data sources included semi-structured interviews with the program implementation team ($n = 9$) and the school's health and physical education teachers ($n = 7$); a focus group interview with students; documents (e.g., lesson plans), and observations. Constant comparison techniques were used to code and draw out themes from the data. Findings revealed the extensive effort needed for program implementation and highlighted the importance of strong external support mechanisms, conducting needs assessments, and training teachers to market physical activity programming. Partnerships may provide critical support for schools in their efforts to generate and sustain CSPAPs.

Physical education (PE) is considered essential for helping children to develop the knowledge, skills, and dispositions they need to build a physically active life (Sallis et al., 2012). However, recent reductions in PE (Sallis et al., 2012), coupled with objective data showing that over half of America's youth fail to meet the recommended 60 min a day of moderate-to-vigorous physical activity (PA; Troiano et al., 2008) have made it vital from a public health perspective to supplement PE with additional PA opportunities that help children increase their PA levels (Institute of Medicine (IOM) (2013)). Toward this end, the IOM (2013) called for a whole-of-school approach to promoting youth PA.

In tandem with the call for a whole-of-school approach to PA promotion, the focus of school-based PA promotion has centered on comprehensive school physical activity programs (CSPAP; Erwin et al., 2013). The CSPAP model is conceptualized as five interconnected components including (a) PE, (b) PA during school, (c) PA before and after school (d) staff involvement, and (e) family and community engagement (Centers for Disease Control and Prevention (CDC) (2013)). These five components can be designed to work synergistically to expand the PE program and help children achieve the recommended 60 min of daily PA (Webster et al., 2016).

In 2011, the American Alliance for Health, Physical Education, Recreation and Dance (now the Society of Health and Physical Educators [SHAPE] America) reported that 6% of high schools, 13% of middle schools, and 16% of elementary schools provided a full CSPAP (Society of Health and Physical Educators America (2014); American Alliance for Health, Physical Education, Recreation & Dance (2011)). One reason schools have not adopted CSPAP may be that teachers are unsure of how to initiate a CSPAP or integrate it into curricular plans (Metzler et al., 2013). Metzler et al. (2013) created a curriculum, Health Optimizing PE (HOPE), based on evidence that public health-aligned (e.g., increased PA opportunities during the school day) PE curriculums are needed (Sallis et al., 2012). HOPE is designed to “help P-12 students acquire knowledge and skills for lifelong participation in PA for optimal health benefits” (Metzler et al., 2013, pg. 42). The curriculum has eight strands (i.e., teaching and learning areas) including: (a) before, during, and after school extended PA programming, (b) sports, games, dance, and other movement forms, (c) family and home education, (d) community-based PA programming, (e) health-related fitness, (f) diet and nutrition for PA, (g) PA literacy (consumerism, technology, and advocacy), and (h) integration of HOPE

* Corresponding author.

E-mail addresses: eganca@uidaho.edu (C.A. Egan), websterc@mailbox.sc.edu (C.A. Webster), gstewart@methodist.edu (G.L. Stewart), weaverrg@mailbox.sc.edu (R.G. Weaver), lbruss@gmail.com (L.B. Russ), abrian@mailbox.sc.edu (A. Brian), stodden@mailbox.sc.edu (D.F. Stodden).

<https://doi.org/10.1016/j.evalprogplan.2018.10.006>

Received 21 June 2018; Received in revised form 17 September 2018; Accepted 3 October 2018

Available online 05 October 2018

0149-7189/ © 2018 Elsevier Ltd. All rights reserved.

Table 1
HOPE strands, CSPAP Components, Implementation, and Sustainability.

HOPE Strand	CSPAP Component	Program at School	Year Implemented	Sustainability
Before/During/After School PA Programming	Before and After School PA programming	Before and After School PA program, Kilometer (K) Kids	Year One	Intramurals sustained K-kids cancelled
High MVPA Connected for PE units and Lessons	During School PA Physical Education	Restructure CV days ^a , Restructure Choice Days ^a Students setting goals for CV day, Higher PA content Instant Activities (warmup), Resources for high MVPA content, SPARK Curriculum	Year One	Continued to use resources for CV days, choice days didn't change, some higher MVPA content, no use of SPARK
Family Home Education	Family and Community Engagement	CV Classic ^a , Health/Activity Fair	Year One	CV Classic Sustained
Community Based PA programming	Family and Community Engagement	Announcements in school newsletter and website Announcements in school e-newsletter, Community Board	Year One	None
Health Related Fitness	Physical Education	Increased unit and lesson time for MVPA, Content time for health and PA knowledge, Student Posters and presentations at family night, Fitness testing ^c	Year One	Some higher MVPA content used
Diet and Nutrition for Physical Activity	Physical Education	Increased content time for PA-diet knowledge in PE and health units, Student posters at parent/family events, School Garden ^b	Year One	None
PA Literacy	Family and Community Engagement	PA Health Fair for parents and families Information in school e-newsletters	Year One	None
Integration of HOPE across the school	Physical Education During School PA Staff Involvement	Classroom teachers PA training ^c	Year Two	None

^a Already existed at school prior to HOPE.

^b School garden existed but integration into health and PE classes was added.

^c Implemented by implementation team.

across all school subjects. Each strand provides targeted learning outcomes, the intended learners for each part, and several suggestions for learning activities (Metzler et al., 2013). The HOPE curriculum draws on the whole-of-school approach and specifically the CSPAP model to successfully teach and promote PA behaviors (see Table 1; Metzler et al., 2013).

1. Conceptual framework

HOPE addresses curricular alignment within a CSPAP and provides guidance for the types of programs (e.g., before and after school PA programs) that can be implemented via a CSPAP but does not identify how various stakeholders might work together to implement CSPAPs that are effective and sustainable. Webster, Beets, Weaver, Vazou, and Russ, (2015) suggested that universities can provide critical external support for schools in their efforts to generate and sustain PA promotion practices. School-university partnerships allow for a two-way flow of knowledge, resources for planning and implementing health programs, and are identified as an important element of organizational capacity (Crisp et al., 2000). Such partnerships show promise for facilitating changes in PA participation for students, parents, and educators (Brusseau et al., 2015). Additionally, partners that aid in bridging the gap between research and practice (i.e., prevention support system) are key for dissemination and implementation of interventions (Wandersman et al., 2008).

Based on Wandersman et al. (2008) work, Durlak and DuPre (2008) outlined a conceptual model of program diffusion for effective implementation of health interventions. The model includes variables in five categories (community level factors, provider characteristics, characteristics of the innovation, prevention delivery system, and prevention support system) that, in favorable conditions, interact with each other and lead to effective implementation and program diffusion. Specifically, community level factors relate to politics, funding, policy, theory, and research relevant to the intervention. Provider characteristics refer to the provider as a non-researcher that implements the program. Provider characteristics also considers the extent to which the provider perceives a need and potential benefit for the program and has the self-efficacy and skill proficiency to implement the program. Characteristics of the innovation refer to the compatibility of the program and the adaptability of the program to meet the needs of the provider and community. The prevention delivery system (organizational capacity) refers to general organization factors, specific practices and processes, and specific staffing considerations of the provider. Finally, the prevention support system refers to the training and technical assistance that the prevention support system (e.g., university partner) provides during the program implementation.

Little CSPAP research has drawn upon diffusions models to examine program implementation or sustainability. In one study, Glowacki, Centeio, Van Dongen, Carson, and Castelli, (2016) examined the process of CSPAP implementation from a Diffusion of Innovations Theory perspective, specifically with respect to communication channels that connect and synergize members of a social system who are viewed as essential to program implementation. A key finding was that communication about the program proved to be critical for promoting collaboration among key stakeholder groups (e.g., school staff, parents, other community members).

