



School Staff's Perspectives on the Adoption of Elementary-School Physical Activity Approaches: A Qualitative Study

Jacob Szeszulski , Timothy J. Walker , Michael C. Robertson , Paula Cuccaro & Maria E. Fernandez

To cite this article: Jacob Szeszulski , Timothy J. Walker , Michael C. Robertson , Paula Cuccaro & Maria E. Fernandez (2020) School Staff's Perspectives on the Adoption of Elementary-School Physical Activity Approaches: A Qualitative Study, American Journal of Health Education, 51:6, 395-405, DOI: [10.1080/19325037.2020.1822241](https://doi.org/10.1080/19325037.2020.1822241)

To link to this article: <https://doi.org/10.1080/19325037.2020.1822241>



Published online: 19 Oct 2020.



Submit your article to this journal [↗](#)



Article views: 13



View related articles [↗](#)



View Crossmark data [↗](#)



School Staff's Perspectives on the Adoption of Elementary-School Physical Activity Approaches: A Qualitative Study

Jacob Szeszulski ^a, Timothy J. Walker ^a, Michael C. Robertson ^{a,b}, Paula Cuccaro ^a,
and Maria E. Fernandez ^a

^aThe University of Texas Health Science Center at Houston School of Public Health; ^bThe University of Texas MD Anderson Cancer Center

ABSTRACT

Background: There is a need to understand how schools adopt physical activity approaches (curricula, programs and practices), but few studies report on this process. **Purpose:** To obtain elementary school staff's perspectives regarding how their schools are currently adopting physical activity approaches. **Methods:** We recruited 15 participants from four job types in an urban Texas school district to participate in semi-structured interviews. We coded and analyzed interviews using directed content analysis and iterative categorization. **Results:** We identified four themes pertaining to how the district, schools, and teachers contribute to the adoption of approaches. Themes included: (1) Staff identify new approaches through numerous channels; (2) Adoption occurs at multiple organizational levels; (3) District staff fulfilled a supporting role in the adoption process; and (4) School staff's perceptions of approach characteristics influence adoption. **Discussion:** We found that schools adopt physical activity approaches at both the district- and school-level. Additionally, multiple stakeholders played a role in the adoption process and those roles varied across approaches. **Translation to Health Education Practice:** Time, money, space, staff, competing priorities, limited information, the school's mission, and the benefits an approach provides to children are factors that researchers and practitioners should consider when starting a new physical activity approach.

ARTICLE HISTORY

Received 27 May 2020
Accepted 28 July 2020

Background

Physical activity is an important component of elementary school children's physical, social, and emotional development, and can also prevent chronic diseases throughout their lives.^{1,2} Current national physical activity guidelines recommend that children participate in 60 minutes of moderate-to-vigorous physical activity each day,³ and experts recommend that schools provide at least half of that amount during normal school hours (≥ 30 minutes).⁴ Elementary schools play an important role in children's physical activity, and the adoption of comprehensive school-based approaches, including before, during, and after-school physical activity opportunities, can help students meet recommendations and improve their health.^{3–5} Additionally, urban school children may have less opportunities for physical activity than rural school children (e.g., recess); thus, it is critical to understand factors affecting the adoption of physical activity approaches in schools from urban districts.⁴

Implementation researchers define adoption as an organization's initial decision to commit to and initiate an approach,^{6,7} and we define physical activity approaches as curricula, initiatives, programs, staff

practices or policies designed to improve children's physical activity. Adoption is assessed in terms of the number, proportion, and representativeness of organizations who initiate that approach.⁸ Although best practice guidelines recommend the adoption of comprehensive, evidence-based approaches (EBAs) (e.g., SPARK or CATCH curricula) for increasing children's physical activity, less than half of elementary schools adopt these types of approaches.⁹ Instead, schools adopt a wide variety of approaches with varying levels of evidence (e.g., brain breaks, flexible seating, multiple recess).^{6,10} By understanding factors that affect the adoption of both evidenced-based and non-EBAs, we can inform researchers and practitioners about potential opportunities to improve the quality of elementary school-based physical activity approaches, and subsequently, their children's health.

There are several databases available to help school and district employees identify physical activity EBAs, many of which are freely available. For example, the National Cancer Institute's Research-Tested Intervention Programs (RTIPs) and the U.S. Department of Health and Human Services' Evidence-Based Practices Resources Center

synthesize physical activity approaches into a menu of EBAs that schools can choose from.^{11,12} Although these resources exist, it is unknown how school staff use them (or other resources) to support adoption decisions.

To understand factors influencing the adoption of physical activity EBAs it is also important to understand how different individuals within elementary school systems can contribute to adoption decisions. Implementation frameworks, such as the Interactive Systems Frameworks (ISF), posit that different systems are involved in the adoption and implementation process.¹³ These systems include the delivery system (e.g., teachers implementing a classroom-based approach), the support system (e.g., school administrators buying equipment), and the synthesis and translation system (e.g., district training about a new approach). However, little is known about how school staff across these systems contribute to decision making within the adoption process.