Reported outcomes for individual CSPAP components are minimal and the effects of a full five-component CSPAP are unknown (Hunt & Metzler, 2017). The present study builds upon the nascent knowledge base on CSPAP implementation and diffusion. Although HOPE is intended to provide a curricular model for aligning PE with a CSPAP, few studies have investigated schools' efforts to implement and sustain the HOPE model, particularly through the use of school-university partnerships. Therefore, the purpose of this study was to use Durlak and DuPre (2008) conceptual model of program implementation/diffusion to examine key informants' perceptions related to the development,

implementation, and sustainability of a university-supported HOPE-based CSPAP that was implemented for two years. Within this perspective, key aspects of CSPAP implementation and sustainability were considered in reference to community level factors, provider characteristics, characteristics of the innovation, the prevention delivery system, and the prevention support system. The specific research questions were (a) how was the program implemented, (b) what were the success stories and what enabled successes, (c) what were the challenges related to program development and implementation and how were these challenges addressed/overcome, and (d) what is the sustainability of the program?

2. Methods

2.1. Backdrop

In Spring 2012, a team of university researchers (hereafter referred to as the "original research team") from a state university located in a large city in the southeastern United States was awarded a Seed Grant (\$75,000) from a large funding agency in the same city to implement and evaluate a two-year (2013–2015) HOPE-based CSPAP at a local charter middle school (see Table 1). The original research team, in collaboration with the school's health and PE (HPE) teachers and the funding agency, implemented the program and the original research team evaluated the program's effects on intended program outcomes (Metzler, 2015). Following the end of the funding for the program, the lead researcher from the original research team who helped to implement the program invited our research team (hereafter referred to as "the evaluation team") to conduct a follow-up external evaluation of the implementation and sustainability of the program.

2.2. Research design

Yin (2014) suggests case study research has more variables of interest than data points, benefits from prior theory development to guide collection and analysis, and that strong rationale for selecting a single case study is when the case is longitudinal. Thus, the evaluation team decided to conduct a qualitative explanatory single case study (Yin, 2014) that both retrospectively investigated the initial two-year implementation of the program and examined the current (post funding and university support) implementation processes and assess program sustainability.

2.3. Participants and setting

Before the start of this study, the University Institutional Review Board (IRB) and the School District IRB approved all study protocols. The study was conducted at an urban charter middle school (herein referred to using the pseudonym "Charter") in the same city as the funding agency and the original research team. At the original study (Spring/Fall 2015), Charter served 6th–8th grade students ($n = 1475$) who were 43% White, 28% Hispanic, 22% African-American, and 7% Other. Of the students attending Charter, 35% qualified for free and/or reduced price school meals. Charter students took health or PE as an elective, and approximately 70% of students elected to take one or more nine-week terms in health or PE, which were offered daily for 50 min (Metzler, 2015).

Charter had seven HPE teachers (4 female), four of whom self-identified as African American and three of whom self-identified as Non-Hispanic White. Their teaching experience in HPE ranged from 3 to 30 years ($M = 15.57$), and their teaching experience at Charter ranged from 2 to 20 years ($M = 9.85$). One of the HPE teachers had a Ph.D., one had a specialist degree, and four had master's degrees. The school is located in a neighborhood near a major interstate, and there is a large park next to the school that has running and biking trails. Surrounding the school are sidewalks that lead to the front and sides of

the school along with bike racks near the front of the school. There is a school garden (approximately 20 feet by 20 feet) located on the side of the school that is easily accessible from the school and parking lot. The gymnasium is centrally located in the school with one regulation size basketball court and retractable bleachers. There is a small workout room located across from the gym that contains cardiovascular equipment, weight machines, and free weights. A pathway leads from the gym to a large field complete with a six-lane asphalt track. Adjacent to the track is a large softball field and an additional large green space. Since Charter is a charter school, they are allowed to go beyond state and local curriculum and involve parents, students, and school personnel in decision making regarding school governance. The administration was open to the implementation of the HOPE-based CSPAP and the follow up study. However, the administration took a hands off approach, and only wanted to be notified if something was not going well. The administration operated largely with a hands off approach allowing teacher autonomy.

The original research team consisted of six members (1 male). Five of those members were from the original research team's university with two individuals (both faculty members) serving as the co-principal investigators on the grant-funded project. Also on the original research team, and from the same university as the two faculty members, were three doctoral students. The final member of the team was a representative (female) from the funding agency.

2.4. Data collection

Data sources for this study included documents, interviews, and field observations (see Table 2).

2.4.1. Documents

In Fall 2015, the first author with assistance from the second author obtained a total of 192 documents (e.g., field notes, presentations, meeting minutes, report to funding agency) from the original research team. The first and second author reviewed the documents to broaden and deepen their understanding of the intervention and its implementation structures. The information from the documents was used to refine the conceptual framework and research questions and develop the interview protocols. In Spring 2016, an additional 41 documents were collected during field visits (see Field Observations section below). These documents included pictures, fliers, lesson plans, and school demographic information.

2.4.2. Interviews

Interviews consisted of individual interviews and a focus group interview. All interviews followed a semi-structured format and were transcribed verbatim for analysis. The semi-structured format allowed for additional questions and probes when needed (Glense, 2016). Three rounds of individual interviews were conducted with key informants. The purpose of the first round of interviews ($n = 6$, $M = 48.24$ min) was to gain a more in-depth understanding of the implementation process from the perspective of the five original research team members and the representative from the funding agency. To develop interview protocols, the evaluation team used the information from the documents and the meeting with the original research team, alongside Durlak and DuPre (2008) model. First round interviews were conducted over the telephone. The first two authors conducted the interviews. The first author transcribed and reviewed the transcripts to develop initial hunches and perspectives regarding the research questions. Insights gleaned from this process informed the development of questions used in a second round of interviews.

The second round of interviews ($n = 5$, $M = 79.8$ min) was also conducted with the original research team with the exception of the representative from the funding agency because during the first round it was discovered that she had little knowledge about the implementation and sustainability of the HOPE-based CSPAP. The purpose of these

interviews was to follow-up on hunches and questions developed from reviewing the transcripts from the first round of interviews, as well as to further explore participants' perspectives of the implementation process over the two-year intervention (Jacob & Furgerson, 2012). As with the first round interviews, second round interviews were conducted over the telephone and the transcripts were reviewed and drawn upon to inform the development of the interview protocols for the next round of interviews.

The purpose of the third round of interviews ($n = 7$, $M = 39.65$ min) was to explore the implementation process from the perspective of school professionals at Charter, including the HPE teachers and the principal. During Spring 2016, the first author conducted individual interviews with each of the HPE teachers; the principal declined to participate in an interview.

During Spring 2016, the first author conducted a focus group interview (i.e., fourth round interview [Glense, 2016; Yin, 2014]) with 8th-grade students at Charter who participated in both years of the HOPE-based CSPAP implementation during their 6th- and 7th-grade years. The lead HPE teacher at Charter identified 20 8th graders who had participated in the implementation of the HOPE program. Of the 20 students, five ($n = 2$ male, $M = 13.2$ years) returned their consent form and assented to participate in the focus group. The purpose of the focus group was to explore students' experiences during program implementation as well as their perceptions about changes to school programming after HOPE was implemented.

2.4.3. Field observations

The first author observed Health and PE classes, before and after school programming, and during school activities (e.g., lunch, between classes) at Charter. A total of 26 observation days were conducted (with multiple observations embedded within each day). All observations took place across two different 9-week terms. The PE observations took place during two PE content units. Two different health teachers were observed across three units during two 9-week terms. Before and after school observations along with during school observations also occurred during the two different 9 week terms. For example, an observation day may have included PE, health, during school activities, and after school activities all within the same day. Field notes were taken during all observations and were informed by Durlak and DuPre (2008) model, the HOPE model, the CSPAP model, and emerging evidence of sustainability reported by the original research team (Metzler, 2015). During the initial observations, the first author first took notes about the setting, events, participants, and interactions using broad sweeps to gain a better understanding of the school context (Glense, 2016). After the initial observations, the first author focused on the PE program, including planned and unplanned aspects and formal and informal interactions (Glense, 2016) while looking for elements of the HOPE and CSPAP models (e.g., moderate-to vigorous PA during PE) and elements of Durlak and DuPre (2008) model (e.g., integration of new programming, shared vision).

2.5. Data analysis

After the initial coding of documents and interview transcripts to inform subsequent interviews, the first and fourth author re-analyzed the documents, transcripts, and field notes (as well as analyzed all documents, transcripts, and field notes not previously examined) using explanation building logic (Yin, 2014). Durlak and DuPre (2008) model, the CSPAP model, and the HOPE model were used as lenses during the analysis. Specifically, matrices for each data source were developed using codes that ranged from a short phrase to full sentences, which represented variables outlined in the above models. These codes were organized in terms of their alignment with aspects of program implementation and sustainability. Codes across data sources were then searched to develop categories, subcategories, and eventual themes (Yin, 2014). Pattern matching (i.e., predicting patterns in the data to

Table 2
Key Informants, Type of data, Length, sample interview questions, and description.

Key Informants	Type of Data	Length	Sample Interview Questions	Description
Original Research Team: (Eric, Tammy, Jess, Julie, Gracie)	Round 1 Interview: Individual Semi-structured Interviews	Range = 36.55–57.52 minutes Mean = 48.24 minutes	Describe your role in the planning and implementation of the HOPE-based CSPAP? How closely did you work with the school and teachers?	Description of the implementation process, organization, leadership structure, processes
Funding Agency (Angela)	Round 1 Interview: Individual Semi-structured Interviews	27.05 minutes	What was your role in implementing the HOPE-based CSPAP?	Description of the implementation process, organization, leadership structure, processes
Original Research Team (Eric, Tammy, Jess, Julie, Gracie)	Round 2 Interview: Individual Semi-structured Interviews	Range = 61.49–110.69 minutes Mean = 79.8 minutes	What were the biggest challenges? During your interview you discussed staff buy-in. Describe the extent the HPE teachers had a 'shared vision' of the program? You mentioned more rigorous training would have led to resistance; can you describe what you meant in detail?	Expansion of first interview with follow up questions, perceptions of the role they played, enablers and challenges, planning, and sustainability
HPE Teachers (Deb, Haley, Rachel, Brooke, Michelle, Antwon, Lucas)	Round 3 Interview: Individual Semi-structured Interviews	Range = 24.39–54.49 minutes Mean = 39.65 minutes	Did you feel capable of doing what was expected of you? Did you recognize a need for the HOPE-based CSPAP before it was implemented?	Description of their role in the programs, challenges, take home messages, and sustainability
8 th grade students (Jack, Frances, Marcus, Jill, Taylor)	Focus Group Interview (i.e., fourth round interview)	22.30 minutes	Have you noticed any changes from the last two years in PE to this year in PE? Overall, what impact has the HOPE-based CSPAP had on your life (at school, at home)?	Understand student perspectives and experiences with the HOPE based CSPAP that was implemented when they were in grades 6–7 th and the sustainability of the program
Field Observations (26 field observations)	Field Notes	Not Applicable	Not Applicable	Observations during physical education class, health class, and before and after school programming. The observations spanned two different health and physical education 9 week classes.
Presentations	Documents	Not Applicable	Not Applicable	Two presentations given about the project at SHAPE-PETE HETE in Atlanta, Ga.
Documents (233 individual documents)	Documents	Not Applicable	Not Applicable	Lesson plans, meeting minutes, organizational charts, field notes, official reports, pictures (taken during implementation and by lead author)

patterns empirically observed), explanation building (i.e., a form of pattern matching that examines links between how and why something happened), and addressing rival explanations (i.e., plausible alternatives for interpreting the data) were used to address threats to internal validity (Yin, 2014).

2.6. Trustworthiness

Multiple strategies were employed to increase the quality and trustworthiness of the study. First, the lead author had extended engagement (Yin, 2014) with the original research team, the HPE teachers, and at Charter. Second, data from six different data sources were used to build convergent evidence and strengthen construct validity (i.e., data triangulation; Yin, 2014). Third, the lead author established a chain of evidence and created a database for all pieces of evidence by keeping analytic memos (i.e., mini-analyses) throughout data collection (Glense, 2016). Fourth, peer debriefing was employed between the first and second author during data collection and between the first and fourth author during data analysis. Fifth, investigator triangulation (Yin, 2014) was used by having multiple analysts code data and having the analysts challenge categories, codes, and themes presented until all disagreements were resolved (Glense, 2016; Yin, 2014). Sixth, all individual interview transcripts were sent to participants for member checking. The participants were invited to subtract any content, clarify, add to, or comment on the transcripts. Furthermore, the findings were sent to the original research team and the HPE teachers to check for accuracy of the interpretation of the data (i.e., face validity; Yin, 2014). Finally, negative cases were explored that did not fit within the a priori conceptual framework used in this study (Yin, 2014) and none of the negative cases yielded any themes or salient points.

3. Findings and discussion

The findings are represented in the following four themes: (a) a proof of concept study, (b) implementing a HOPE-based CSPAP, (c) sustainability of the program, and (d) moving forward. Additionally, each theme has several subthemes. The themes and subthemes are discussed below and concurrently considered in light of the variables outlined in the conceptual literature used to frame this study. Pseudonyms are used in place of all participants' names.

3.1. A proof of concept study

Eric, the lead investigator from the original research team, described the study his team conducted as a “proof of concept study,”

I had been working with others on the concepts of the HOPE CSPAP model and the thought was it would be nice to find a place and test this out, and sure enough this grant program came to my attention at the same time, so it was basically an opportunity for a proof of concept study about this particular version of a CSPAP. (Round 1 Interview)

The idea of a proof of concept study has been applied in the medical field to describe how a particular drug or treatment is feasible or effective (Rabinowitz et al., 2013) but has also been used to determine the effectiveness of teaching methods (Aagaard et al., 2004) and the feasibility and effectiveness of collaborations between different health service departments (Lowton et al., 2010). In this case, the study conducted by the original research team was utilized to verify whether the HOPE model has any practical potential, and the idea of proof of concept was used to frame how the university researchers would approach implementation.

There were four subthemes as part of the proof of concept theme: (a) organic approach, (b) existing infrastructure at Charter, (c) Charter's HOPE champion, and (d) initial training and designation of roles.

3.1.1. Organic approach

Eric described the implementation as an “organic approach,” Eric states that

From the beginning, we wanted this to be [the school's] project and we wanted to study it as their project. We wanted it to be organic. We didn't want them in any way to feel that they were doing something because they were obligated to us. We wanted to see what would happen if [Charter] teachers took on a HOPE model CSPAP for two years, how that would play itself out...We didn't want this to be an intervention project; we wanted it to be an implementation project. And so it was very difficult to not say things at times when we saw some backsliding (Round 1 Interview)

The original research team felt that in order to conduct their proof of concept study, there was a need to leave most aspects of program implementation to Charter. However, the team still provided the school with some support. Julie explained her team's support as

...obviously, being there, being accessible, responding to any concerns, if they had any questions or emailing us or whatever. But we didn't feel it was our responsibility, or [Eric] didn't want us to, let's say, have me supervise the before and after school program. (Round 1 Interview)

According to Durlak and DuPre (2008), the prevention support system includes technical assistance for the provider. Although the original research team provided some ideas and support to the HPE teachers, they did not step in when they saw problems occurring and/or to offer problem solving strategies when backsliding occurred. Such technical assistance can help to maintain the provider's motivation and commitment to the implementation as well as provide an emotional support network (Durlak & DuPre, 2008). Additionally, technical assistance in the form of early monitoring of the implementation, followed by an immediate retraining can greatly improve implementation fidelity when providers experience difficulties with implementation (Dufrene et al., 2005).