Previous research indicates that characteristics of a school district (e.g., size, budget, and policy), community (e.g., inter-organizational relationships) and each elementary school (e.g., resources) may influence the adoption of specific physical activity approaches.^{14,15} Specifically, school stakeholders have reported space, number of staff, financial resources, and lack of time as significant barriers to adoption of physical activity EBAs.^{16–18} Overall, less than 1% of research studies report on important aspects of the adoption process and few qualitative studies have examined how approaches are adopted in elementary schools.^{17–19} Furthermore, most studies focus on the adoption of a singular physical activity initiative and provide little perspective on integration of that initiative with existing approaches. These limitations represent important knowledge gaps about how schools make decisions when adopting multiple physical activity approaches, how approaches are adopted organically, and how approaches compete with one another for resources within a district.

Purpose

The purpose of this study was to understand how elementary schools are naturally selecting and adopting multiple school-based physical activity approaches from the perspective of principals/assistant principals, physical education teachers, and classroom teachers.

Methods

Setting

The research team recruited study participants from a medium-sized, urban school district in Texas during the spring of 2018. The district has made efforts to integrate more physical activity into the school day.

Employees from the district were eligible to participate in interviews if they were on staff at one of the district's elementary schools. Additionally, almost 60% of children with the district were economically disadvantaged; a level consistent the state average.

Recruitment

The research team used a purposeful sampling approach to recruit participants in various job types from elementary schools throughout the district, but did not recruit district-level staff. Initially, district-level wellness staff identified elementary school employees who would be knowledgeable about existing physical activity approaches. District wellness staff contacted school employees to determine their interest in study participation and provided interested individuals' contact information to research staff for follow-up. Research staff followed-up by e-mail to provide more information about the study and schedule a time for the interview. All interviews occurred in person, and most occurred on a school campus. In addition to recruitment through school district referral, the interviewer asked each participant to recommend a colleague within the district to interview. Throughout the interview process, we adjusted recruitment efforts to balance the sample evenly across recommended individuals' job types (principals, assistant principals, physical education teachers, and classroom teachers).

Procedure

The same researcher (TW) used a 13 question semi-structured interview guide to conduct each interview and audio recorded all interviews for transcription. Three research staff members (TW, MR, and PC) developed the guide based on priority topic areas. Next, we shared the guide with a two wellness administrators to get feedback, and pilot-tested the guide with a third district administrator. Questions on the interview guide were centered on the availability of school-based physical activity approaches, including how school staff adopted approaches over time. In addition, the interviewer probed about how each individual, based on their role (principal, assistant principal, classroom teacher, and physical education teacher), was involved in the adoption and delivery process. Each interview lasted 45–60 minutes, and participants received a 30 USD gift card for their participation. All participants provided written informed consent. The Institutional Review Board at the University of Texas Health Science Center at Houston reviewed and approved all protocols, procedures, and materials (HSC-SPH-17-0980). This study

was also approved by the district's Research and Evaluation office.

Data transcription and analysis

A professional transcription service transcribed verbatim the interview audio files. The research team analyzed the data from the transcribed interviews using directed content analysis and iterative categorization approaches.^{20,21} To gain a general understanding of the information within the interviews, coders independently reviewed and coded three transcripts to form an initial codebook. After drafting the initial codebook, coders began a consensus coding process that consisted of bi-weekly meetings to review coded materials and discuss/resolve discrepancies. Once coders reached consensus on the codebook, the coders divided the twelve remaining transcripts for individual coding. Two researchers coded six transcripts each, and one researcher (TW) coded all twelve transcripts to ensure consistency. All three coders met regularly throughout the coding process to discuss new codes and resolve discrepancies.

The final codebook consisted of deductive codes based on the semi-structured interview guide, and inductive codes that emerged from the participants' responses. Consistent with the iterative categorization approach, two researchers (JS and TW) independently reviewed interview excerpts related to the adoption codes and noted general topics.²¹ Next, each researcher independently summarized key points from participants and organized them into clusters of ideas. Researchers then met bi-weekly to discuss key points and emerging themes. Finally, researchers reviewed the original transcripts a second time to clarify discussion points and finalize themes. We used Dedoose (Version 8, SocioCultural Research Consultants, LLC, Los Angeles, CA) to complete the coding and analysis for this study.

Results

Participant characteristics

Overall, the research team interviewed 15 participants (4 principals, 3 assistant principals, 4 classroom teachers, and 4 physical education teachers) from 10 traditional elementary schools within a midsize ($n = 25$) school district. Of the 10 schools, 90% were Title 1 schools ($\geq 40\%$ of students are from low income families), and on average 70% of the students at those schools were economically disadvantaged during the 2017–2018 school year. The average racial/ethnic makeup of children at the schools was 6.8% Black, 58.0% Hispanic, 20.2% non-Hispanic White, and 15.0% of students fell into another racial/ethnic category. The

majority of interview participants were female (93%) and between the ages of 36–55 years old (73%). On average, interviewees had 8.5 years of experience in their current position.