3.1.2. Existing infrastructure at charter

In order to implement the proof of concept study and to utilize an organic approach, the university research team felt they needed to find a school with ideal resources within the school's current infrastructure. Tammy describes why Charter was selected, “...it was very compatible with it being a charter school... they still have a lot of support from the district but they also have the opportunity to make a lot of their own types of big decisions” (Round 1 Interview). In addition to being able to make decisions (e.g., about implementing programs), the original university research team had strong relationships with Charter. Furthermore, Eric indicated Charter “was already doing some CSPAP programming [see Table 1] and they already had a large enough staff and administrative support ... which would free us up from a lot of administrative red tape” (Round 1 Interview).

Durlak and DuPre (2008) identify compatibility (contextual appropriateness with missions and goals) and adaptability (flexibility) as important elements of a new program being implemented. Since Charter was already implementing various components of a CSPAP, the addition of the new HOPE-based CSPAP strands fit within Charter's pre-existing program and mission. Furthermore, because they were a charter school they had flexibility and less administrative red tape to make decisions about programming, research, and funding.

3.1.3. Charter's HOPE champion

Once Charter was chosen, the original research team contacted the PE department chair (Deb) and presented the program and the team's ideas about how to implement the program. Deb then proceeded to advocate for the program with her HPE staff. Deb remembered telling her staff, “this is what has been offered and these are some of the perks and benefits and these are some of the things we are already doing”

(Round 3 Interview). According to Deb, having the other HPE teachers buy-in to the program was essential. She stated, “I was not going to do it without their approval” (Round 3 Interview). Once the rest of the HPE teachers agreed to implement the program, Deb approached Charter’s principal for permission, and he granted permission for the project. Deb’s role naturally evolved into the role of the “CSPAP champion” (Carson et al., 2014). Jess described Deb’s role, “She tried to keep the troops on board, she motivated, [she] was a mediator for communication, a point of contact. She would lead the show at [Charter] and keep them [the HPE teachers] in line. She was the point person” (Round 2 Interview). Deb coordinated events for Charter (e.g., the parent health night, the CV Classic), checked in on others and ensured they were completing their tasks (e.g., parent newsletter, intermural programming), lead the way for integrating HOPE into the PE curriculum (e.g., organized infusion of SPARK curriculum, components for health class, active warm ups) and handled marketing responsibilities. (Deb, Round 3 Interview; Jess, Round 2 Interview). The only exception to Deb’s role as a CSPAP Champion is that she did not coordinate the training of teachers for classroom based movement as the research team had agreed to lead this (Eric, Round 1 Interview). Also, it is important to note that while Deb was the lead (i.e., CSPAP Champion) she did designate others to head up certain areas (e.g., Antwon and Lucas lead intermural programming) and these leaders would check in with Deb and provide progress updates (Eric, Round Interview; Antwon, Round 3 Interview).

Durlak and DuPre (2008) identify staff buy-in (i.e., a shared vision) as an essential element for program implementation and outcomes. Additionally, shared decision making among the providers and the prevention support system has been linked to better program implementation (Kegler & Wyatt, 2003). Durlak and DuPre (2008), as well as the CSPAP literature (Carson, et al., 2014) emphasize the importance of having clear leadership roles and a program champion. Research has found that having a trained CSPAP leader can lead to increased PA opportunities (Carson et al., 2014) and is a sustainable strategy for implementing CSPAPs (Castelli et al., 2013).

3.1.4. Initial training and designation of roles

Once buy-in occurred with the HPE staff, the HOPE-based CSPAP and permissions were granted, the original university research team developed and implemented an initial training for the HPE teachers. This training (provided during the summer before the first year of implementation) was primarily informational and consistent with the organic approach described above. For instance, Jess described what happened in the initial training, “We went through and looked at what programs were currently existing, what content units they were currently offering, and then from there looked with the purpose of improving PA – we looked at what units we could replace or improve upon” (Round 2 Interview). The original research team tried to help the HPE teachers find what they could add to their existing PE content to improve PA levels without telling them they had to change their content. Additionally, Julie described how the initial trainings were based on the HPE teachers’ scheduling preferences,

We didn’t want to overwhelm [the HPE teachers] so we started gradually by giving them choices of what they thought they could feasibly start doing in Year 1 versus Year 2. We did this to fit their different schedules and to try and make it gradual (Round 2 Interview)

The HPE teachers collectively decided which strands they would implement and in what order they would implement the strands. Each teacher identified one or more strands and CSPAP components to focus on (e.g., before and after school PA, parent involvement) and a member of the original university research team was assigned to be the point of reference for each strand. This approach set the groundwork for how the HOPE-based CSPAP would be implemented through Year 1 and what would be the focus in Year 2.

According to Durlak and DuPre (2008), provider trainings should give the provider the skills necessary to deliver the program, aid in the

development of the provider’s motivation for implementation, and foster self-efficacy. Designing the training for Charter’s HPE teachers as more focused on providing information than on providing PA promotional skills (Carson et al., 2014). This might have limited the effectiveness of the training. However, Durlak and DuPre (2008) also identify shared decision-making, the formulation of workgroups, and communication as elements of the provider’s capacity to implement the program. The initial training supported these aspects of capacity building by allowing the HPE teachers to determine what HOPE strands would be implemented and in what order and creating work groups to address the implementation of each strand.

In summary, the proof of concept study came to life through the use of the organic approach, which likely hindered program implementation in certain ways while enabling it in others. The organic approach may have limited the technical assistance the university felt they could provide the HPE teachers, but it nevertheless allowed for a self-designated and naturally emerging program champion. The subsequent informational training did not align with Durlak and DuPre (2008) notion of a competency-based training, and the teachers were not provided with PA promotion skills important to delivering the program. Yet, certain aspects of the training were consistent with what Durlak and DuPre (2008) do recommend (i.e., shared decision making, the formulation of work groups, and communication).

3.2. Implementing a HOPE-Based CSPAP

After the initial summer training, the start of the school year marked the start of the official implementation of the HOPE-based CSPAP. The implementation of the program served as the second theme, within which there were three subthemes: (a) resources, (b) successes, and (c) challenges.

3.2.1. Resources

The overarching goal of the program was to focus on quality PE, so most of the resources (e.g., SPARK curriculum, IPADS) were focused on higher moderate-to-vigorous PA lesson content and reducing the time it took to call roll by using active warmups (instant activities). Gracie described the support given, “We just gave them ideas on high moderate-to-vigorous PA content and gave some instant activity ideas” (Round 2 Interview).

One of the preexisting parts (prior to program implementation) of the PE program was cardiovascular (CV) day. On CV day, the students were required to run two miles during their PE time (Field Notes). In order to boost student participation, the original university researchers provided the HPE teachers with iPads to help teachers manage the timed runs. According to Antwon, “[the iPads] allowed us to be mobile away from the computer. We could take pictures; it helped us move with the students, keep track of time, keep track of heart rates” (Round 3 Interview). The researchers also provided the teachers with ideas on how to motivate their students. Michelle told us how they adapted the resources provided for CV day, “We had a chart the kids would fill out that had their goals and they would write their times down each week, how they felt, and they would go home and talk to their parents about.” (Round 3 Interview). Additionally, Rachel discussed using “weekly newsletters where we [the HPE teachers] put in information about what was going on and coming up and also a community board with local parks, activities, and programs” (Round 3 Interview). The newsletter served as a new way for the HPE teachers to communicate with parents about the annual CV Classic, which is a five-kilometer annual fun run that the HPE teachers organize. The CV Classic was already in place prior to the start of the HOPE-based CSPAP, but because of its continued success the HPE teachers, in collaboration with the original research team, implemented a parent health night in the spring to complement the fall CV Classic. Angela described the funding agency’s role in the parent health night, “We were able to play a role of actually being involved...speaking, sharing some guidance related to physical activity,

and helping parents be active, kids being motivated and things of that nature” (Round 1 Interview).

Feedback from the university research team served as a particularly valuable resource for the HPE teachers. Rachel explained what it was like receiving feedback about her students’ moderate-to-vigorous PA in PE: “...at first it was like, wow, I didn’t realize how much they weren’t active, and then it was like wow we are really doing good things now” (Round 3 Interview). It seems that continued feedback from the university research team initially served as an important motivator for the HPE teachers to buy-in to the program and later served as a motivator for them to keep pushing and trying to implement various components of HOPE. Because of the successes with the feedback and the initial resources provided, the HPE teachers added a non-traditional intramural program offered both before and after school. While intramural programs are often competitive and team-based, Charter’s program was an “inclusive, not competitive program aimed at reaching out to more kids that wouldn’t participate in a PE setting or interscholastic sports” (Jess, Round 2 Interview). The original research team provided funding support by paying the leaders of the intramural program (Documents-Meeting Minutes).

None of the HPE teachers had ever been specifically trained for PA promotion, but all of them reported that they felt prepared to implement a PA program. Rachel stated, “[I’ve had] no official training but I feel like my whole career has led up to this. I mean, we are in the business of getting students active (Round 3 Interview).” Because of their collective experience, the HPE teachers did not seem to perceive a need for training and the original research team agreed and described the teachers as “seasoned and already running a strong program” (Eric, Round 2 Interview). From this perspective, it seemed the support provided by the original research team, specifically providing additional resources, ideas, and being available for questions, was appropriate for the HPE teachers during the HOPE implementation. However, the literature suggests targeted PA training (Carson et al., 2014) creates marked increases in teachers’ ability to promote and create moderate-to-vigorous PA opportunities for students, which (the training) did not occur during the HOPE-based CSPAP.

The feedback the original research team provided the HPE teachers served as motivation to continue and try new things, which fits with Durlak and DuPre (2008) notion of technical assistance and diffusion of innovations theory applied to CSPAP communication (i.e., linking all necessary facilitators of the innovation). Previously, we discussed the lack of technical assistance related to early monitoring and retraining as a potential barrier to program implementation. However, continual feedback from the original research team appeared to be an enabling factor for successful implementation and this may have negated some of the limitations with the initial training. The HPE teachers and the original research team felt that the HPE teachers had the skills necessary for PA implementation, but backsliding may have also been reduced by targeted PA training.

3.2.2. Successes

The most commonly reported success stories was the strength of the relationships and the shared vision that both the original research team and the HPE teachers experienced during the implementation of the HOPE-based CSPAP. Deb stated,

As a department we talk all the time. I send out different emails sporadically, making sure we are all doing what we are supposed to be doing, but as a group we all had the same focus...everybody wants our program to be an awesome program ... we have had a pretty good reputation. We wanted to make it better. (Round 3 Interview)

The university research team cited their comradery as one of their biggest successes and reasons that they were able to continue working well together during program implementation Eric describes,

I think the biggest success story was having really dedicated and hardworking people on the team. I basically hired really good people, so any direct success of the project really came out of this collective hard work and application and follow through that everybody on [the original research team] demonstrated. (Round 2 Interview)

The unity and shared vision within each implementation team aided in program development. Additionally, a strong relationship was maintained between the university and Charter during program implementation. Rachel describes this relationship, “The [university] people were wonderful, so much fun to be around, still friends of mine” (Round 3 Interview). The positive relationships reflect the positive work climate and communication structures (both enabling factors in Durlak & DuPre, 2008 model) that were established during the programming, which promoted successful implementation.

Perhaps the biggest success story of the implementation was the intramural program (started slowly as part of the design), and through student word of mouth advertising (also part of the design) grew into a highly popular and attended program (Documents-Rosters of intramural Attendance). The leader of the intramural program states, “[Students] live for it...All of this happened unknowingly. I didn’t know that this would be the outcome but...you know, kids live for intramurals” (Antwon, Round 3 Interview). Antwon and Lucas were the primary leaders of the intramural program, but Rachel also ran a running program for students and a before school yoga class for teachers. Furthermore, the weight room was open to any teacher or staff member at the school and it is not uncommon to see teachers/staff using this facility either before or after school (Field Notes).

Another success related to implementation was timing of the trainings (offered over two consecutive summers). Deb said, “A lot of times [the HPE teachers] do not see each other in the summer. It was fun. We got paid, actually. That brought people in, and the financial backing with our sponsors was a real incentive to do the best you can” (Round 3 Interview). These trainings also served as a catalyst for the HPE teachers to want to improve their program. Brooke stated,

The [HOPE] program really strengthened our program. I think it took [our] program to another level...you think you are where you should be but in hindsight, actually, you can take it up another level. How can you take it up another level unless you go out and find the research, you go out and find a program, you go out and implement it? But luckily [the original research team] did all that and brought it to us. (Round 3 Interview)

Overall, the successes of the implementation can be linked to variables within Durlak and DuPre (2008) model, specifically the positive work climate, organizational norms regarding change the integration of new programming and perceived benefits of the program. Providers who feel the program will benefit them are more likely to implement the program at higher rates of fidelity (Durlak & DuPre, 2008). The integration of new programming, as shown through the success of Intramurals, further suggests that the HOPE-based CSPAP was compatible with Charter and the HPE teachers’ willingness to try a new approach (Durlak & DuPre, 2008).

3.2.3. Challenges

Despite the successes experienced with program implementation, there were also several challenges. For example, after the initial program implementation communication structure (e.g., assigning original research team members and HPE teachers to specific strands) communication became an obstacle for the HPE teachers, despite the open lines of communication. Rachel said, “[The original research team members] were always saying ‘we are here to help you, let us know’ but we didn’t know what to ask [them]” (Round 3 Interview). While the teachers valued aspects of the organic approach, such as the opportunity to have autonomy in what and how they implemented aspects of the program,

they often did not know what to do, how to do it, or even how to ask about what to do.

For the original research team, the organic approach meant that they should avoid stepping in even when they saw backsliding. Eric stated, “It was very difficult not to say things at times when we saw some backsliding, but at the same time we wanted to see how this would play out naturally” (Round 1 Interview). The tension between offering support and not stepping in was difficult for the original research team. When asked about how the organic approach affected backsliding, Jess responded, “It definitely impacted the project...but I don’t know how much more we could be involved without actually doing it for them” (Round 2 Interview). One of the early instances of backsliding was during the instant activities for PE. By the middle of the first year of implementation, the instant activities had stopped. Haley said, “[The instant activities] just took too much time and planning, so we attempted to speed up roll call instead of [doing the] activities” (Round 3 Interview). Nevertheless, students expressed an interest in having the HPE teachers bring back the instant activities, especially since they had to run CV day without warming up first. Taylor said, “We started these warmups, and then they stopped. I don’t know why, but I wish we had them. It is hard to run the CV day with no warmup” (Focus Group Interview). Perhaps during this period of program implementation, better communication between the HPE teachers and the students or providing the HPE teachers with helpful time saving strategies to implement the instant activities could have prevented backsliding from occurring.

Another challenge was the integration of HOPE programming into classroom PA programming, which never got off the ground. Classroom PA was the only program component the HPE teachers did not initiate (Tammy and Eric, Round 1 Interview). Rather, the principal investigators of the original research team attempted to initiate the program but the timing and resources were concerns. Tammy explained that the Classroom PA component was introduced “at the end of Year 2 and then we really couldn’t find PA with academic content at the middle school [so] the interest [from classroom teachers] was not that strong” (Round 1 Interview). There were also problems communicating with the classroom teachers (Tammy, Round 2 Interview). For example, the principal was made aware of the effort to train classroom teachers in PA strategies, and the original research time was given a slot during a professional development day to run their training (Tammy, Round 2 Interview). However, the principal did not clearly communicate with classroom teachers that the training could count as professional development, so there was only a handful of teachers that showed up (Eric, Round 2 Interview). The communication struggle exposed that while the principal was supportive of the HOPE program, and was made aware of PA policies related to schools supporting classroom PA (Eric, Round 2 Interview), he was not an active participant in the program (e.g., he did not communicate with classroom teachers about the program, only wanted to be notified if something went wrong, [Eric and Tammy, Round 2 Interview]). Eric said, “[The principal] was hands off. He wanted to be kept in the loop and he would approve or disapprove but that was really the extent of it” (Round 2 Interview).