Physical activity opportunities in schools

Participants discussed physical education, recess, before-and after-school, the classroom, and yearly activities (e.g., field days) as relevant physical activity opportunities to adopt approaches. Over the course of the study, we identified four themes related to adoption of physical activity approaches: (1) Staff identify new approaches through numerous channels; (2) Adoption occurs at multiple organizational levels; (3) District staff fulfilled a supporting role in the adoption process; and (4) School staff's perceptions of approach characteristics influence adoption.

Staff identify new approaches through numerous channels

Participants learned about physical activity approaches through both internal and external communication channels. For internal communication channels, participants described staff in-service days, e-mails between colleagues within the district (Table 1- Quote 1) and staff meetings as ways of learning about approaches. In addition, participants emphasized colleagues' word-of-mouth referrals and talking/visiting with other schools as fruitful opportunities for learning about physical activity approaches. Participants endorsed internal communication channels above other channels, as the personal connection allowed them to ask more questions and get additional information about implementation that they might not have considered (Table 1- Quote 2). Additionally, some participants suggested that the information provided by colleagues might not be accessible via other sources (Table 1 – Quote 3).

External communication channels that participants discussed included professional development opportunities/trainings, conventions and conferences, online resources (e.g., open source curriculum), e-mail exchanges with colleagues in other districts, professional associations (e.g., health-fitness teacher association), and social media (e.g., Facebook, Twitter). Additionally, participants discussed vendors, both at conferences and from outside organizations, as opportunities to learn about physical activity approaches (Table 1 – Quote 4). Participants did not highlight any of these external resources as providing more valuable information than the others provide, but social media connections were generally professional colleagues, and thus were more personal than other external communication channels (Table 1 – Quotes 5 and 6).

Table 1. Quotes for *Staff identify new approaches through numerous channels.*

Quote 1	“Okay, let me e-mail her and see e-mail, ‘Hey, are you all doing this? How’s it going?’ And she’ll go, ‘Oh, yeah, it’s great. You should do it. Here’s the person.’” ● #3 Assistant Principal (F)
Quote 2	“Just hearing from other schools, I think, would be neat, that have actually adopted it and, like, the benefits they saw. Just because I think it’s a good idea, there might be some other things that we haven’t considered because we’ve never implemented it. Whereas, at other campuses or other schools that have, they could share that.” ● #15 Assistant Principal (F)
Quote 3	“We have a great [District name] health fitness teachers association. Sometimes I learn more on the car ride to our conventions than I do actually – you know what I’m saying? We have a great – all you need to do is send in an e-mail that says, ‘Hey, I want to teach whatever. Can anybody help me?’ And you’ve got lesson plans and books and videos and whatever you need.” ● #1 Physical Education Teacher (F)
Quote 4	“This summer I’ll be going to a principals’ conference in Austin for about three or four days, and there will be a thousand vendors there trying to sell me whatever it is they have.” ● #12 Principal (F)
Quote 5	“We use the Internet. It seems like we all have friends – teacher-friends that are in other districts. So what they’ve done – my best friend is a principal to the district that I said does the four recesses. So I called her, and I put [name redacted] in touch with her. It’s just people that we know; other teachers, other districts, what we’ve seen, what we’ve heard.” ● #6 Teacher (F)
Quote 6	“Well, Twitter – I have to say [name redacted], he keeps tagging me on stuff. I use Twitter professionally.” ● #8 Teacher (F)

Adoption occurs at multiple organizational levels

District-level adoption of physical activity approaches occurred in several ways. For physical education curricula (i.e., SPARK and CATCH), participants reported that the district chose and provided access to state-approved curricula for all of their schools. Schools, led by the physical education teacher, chose which district-approved curricula to use for their students (Table 2 – Quote 1). Many teachers described using one of the state-approved curricula, and in some cases, combined multiple curricula to fit their teaching styles (Table 2 – Quotes 2). In addition to selecting curricula, the district also provided access to a variety of other physical activity events (e.g., once-a-year initiatives). Events were organized or led by the district, but school leaders and teachers chose which approaches their school adopted (i.e., participated) (Table 2 – Quote 3). Participants also suggested that the district could facilitate the adoption of an approach by mandating it. Although participants suggested mandates as an option, they also expressed concern that teachers might resent the district for forcing them to use an approach, which could result in less buy-in from school staff (Table 2 – Quote 4). Participants discussed very few district-mandated physical approaches, and school leaders or staff suggested that they had chosen to adopt most of the approaches at the school level.

At the school level, school leaders and staff worked together when adopting physical activity approaches that the district had not already adopted/mandated. For example, the district supported classroom-based physical activity approaches (e.g., brain breaks), but did not mandate them. In this example, staff members would introduce the approach to school leaders (Table 2 – Quote 5) and

provide information (e.g., benefits of the approach, necessary resources, staff effort required) about it; then, leaders would make adoption decisions (Table 2 – Quotes 6 and 7). When an approach provided clear benefits and required few resources, school leaders individually made an adoption decision or approved/disapproved of staff using an approach. Other times, when the decision was not as clear, school leaders would assemble a committee or discuss the adoption decision with their school planning group (Table 2 – Quote 8 and 9). A planning group/committee helped engage staff throughout the entire school to ensure an approach was a good fit with the school’s mission, prioritized annual objectives, and worked within resource constraints. If the planning group/committee was convinced about the benefits of an approach and the school had the required resources, then the school usually adopted the approach. When more resources were required, school staff also sought feedback from school health advisory committees, parent committees, and/or internal teacher committees, some of which had financial resources to contribute to the adoption process (Table 2 – Quote 10).