The level of extra work involved with implementing HOPE was also a challenge. Eric stated that HOPE was “really labor intensive and required lots of extra hours and [the HPE teachers] got tired, we got tired” (Round 2 Interview). The additional time and planning began to take its toll on the HPE teachers. Aspects of programming, such as the instant activities and the running club, stopped because “it took so much time and planning and there is so much going on” (Rachel, Round 3 Interview). Additionally, Deb states, “I know it sounds like a little thing (writing the newsletter) but it comes up so fast and it’s 10 min here and there and it all adds up” (Round 3 Interview). Compounding the time problem, during the second year of the program the funding ran out, so the intramural leaders (who were being paid) no longer got paid. However, through problem solving, the HPE teachers approached the principal and asked to use funds raised through the CV Classic to

fund the intramural program. This allowed the intramural program to continue throughout the second year of implementing HOPE (Documents- Meeting Minutes). Finally, in the first year of implementation, the parent health night was well attended but the students were required to attend with their parents so it created “a social hour for the students and it was loud and nobody really knew what was going on” (Haley, Round 3 Interview). In Year 2, the HPE teachers attempted to improve the event by not allowing students to attend but this reduced attendance from 40 to less than 30 (Documents- attendance sheet). Deb suggested that in the future, “parent health nights should really be attached to things already happening in the school like open houses or something else” (Round 3 Interview).

The major challenges included backsliding, a breakdown in communication structure, the inability to get classroom teachers involved in integrating the HOPE program, running out of funding, and implementing the parent health night. With respect to backsliding and the lack of communication,

Durlak and DuPre (2008) suggest training and technical assistance are important enabling factors that the prevention support system should provide. As mentioned earlier, it is recommended that provider trainings give providers the skills necessary to implement the program and that retraining be offered when needed. In the case of Charter’s implementation of the HOPE-based CSPAP, such training could have prevented backsliding from occurring and also improved communication between the HPE teachers and the original research team. In this case, timing and resources were challenges (e.g., not being able to train classroom teachers, not having PA infused academic content). However, as previously mentioned, timing and resources enabled success for the HPE teachers (i.e., offering HPE trainings during summer, providing IPADs). In a during school CSPAP study, classroom teachers found classroom PA promotion resources helpful, but because they were given these resources during the school year instead of during the summer (when they have time for in-depth planning), they were unable to fully use (or in some cases, use at all) the resources (Egan et al., 2018). Thus, the types of resources provided coupled with the timing of trainings offered, should be carefully considered as part of CSPAP implementation so that potential enablers do not end up becoming barriers.

Furthermore, while Charter’s principal was aware of PA policy (Eric, Round 2 Interview), it is unclear whether he shared this information with classroom teachers. It has been shown that when classroom teachers are more aware of school PA policies, they are more likely to report implementing PA opportunities in their classrooms (Webster et al., 2013). Durlak and DuPre (2008) recommend that the provider and the provider’s community be made aware of policy related to the program being implemented. The principal’s lack of involvement with the HOPE program can be further examined in relation to Durlak and DuPre (2008) administrative support variable. More direct support from the principal could have served as a source of encouragement and motivation for the HPE teachers and the classroom teachers, and may have helped to integrate HOPE across the school. Finally, Durlak and DuPre (2008) suggest that funding is not necessary for programs. However, funding often becomes an issue for programs because prevention support teams fail to provide sufficient monetary support (e.g., sustainability support, budgeting) for implementation (Durlak & DuPre, 2008), which was the case in the present study. Despite the challenges presented, there were still several implementation successes, including intramurals, the positive work climate, the initial communication structure, and the resources the HPE teachers were provided.

3.3. Sustainability of HOPE

The third theme was the sustainability of the program. There were two subthemes: (a) continuation of HOPE programming, and (b) resources needed for better sustainability.

3.3.1. Continuation of HOPE programming

One of the HOPE programs that sustained after implementation is the intramural program (Field Notes). Yet, despite its popularity, late in the Fall of 2016 “the principal cancelled the program because he couldn’t afford to keep paying us to run the program, and the funding from the CV Classic was being used to fund the school nurse” (Antwon, Round 3 Interview). A couple of months later, however, the principal reinstated the program. Antwon explained,

The principal said, ‘well coach, I really need to start this back up.’ [He] saw the benefit, and the kids that used to come were standing around the school before and after school...and the parents, they supported it. So they found money to compensate us for our time. (Round 3 Interviews)

The principal’s vacillating support of the HOPE program demonstrates how integral administrative support is to program implementation, consistent with Durlak and DuPre (2008) model (e.g., direct administrative support).

Despite the non-continuance of most aspects of the HOPE program following the second year of implementation, traces of the program’s influence on Charter were observed in the aftermath of the initial two years. In some cases, higher moderate-to-vigorous PA content units were observed in PE. For example, soccer and Ultimate Frisbee were observed being taught (Field Notes). In addition, the teachers are still using the I-Pads to track the CV day times, take pictures, and keep track of heart rates (Field Notes). The CV Classic, which was in place before the implementation of the HOPE program, is still going strong and continues to be an annual event for Charter (Field Notes, Documents-Picture).

Other pre-intervention aspects of a CSPAP have also continued at Charter, including before and after school programming, staff involvement (but only HPE teachers), PE, and community and parent engagement (through the CV classic). The only CSPAP component missing from the school’s approach to PA promotion is PA during school (i.e., beyond PE). If classroom teachers were more involved in the PA programming or were more aware of the program, perhaps they would be more inclined to integrate more PA opportunities in their classrooms. The components of the HOPE model that continued are before and after school PA, sports games and other movement forms (offered during PE and intramurals), community-based PA programming (CV classic, was already a part of the school before HOPE), health-related fitness (taught in health and PE), and diet/nutrition for PA (taught during health). The components missing are PA literacy, family home education, during school PA, and integration of HOPE programming across all schools subjects.

Linking sustainability with Durlak and DuPre (2008) model, the one issue that stands out is funding for the intramural program. Securing funding for the duration of the intervention may have led to uninterrupted programming and a clearer sustainability path. However, even though Charter’s principal maintained distance from the program implementation process and cancelled the intramurals program, he later reinstated the program when he saw the support it was receiving from students. Doolittle and Rukavina (2014) found that administration was supportive of CSPAP programming when the programming benefited all children positively (i.e., the intramural program was designed to be inclusive for all students). In the same study, support for programming was garnered and sustained from parents, classroom teachers, and administrators which in turn helped to maintain the CSPAP programming (Doolittle & Rukavina, 2014). Teacher and student satisfaction with programming builds organizational capacity (e.g., positive work climate, organizational norms regarding change) (Durlak & DuPre, 2008). Integrating HOPE programming beyond PE so that teachers could see the positive benefits may have helped garner more support and help with programming.

3.3.2. Resources needed for better sustainability

When asked about any support or sustainability plans that were offered for the continuation of HOPE, Eric states, “We left [the school] with some resources (the ones we gave and some resources about organizations that might offer funding) but nothing more than that” (Round 2 Interview). Deb described an issue she had with the sustainability of the funding of the intramural programming,

Just a little bit like it turned out to be a lot of money, you know that they offered [grant funding], and then to continue that, to sustain that, has been kind of an issue, not really a big issue, but just like they offered almost an hourly rate, and the school cannot keep that up (Round 3 Interview)

The money for running the intramural program was an incentive, and it seems that the grant offered more money than the school could provide to sustain the program. This played out in the cancellation of the intramural program after HOPE implementation. During the implementation, better alignment with payment for intramurals and what the school would be willing to pay after the funding ran out may have prevented the disruption of the intramural programming. There was also a lack of continued communication from the original research team after the two-year intervention period.