School leaders and staff also adopted physical activity approaches in other ways. In one case, a principal attended a physical education conference where she learned about the benefits of multiple recesses, and subsequently pilot tested the approach in her elementary school (Table 2 – Quote 11). In other cases, community partners contacted school leaders about before- and after-school approaches (e.g., sports programs), which required district vetting and approval prior to use. For less resource- or time-intensive approaches (e.g., brain breaks, flexible seating, or online physical education

Table 2. Quotes for *Adoption occurs at multiple organizational levels.*

Quote 1	"I mean, the district has SPARK and CATCH. But I use SPARK, CATCH, and whatever else." ● #14 Physical Education Teacher (F)
Quote 2	"I look at a curriculum that's simple, that's easy, that has like – for SPARK's, I can take one of those lessons and give it to you, and you could read it and go through it and teach the class (...) George, Graham. I've used his books. And he has lessons in there, lesson plans that you could say, okay, boys and girls today we're going to talk about kicking, kicking the ball. (...) I would show Steph Curry doing his warm-up. It's mind blowing. Two minutes just blows you away, of all the different ways he's dribbling that ball. That's my hook. I've got my kids in. 'Okay, boys and girls, we're going to learn dribbling today.' They're ready. And of course, they all think they're Steph Curry. So I use curriculums that show me step-by-step how to infuse in, that have reflecting questions, that have assessments in there for me, that are just easy and simple but good. So that's what I use. So that's why I said I have all kinds. I use a little of SPARK's. I use a little of this. It's like a recipe." ● #14 Physical Education Teacher (F)
Quote 3	"That's a lot of it. Our district, though, district-wide, we have a ton of events that they offer. So – uhm – a lot of like – we do a golf program, we do a tennis day, we do a track meet, we do a fitness extravaganza on the weekends, we do a 5 K run, we do a walk for wellness. There are so many initiatives that the district – allows us to participate in, and they – they offer them. But as a health fitness teacher, I'm the one that chooses when we participate, who participates, if we participate, so all of those things. So they kind of give you the buffet of activities and then we pick and choose." ● #4 Physical Education Teacher (F)
Quote 4	"It would almost be easier if she just picked one or two and said this is a mandated thing. So – it's great because the teachers that are bought in really buy in and it's not forced upon them. But then at the same time – we have teachers that really need to be bought in, like with our Brain Breaks they really need to be bought in but they just – they haven't." ● #4 Physical Education Teacher (F)
Quote 5	"She's going to bring this knowledge because she's going to a training [for active learning] this summer. So I'm going to let her be the person who would guide me and let me know, like, Hey, this is what we would have to do, and this is how it would work." ● #13 Principal
Quote 6	"I have approached [the principal] three years. I gave up this year. I wanted to implement a brain-based learning center. I have seen it. I wanted to – we have the room. Again, I think it was just something that is overwhelming if you don't see it and then to implement it. Whenever you are implementing something, you are going to work – if it requires say ten hours, it's going to require you initially start up fifty to get everything in place. So it just never happened." ● #2 Physical Education Teacher
Quote 7	"They want to see data. They want to know that you've researched it, and it has some kind of back up. They want to know the benefits for students, the drawbacks for students, and how it's going to be achieved, who all is involved, what does it take, and how we're going to prove it?" ● #6 Teacher (F)
Quote 8	"And so we meet as a faculty every Wednesday, except for the last Wednesday of the month, and we meet with team leaders once a month. And so, if something comes up or somebody has an idea, we would start with team leaders and say, 'Hey, you know, some of our physical education teachers have this idea at recess to do this.' And then they kind of talk about it and debate it. They take it back to their teams and – I mean, it's really a democracy, I'll be honest. Sometimes it's all about selling it." ● #3 Assistant Principal (F)
Quote 9	"So I think it would depend on who felt that way first. If I felt like we needed it, then I would probably approach the principal. And usually too, you try to come up with a couple of ideas of what you could do. And then I don't know that we'd get a committee on things. It would usually be the principal or one of the APs, myself, the other PE teacher, and then we'd get [name omitted] involved." ● #14 Physical Education Teacher (F)
Quote 10	"We received – the reason we have equipment for that is that either we bought it through our general funds or the PTA supported that and bought – I think this year they gave [name omitted] like \$10,000 to help build up that lab, because they see the importance of it as well. So we were able to provide that this year." ● #12 Principal (F)
Quote 11	"Last year, I went to a conference. It was a health fitness conference. (...) And one of the things I saw was the double recess. And so that was the one thing that I came back with kindergarten, at least to start trying with, and just say, 'Okay, guys, how do you feel about having a double recess?' And of course, they were like, 'Yay!' (laughs) 'Are you sure? Is it okay for us to do that?' And I'm like, 'Well,' I said, 'well, let's talk about the benefits, why we're doing this. Well, the reason why is because we want to get the most out of them. But let's – can I just – let's try this with you guys and see how it works.' And it's – they continued to do it this year." ● #16 Principal (F)
Quote 12	"So, we are very – in our district, we are very site-based. It's pretty easy to bring things in, if – especially, if there's not a lot of costs associated with them. A lot of the things we do, we do because our health fitness teacher or PTA or somebody has said, 'Hey, have you heard of this? This would be really cool.' And we try it and it is really cool, and it turns into a thing." ● #3 Assistant Principal (F)