Durlak and DuPre (2008) identify shared decision-making, coordination with other agencies, communication, and the formulation of workgroups as important enablers to program sustainability. The findings presented earlier in this paper that related to program implementation suggested that shared decision-making, the formulation of work groups, and positive communication existed among the HPE teachers and within the original research team. However, these attributes, communication amongst school personnel and students’ families, as well as coordination with outside agencies, were lacking from a sustainability perspective. The original research team suggested that helping the HPE teachers connect with outside agencies might have helped with funding and sustainability of the HOPE programming. Community engagement is also identified as a key part of a CSPAP (CDC, 2013). The findings from this study suggest that partnerships with other agencies/organizations beyond the school are necessary for sustainable CSPAP programming. Additionally, in this case, there was a mismatch between the funding the prevention support team offered and what the school could sustain when the money ran out. Perhaps a budget could have been part of the sustainability plan and/or one of the resources sought in a partnership with outside agencies. It seems that a clearer sustainability plan, partnerships with other agencies, checks ups and additional communication from the original research team may have helped the teachers sustain the program following the two-year intervention.

3.4. Moving forward

The final theme that emerged was moving forward with two sub-themes: (a) partnerships and (b) a business approach.

3.4.1. Partnerships

Professional partners should have a clear understanding of their respective roles, a clear commitment to the partnership, and a shared plan for how the funding structure for the partnership will work. In the implementation of the HOPE-based CSPAP, there were three distinct partnerships, each defined by a unique relationship. Partnerships existed between Charter and the original research team, Charter and the funding agency, and the funding agency and the original research team. As discussed earlier, the relationship between Charter and the original research team was strong and the relationship between the Charter and the funding agency was distant. The relationship between the funding agency and the university-based members of the original research team was challenging. Eric explained, “They had perceived authority with no real partnership commitment on their side. We met monthly but

whenever we had questions about funding they could never answer and had to get back to us” (Round 1 Interview). There were several documented struggles with how funding resources could be used. Angela described how, after the completion of the project, she learned some important lessons,

This was the first project where we were collaborating externally with an organization, particularly...where we had funds to give another agency, in terms of my role just being more knowledgeable of the various mechanisms (for example like securing IRB approval, and understanding various ways to allow funding to leave the [funding agency] and go to another agency. (Round 1 Interview)

Beyond the struggles with funding and perceived authority all three partners agreed that they saw partnerships as an ideal and important way to continue school PA programming. Jess states “I think partnerships go a long way in improving what we did, and helping them find other partnerships like ones with facilities right around the school might help with sustainability” (Round 2 Interview). Tammy suggested student teachers could help with sustainability and partnerships “cause the student teacher supervisors can check in on them” (Round 2 Interview). Finally, Eric suggested, “Particularly for the assessment part of the project, it was pretty clear that the teachers and Charter didn’t have the ability to assess the effectiveness...so that’s where we come in” (Round 2 Interview).

Durlak and DuPre (2008) do not address having a sustainability plan as part of their model. However, within the CSPAP literature, Webster et al. (2015) recommend having university students add to the support structure for school professionals to implement and sustain CSPAPs, particularly through service learning. Service learning has great potential as a flexible component of classwork and has shown great promise in public health and preventive medicine fields (Rosenkranz, 2012)

3.4.2. Business approach

After the completion of the project Eric stated,

We learned with this[the HOPE-based CSPAP implementation] is that it takes a huge amount of resources – time, personnel, materials, funding, support – to get a HOPE CSPAP in place, and that, if it is going to work at all, the conditions have to be just right. I think for me in particular, the biggest thing that I learned about HOPE and a CSPAP is that it is not realistic...or not very sustainable in all but for a very few schools. (Round 2 Interview)

Even though Eric felt that HOPE and a CSPAP were not very realistic, he did offer some insight into how the CSPAP and HOPE models could be approached as a business model for training and sustainability. Eric described this approach as follows,

You have to know how to get kids up and moving and how to access that, but in terms of implementing all of the components to the CSPAP or the HOPE model, it really is a start-up business analogy, and maybe that is what the training needs to be based on, not the physical activity model ... do one thing well and then when you are comfortable and able to sustain that one thing well, then pick another one, then when you can sustain that, pick another component. The reality is that for most teachers, especially if you look at the predominance of one PE teacher in elementary schools, trying to do more than have a quality PE program and perhaps an after school program is...that might be the best that can happen in a one teacher school. (Round 2 Interview)

Furthermore, Eric went on to suggest that “They [HPE teachers] don’t know how to market, they don’t know how to brand, they don’t know how to initiate their social marketing, and they don’t know how to find potential partners. We need to teach them how to start a program with these components, like a business model” (Round 2 Interview).

Recently, SHAPE America (2014) announced its partnership with Active Schools (<https://www.activeschoolsus.org>) and developed a Physical Activity Learning system, which includes training that is centered on content knowledge, leadership, communications, and collaboration. The findings from this study support the need for in-depth training related to CSPAP promotion, which mirrors results from Carson et al. (2014). Additionally, a needs assessment might have helped the university research team and the HPE teachers’ better target areas that need improvement. Conducting a needs assessment is Step 2 of SHAPE America’s and the CDC’s (2013) step-by-step guide for implementing a CSPAP. A needs assessment may have strengthened the presence of Durlak and DuPre (2008) characteristics of the innovation, specifically related to adaptability.

4. Lessons learned

The use of Durlak and DuPre (2008) model proved to be a valuable tool for describing the study design, implementation, and sustainability of an ecologically valid CSPAP in this study. The framework helps to explain why some parts of the program were sustained while others were not. For example, early monitoring and training could have prevented some of the backsliding that occurred and is a strategy that future interventions should include. Furthermore, the school-university partnership showed promise because university personnel were able to provide specific resources (e.g., measurement, evaluation) and motivate the HPE teachers, which are forms of technical assistance in Durlak & DuPre’s (2008) model. The two-year duration of the implementation allowed for the HPE teachers to see positive changes occur in their school. Teachers need time to see positive changes in outcomes, which in turn promote changes in teaching practices (Guskey, 2002). Finally, administrative support was central in this successful program implementation, consistent with other research on CSPAP implementations (Deslatte & Carson, 2014; Durlak & DuPre, 2008; Webster et al., 2013). Expanding the HOPE-based CSPAP beyond PE may have garnered more support from administration earlier and helped foster support from other teachers in the school.

5. Conclusion

A limitation of this study was that interviews with stakeholders were conducted between six and ten months after the end of program implementation. Furthermore, we were unable to interview the principal, which would have added strength to this study. Finally, the authors acknowledge their role of knowledge making and producing in the study (i.e., reflexivity; Macdonald et al., 2002). To the best of the authors’ knowledge, this is the first study to examine implementation and sustainability of a fully implemented HOPE-based CSPAP. Continued research is needed on the implementation and sustainability of full CSPAPs, and the processes and effectiveness of CSPAP staff trainings. Additionally, research on the types of resources needed in tandem with the timing of the delivery of these resources is warranted. This will help us to better understand how staff can be adequately trained in the skills they need, and how to design CSPAPs that have the best chance at being adopted and sustained.

Acknowledgement

We thank Dr. Michael Metzler, his dedicated team, and Charter Middle School for their support of this project.