CATCH- Coordinated Approach to Child Health; PE- physical education; PTA-parent teacher association; SPARK- Sports, Play, and Active Recreation for Kids

curricula), teachers or schools would often pilot test and/or use these approaches without requesting approval from the district (Table 2 – Quote 12).

District staff fulfilled a supporting role in the adoption process

The district also supported the adoption of approaches by vetting curricula/vendors, which consisted of conducting background checks and ensuring approaches were

appropriate for schools. Once the district vetted an approach, they placed it on an approved vendor list, which school leaders perceived as a useful tool when considering adopting new approaches (Table 3 – Quote 1). The district did not help schools to choose approaches from the list, but the list served as a form of institutional approval. The district also supported adoption by providing money to help pay for the initial offsite trainings for newly adopted classroom-based

Table 3. Quotes for *District staff fulfilled a supporting role in the adoption process.*

Quote 1	<p>“Part of the challenge for us – and the district helps with that – is that they have to go through that vetting process to become an approved vendor, so that somebody has checked out to make sure they’re a legitimate thing (. . .). So when we get that list every year, it’s like I know I can choose off of that, and everybody’s been checked out, their program. They have done their research to make sure that other schools who have used that, what’s the benefit from that? Would you go back and use them again and why? That’s very helpful. For me, it saves a lot of time in that I don’t have to interview every one of those people and get all the paperwork done.”</p> <ul style="list-style-type: none"> ● #12 Principal (F)
Quote 2	<p>“Like an action-based learning lab is just an initiative that the health fitness director chose to do, and so people who are interested can go to training. The district will pay for that training, like I didn’t have to pay for that.”</p> <ul style="list-style-type: none"> ● #12 Principal (F)
Quote 3	<p>“I mean, we have a health-fitness department. They should be the ones who say, ‘Okay, these – give us – fine, these are great programs for you to use.’ And then put us in contact with other people who have used it, and then we can see what they’ve liked, what they haven’t liked, what has worked, what hasn’t worked.”</p> <ul style="list-style-type: none"> ● #9 Teacher (F)
Quote 4	<p>“... some information from other principals that have utilized them [programs] to find out how their experience has been. What they have seen as a benefit. What they felt were maybe areas to improve upon so that we could make a really informed decision. Input from students that are currently in the program. If my colleagues at [school name redacted] have this great program, I want to know why it’s great. What do you like about it? Is it just because it’s convenient for teachers or is it because the kids think it’s awesome? If the kids think it’s awesome then that’s where I’m going to start.”</p> <ul style="list-style-type: none"> ● #10 Principal (F)

physical activity approaches (Table 3 – Quote 2). Only teachers who were interested in adopting the approach were offered the opportunity to attend the training, and districts limited the number of opportunities based on their available budget for the year.

Participants appreciated the district’s approved vendor list and financial support for training, but they also provided additional suggestions where district support may be beneficial in the adoption process. Participants suggested that the district could provide additional financial assistance for procuring the supplies needed for a new approach, provide guidance on selecting and starting new approaches, and facilitate district-wide information sharing that would allow schools that were already using an approach to share their experiences with others (Table 3 – Quote 3). School staff also noted that they wanted help identifying approaches that might be a good fit for the children at their school (Table 3 – Quote 4). Specifically, participants suggested that the district could reach out to teachers and/or school leaders to determine the types of approaches that they are seeking (e.g., team building, before- or after-school) and recommend high-quality approaches in those areas.

School staff’s perceptions of approach characteristics influence adoption

School staff’s initial assessment of a new physical activity approach was an important part of the adoption process. To assess new approaches, school leaders sent teachers to train on them, asked other teachers/leaders in the district about them, consulted with district staff (Table 4 – Quote 1), or brought in an expert to teach about them. Assessment types were not mutually exclusive, but the number and choice of assessments were based on staff’s knowledge of available resources. Participants reported

that assessments of an approach provided preliminary information about the approach’s feasibility, but also provided information about factors that might affect its adoption (Table 4- Quote 2).

School staff considered many factors when adopting a new physical activity approach. Important resource-related factors included money, equipment/supplies, space, logistical needs (e.g., busing) and the time required to set up/deliver the approach (Table 4-Quote 3). Approaches requiring a substantial amount of resources were harder for schools to adopt than approaches that required fewer resources (e.g., motor lab vs. classroom physical activity breaks). In some cases where resources were required to start an approach and teacher believed that the approach offered a substantial benefit to children (i.e., non-resource related factor), teachers volunteered their time or wrote grants to generate the resources required (Table 4 – Quote 4). Teachers expressed pride about adopting programs through volunteering/grant writing, but time constraints limited the number of approaches that they could champion.

Participants also reported potential benefits that programs provided to students, competing priorities (e.g., academics), and competing initiatives (e.g., new reading program) as non-resource related factors that they considered when adopting an approach. For example, one teacher reported that several of her colleagues, especially those in testing grades, might be reluctant to use an active-based learning approach that would compete for classroom time with testing subjects (e.g., math, reading) (Table 4 – Quote 4). Similarly, principals reported pilot testing new approaches in younger grades, so that they would not disrupt the schedules of classrooms that were preparing for statewide testing. Evidence for an approach, whether other schools were using the

Table 4. Quotes for *School staff's considerations for adopting approaches.*

Quote 1	"We'll go – you know – we can call him [district wellness person] and say, Hey, we're thinking about this program. What do you think? Is it something we can do, and we'll get feedback?" ● #9 Teacher (F)
Quote 2	"We heard of the program, asked the vendor to come in, the representative. He explained it to us. And it sounded really great. It's just, the money – we just couldn't fund it. But it sounded pretty neat." ● #15 Assistant Principal (F)
Quote 3	"I think something like 'Playworks' would require, at least for me, like, a year in advance. Like, let's say it wouldn't be for next year implementation but the following year because I would have to consider of, like, do we have all the equipment? What resources do we need? Do we need to purchase anything? Who do we train? How do we go about – how that will blend into our schedule that we already have." ● #15 Assistant Principal (F)
Quote 4	"So, we – one of our teachers saw a motor lab on another campus, and it was like, 'Oh, my gosh, we need this.' And she wrote a grant through our educational foundation. She received a grant that not only got the supplies that we needed but trained her to facilitate the lab. But again, it's all – it's not the district saying you have to do this. It's our teachers saying, This is a cool thing we need to do it for our kids." ● #1 Physical Education Teacher (F)
Quote 5	"A lot of them [teachers] here do not want to budge. I come in, I teach, I go home. That's it – like I don't need anything new, my day is crammed. I do not teach it – a testing grade. So, I can't attest to them or grades and homework, and having to do – every teacher is going to tell you there's no enough hours in the day – enough time but I found that the time that I spend where I do change [add physical activity] it is more valuable than had I have not." ● #6 Teacher (F)
Quote 6	"Well, I'd probably have to, obviously, do some research behind each one. I would have to consider funding obviously, but I think we would go – again, we would always keep our campus goals and initiatives at the forefront. Because if this is what we want in the end, whatever the result is, whatever program we choose, it should directly align to meet with that need." ● #10 Principal (F)
Quote 7	"Part of it is, for us here in our process, that we look at, it's based on need, like what do our kids need? What can we provide for them that they don't have access to? I guess we kind of look at it like I want all doors to be open for those kids (. . .) If they don't have any exposure to like the [soccer camp] or the hip-hop, or they don't have exposure to playing an instrument or drums, they will never know it's even out there." ● #12 Principal (F)

approach, staff acceptability, ease of delivery, and student enthusiasm for an approach were other non-resource related factors that participants reported as important when adopting an approach. When faced with multiple feasible approaches to adopt, participants reported that school leaders were more likely to choose those that aligned with their school's mission/goal/strategic plan (Table 4 – Quote 6) and met their students' needs (Table 4 – Quote 7).

Discussion

Overall, the purpose of this study was to understand how elementary schools are naturally selecting and adopting multiple school-based physical activity approaches from the perspective of principals/assistant principals, physical education teachers, and classroom teachers. School staff perceived that adoption of physical activity approaches occurred in a variety of ways and at multiple organizational levels. In some cases, classroom teachers or physical education teachers identified approaches to adopt, but in other cases, school leaders or district staff identified them. Once adopted, an approach's reach increased/decreased as staff shared the approach through various communications channels. For example, an approach that a teacher initially adopted was subsequently adopted by the district. Findings indicating that adoption decisions were not necessarily all-or nothing propositions. Consistent with multi-level physical activity frameworks, participants described district-, school-, and individual-level processes

and obstacles for organically adopting multiple physical activity approaches,²² which varied based on the individual who was championing the approach. Although processes varied greatly, we identified several important factors that could help increased the likelihood of approach adoption for schools in this district, which could also be examined for applicability in other schools.

First, consistent with previous research, our results emphasize the importance of including multiple school stakeholders in the communication and collaboration for adoption decisions.¹⁷ Consistent with the ISF, we found that schools rely on multiple stakeholders within the school community to set priorities, assess, select, and approve approaches.¹³ For example, synthesis and translation of physical activity approaches occurred at both the district- and school-level. The district synthesized physical activity approaches using an approved vendor list, which schools used as a means to find high quality and district approved approaches. School level staff (i.e., principals and teachers) also synthesized and translated approaches by providing additional guidance to their peers through conferences, social media, and word-of-mouth referrals. Although both districts and schools were involved with the adoption decisions, school staff suggested that the district could do more to facilitate the adoption of approaches using additional communication processes (e.g., a formalized approach to district-wide information sharing). A suggestion emphasizing this districts role as a support system for improving the adoption of their physical activity approaches.