References

- Aagaard, E., Teherani, A., & Irby, D. M. (2004). Effectiveness of the one-minute preceptor model for diagnosing the patient and the learner: Proof of concept. *Academic Medicine*, 79(1), 42–49.
- American Alliance for Health, Physical Education, Recreation and Dance (2011). 2011

- comprehensive school physical activity program (CSPAP) survey report. Reston, VA.
- Brusseau, T. A., Bulger, S. M., Elliott, E. M., Hannon, J. C., & Jones, E. (2015). University and community partnerships to implement comprehensive school physical activity programs: Insights and impacts for kinesiology departments. *Kinesiology Review*, 4(4), 370–377.
- Carson, R. L., Castelli, D. M., Kuhn, A. C. P., Moore, J. B., Beets, M. W., Beighle, A., et al. (2014). Impact of trained champions of comprehensive school physical activity programs on school physical activity offerings, youth physical activity and sedentary behaviors. *Preventive Medicine*, 69, S12–S19.
- Castelli, D. M., Centeo, E. E., & Nickscic, H. M. (2013). Preparing educators to promote and provide physical activity in schools. *American Journal of Lifestyle Medicine*, 7(5), 324–332.
- Centers for Disease Control and Prevention (CDC) (2013). *Comprehensive school physical activity programs: A guide for schools*. Retrieved from <http://www.cdc.gov/healthyyouth/physicalactivity/cspap.html>.
- Crisp, B. R., Swerissen, H., & Duckett, S. J. (2000). Four approaches to capacity building in health: consequences for measurement and accountability. *Health Promotion International*, 15(2), 99–107.
- Deslatte, K., & Carson, R. L. (2014). Identifying the common characteristics of comprehensive school physical activity programs in Louisiana. *Physical Educator*, 71(4), 610.
- Doolittle, S. A., & Rukavina, P. B. (2014). Chapter 6 case study of an institutionalized urban comprehensive school physical activity program. *Journal of Teaching in Physical Education*, 33(4), 528–557.
- Dufrene, B. A., Noell, G. H., Gilbertson, D. N., & Duhon, G. J. (2005). Monitoring implementation of reciprocal peer tutoring: Identifying and intervening with students who do not maintain accurate implementation. *School Psychology Review*, 34(1), 74.
- Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, 41(3–4), 327–350.
- Egan, C. A., Webster, C., Weaver, R. G., Brian, A., Stodden, D., Russ, L., et al. (2018). Partnerships for Active Children in Elementary Schools (PACES): First year process evaluation. *Evaluation and Program Planning*, 67, 61–69.
- Erwin, H., Beighle, A., Carson, R. L., & Castelli, D. M. (2013). Comprehensive school-based physical activity promotion: A review. *Quest*, 65(4), 412–428.
- Glense, C. (2016). *Becoming qualitative researchers: An introduction* (5th ed.). Boston, MA: Pearson.
- Glowacki, E. M., Centeo, E. E., Van Dongen, D. J., Carson, R. L., & Castelli, D. M. (2016). Health promotion efforts as predictors of physical activity in schools: An application of the diffusion of innovations model. *Journal of School Health*, 86(6), 339–406.
- Guskey, T. R. (2002). Does it make a difference: Evaluating professional development. *Educational Leadership*, 59(6), 45–51.
- Hunt, K., & Metzler, M. (2017). Adoption of comprehensive school physical activity programs: A literature review. *Physical Educator*, 74(2), 315.
- Institute of Medicine (IOM) (2013). *Educating the student body: Taking physical activity and physical education to school*. Washington, DC: The National Academies Press.
- Jacob, S. A., & Furgerson, S. P. (2012). Writing interview protocols and conducting interviews: Tips for students new to the field of qualitative research. *The Qualitative Report*, 17(42), 1–10.
- Kegler, M. C., & Wyatt, V. H. (2003). A multiple case study of neighborhood partnerships for positive youth development. *American Journal of Health Behavior*, 27, 156–169.
- Lowton, K., Laybourne, A. H., Whiting, D. G., & Martin, F. C. (2010). Can fire and rescue services and the national health service work together to improve the safety and wellbeing of vulnerable older people? Design of a proof of concept study. *BMC Health Services Research*, 10(1), 1.
- Macdonald, D., Kirk, D., Metzler, M., Nilges, L. M., Schempp, P., & Wright, J. (2002). It's all very well, in theory: Theoretical perspectives and their applications in contemporary pedagogical research. *Quest*, 54(2), 133–156.
- Metzler, M. (2015). *Georgia State University 2012 Seed Award Program for Social and Behavioral Science Research Final Report*.
- Metzler, M. W., McKenzie, T. L., van der Mars, H., Barrett-Williams, S. L., & Ellis, R. (2013). Health optimizing physical education (HOPE): a new curriculum for school programs – Part 1: Establishing the need and describing the model. *Journal of Physical Education, Recreation & Dance*, 84(4), 41–47.
- Rabinowitz, P. M., Kock, R., Kachani, M., Kunkel, R., Thomas, J., Gilbert, J., et al. (2013). Toward proof of concept of a one health approach to disease prediction and control. *Emerging Infectious Diseases*, 19(12), 10–3201.
- Rosenkranz, R. R. (2012). Service-learning in higher education relevant to the promotion of physical activity, healthful eating, and prevention of obesity. *International Journal of Preventive Medicine*, 3(10).
- Sallis, J. F., McKenzie, T. L., Beets, M. W., Beighle, A., Erwin, H., & Lee, S. (2012). Physical education's role in public health: Steps forward and backward over 20 years and HOPE for the future. *Research Quarterly for Exercise and Sport*, 83(2), 125–135.
- Society of Health and Physical Educators America (2014). *Physical activity leader (PAL) learning system and training*. Available at <http://www.shapeamerica.org/prodev/workshops/lmas/>.
- Troiano, R. P., Berrigan, D., Dodd, K. W., Masse, L. C., Tilert, T., & McDowell, M. (2008). Physical activity in the United States measured by accelerometer. *Medicine and Science in Sports and Exercise*, 40(1), 181.
- Wandersman, A., Duffy, J., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L., et al. (2008). Bridging the gap between prevention research and practice: The interactive systems framework for dissemination and implementation. *American Journal of Community Psychology*, 41(3–4), 171–181.
- Webster, C. A., Beets, M., Weaver, R. G., Vazou, S., & Russ, L. (2015). Rethinking recommendations for implementing comprehensive school physical activity programs: A partnership model. *Quest*, 67(2), 185–202.
- Webster, C. A., Stodden, D. F., Carson, R. L., Egan, C., & Nesbitt, D. (2016). Integrative public health-aligned physical education and implications for the professional preparation of future teachers and teacher educators/researchers in the field. *Quest*, 68(4), 457–474.
- Yin, R. (2014). *Case study research design and methods* (5 ed). Thousand Oaks, CA: Sage.
- Cate Egan** is an assistant professor at the University of Idaho in the department of movement sciences. The focus of her research is on the Whole School, Whole Community, and Whole Child Approaches specifically within: Comprehensive School Physical Activity Programs, Quality Physical Education-physical activity promotion and motor skill promotion, and classroom based physical activity promotion.
- Collin Webster** is a professor and the Associate Dean for Research and Innovation at the University of South Carolina. The focus of his research is on physical activity promotion in school settings and quality physical education programming.
- Greg Stewart** is an assistant professor and Master of Education Program director at Methodist University. The focus of his research is Comprehensive School Physical Programming.
- R. Glenn Weaver** is an assistant professor at the University of South Carolina in the department of Exercise Science. The focus of his research is on healthy eating and physical activity promotion in settings that care for youth.
- Ali Brian** is an assistant professor at the University of South Carolina in the department of physical education. The focus of her research is on motor development, physical education, universal design, and motor skill acquisition in children with and without disabilities.
- David Stodden** is a professor at the University of South Carolina in the department of physical education. The focus of his research is on lifetime motor learning and motor control.
- Laura Russ** is a consultant and the focus of her research is school based physical activity promotion specifically classroom movement integration.