Second, school staff used both internal and external communications channels to identify new physical activity approaches. Organizational relationships (i.e., inter-organizational) are important components of determining readiness to initiate a new approach.²³ We found that schools use both internal and external relationships to exchange information when identifying approaches to adopt. Consequently, it is important for researchers to share new evidence-based interventions not only with schools and districts, but also with the important community partners who work with schools to adopt programs (e.g. state education agencies, professional associations). Additionally, researchers should share communications via multiple channels (e.g., social media, presentations). By increasing the number of organizations and channels who share evidence-based approaches, we may also increase school's likelihood of adopting these types of approaches.

Third, we found that approach adoption was generally contingent on school staff's perceptions of the characteristics of an approach. Characteristics of an approach are important factors related to an organization's motivation to adopt an approach, and can include compatibility, complexity, observability, relative advantage, and trialability.²³ Previous research has shown that student outcomes (e.g., observability), ease of implementation (i.e., complexity), equipment, and evidence are important factors that school staff consider when adopting physical education curricula.^{16,17} Our study adds to this by showing that an approach's relative advantage (i.e., benefit of one approach over another), compatibility (i.e., consistent with the mission of the school), and trialability (i.e., ability to pilot) are also important factors related to the adoption of that approach. Additionally, this study provides context about how stakeholders view these factors in their decision-making processes.

Finally, participants reported that pilot testing was a useful way to introduce new approaches. Pilot testing is a common implementation strategy that is useful for identifying insight into improving program delivery.²⁴ In our study, school leaders or teachers pilot tested approaches, before full-scale implementation, so they could understand implementation challenges and approach benefits. Pilot testing also allowed schools to assess necessary programmatic resources including time, money, space, staff, and information, which are significant factors when making decisions about the adoption of physical activity approaches. Although many research- and school-based physical activity approaches are currently pilot tested prior to implementing large-scale trials, future studies should also consider ways that pilot testing can improve the school- and district-level adoption of approaches.

This study has several important strengths. First, previous qualitative research has examined the adoption of physical education curricula,¹⁶ but this study included questions about physical activity approaches used throughout the entire school day (e.g., classroom-based, after-school). Additionally, we provide new information on how physical activity approaches are adopted organically. Research suggests that offering approaches throughout the whole school day can improve physical activity outcomes and children's health.^{4,25,26} This study provides further support that schools are currently organically adopting physical activity approaches outside of physical education and recess, and that these approaches include other domains (e.g., before- and after-school, classroom-based) that are prioritized by models for implementing comprehensive school-day physical activity programs. In addition, this study shows that stakeholders (e.g., classroom teachers) other than physical education staff are responsible for the adoption and delivery of approaches within these domains. Classroom teachers are often the first to hear about new physical activity approaches, so it is important that school leadership create an environment that supports and promotes their ideas. A second strength of this study is that it provides an in-depth look at the adoption process using purposeful sampling in a school district that has made efforts to integrate physical activity into the school day. For example, participants in this study described several ways that their district supported the adoption of school-based physical activity approaches, but also described additional ways to expand upon the support the district is currently providing. Without the use of qualitative methodology, we may not have known that the district is both proactively involved with supporting adoption and has the potential to provide additional support. Finally, this study includes the perspectives of multiple stakeholders in the school setting, each with individual challenges related to supporting children's health. Obtaining views from different stakeholders allowed for a more comprehensive understanding of the adoption process in elementary schools, as adoption of physical activity approaches may not be the top priority for all stakeholders involved with the delivery of comprehensive school-day physical activity approaches.

Interview participants were limited to principals/assistant principals, physical education teachers, and classroom teachers, but there are other individuals including district staff, state-level administrators, parents, school health advisory committees and children who may be important stakeholders in adoption decisions. Additionally, these stakeholders may view their roles in the adoption process differently than interview

participants. Further information about how each of these stakeholders contributes to the adoption process may provide additional insights. This study was also limited to one urban school district in Texas. Adoption processes may be different for suburban, rural or frontier schools, as well as for school in other states.

Conclusion. Overall, this study found that schools adopt physical activity approaches at both the district- and school-level and to various extents (e.g., one classroom vs. district wide). In addition, multiple stakeholders played a role in the adoption process. Stakeholders' roles may vary across different physical activity approaches, and important factors that stakeholders consider when adopting approaches include both resource-related factors (e.g., time, money, space) and non-resource related factors (e.g., competing initiatives, approach acceptability). Future studies should examine ways to reduce barriers and/or improve how the district translates information to best support the adoption of physical activity approaches.

Translation to Health Education Practice

Results from this study can help inform health educators' responsibilities as defined by the National Commission for Health Education Credentialing (NCHEC), specifically related to Area 1: Assessment of Needs and Capacity and Area 2: Planning. Through our primary data collection (NCHEC competency 1.2), we recognize that formal qualitative data collection is an important process that can ascertain pertinent details related to the adoption of physical activity approaches, which may not be accessible through quantitative methods. For example, synthesis of our qualitative data (NCHEC competency 1.4) revealed that approach adoption is not necessarily an all or nothing proposition, and that the assessment on school's needs and available resources may be important factors to consider for adoption. Health educators trained in qualitative methodology can preemptively identify barriers/facilitators related to approach adoption, and in turn, guide districts through a processes (e.g., pilot-testing) that may improve adoption rates for effective physical activity approaches.

Our findings also suggest that the priority population, partners, and stakeholders involved in the planning of physical activity approaches (NCHEC competency 2.1) should include all school staff, but interviewees also suggest that partners such as school health advisory committees, parent committees, and/or internal teacher committees can provide expertise and resources for adoption. Additionally, we found that when determining the physical activity approach that a school would adopt (NCHEC competency 2.3), school staff used internal and external communication channels. However,

interviewees did not describe using existing evidenced-based resources (e.g., RTIPs¹¹). Health educators with connections to valuable community partners and knowledgeable about resources for EBAs would be valuable assets for schools when adopting new physical activity approaches.

Insights from this study also provide several avenues for improving the adoption of school-based physical activity approaches, which health educators may consider when working with their school. First, there is a critical need for developing/enhancing tools that provide easily accessible information that stakeholders can use when learning about approaches, assessing fit and feasibility, and deciding on the adoption of specific physical activity approaches.²⁷ These tools should consider the resources required for delivery of an approach and the alignment of approaches with a school's mission and children's needs. Second, school staff are already sharing resources and knowledge with staff from other schools, but formal processes that allow frequent communication could provide an avenue to speed up the adoption of approaches within the school setting. Finally, policies that provide teachers more time and support to pilot test physical activity approaches could provide more immediately relevant information on the feasibility of adopting new approaches.

Acknowledgments

The authors would like to acknowledge all of the teachers and staff who participated in the interview process. Without their willingness to share their valuable insights, this work would not be possible. This research was made possible in part by the Center for Energy Balance in Cancer Prevention and Survivorship, and the Duncan Family Institute for Cancer Prevention and Risk Assessment at UT MD Anderson Cancer Center.

Disclosure statement

The authors declare that they have no competing interests.

Funding

This work was funded by The University of Texas Health Science Center at Houston School of Public Health Cancer Education and Career Development Program grant from the National Cancer Institute (R25 CA057712) and a research career development award for (K12HD052023); Building Interdisciplinary Research Career in Women's Health Program-BIRCWH; Berenson, PI) from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) at the National Institutes of Health awarded to Dr. Walker. Preparation of this manuscript was funded in part by The National Cancer Institute/NIH Grant-National Cancer Institute/NIH Grant T32/CA057712, awarded to the University of Texas Health Science Center at

Houston School of Public Health Cancer Education and Career Development Program. Partial funding was provided by the Michael & Susan Dell Center for Healthy Living for Jacob Szeszulski for his contribution. Michael C. Robertson was supported by the National Cancer Institute of the National Institutes of Health under award number F31 CA236433. None of the funding agencies played any role in the design, data collection, analysis, interpretation, or reporting of data from this study. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Cancer Institute or the National Institutes of Health.

ORCID

Jacob Szeszulski  <http://orcid.org/0000-0003-0709-5594>
 Timothy J. Walker  <http://orcid.org/0000-0003-3171-5431>
 Michael C. Robertson  <http://orcid.org/0000-0002-2240-014X>
 Paula Cuccaro  <http://orcid.org/0000-0002-9551-4789>
 Maria E. Fernandez  <http://orcid.org/0000-0002-7979-7379>

Data Availability

Data and interview guide are available from authors upon reasonable request.

References

- Rowe F, Stewart D, Somerset S. Nutrition education: towards a whole-school approach. *Health Educ.* 2010;110(3):197–208. doi:10.1108/09654281011038868.
- Shoup JA, Gattshall M, Dandamudi P, Estabrooks P. Physical activity, quality of life, and weight status in overweight children. *Qual Life Res.* 2008;17(3):407–412. doi:10.1007/s11136-008-9312-y.
- National Physical Activity Plan Alliance. *The 2018 United States Report Card on Physical Activity for Children and Youth*. Washington, DC: National Physical Activity Plan Alliance; 2018.
- Kohl III HW, Cook HD. *Educating the Student Body: Taking Physical Activity and Physical Education to School*. Washington, DC: National Academies Press; 2013.
- Piercy KL, Troiano RP, Ballard RM, et al. The physical activity guidelines for Americans. *JAMA.* 2018;320(19):2020–2028. doi:10.1001/jama.2018.14854.
- Rabin BA, Brownson RC, Haire-Joshu D, Kreuter MW, Weaver NL. A glossary for dissemination and implementation research in health. *J Public Health Manag Pract.* 2008;14(2):117–123. doi:10.1097/01.PHH.0000311888.06252.bb.
- Proctor E, Silmere H, Raghavan R, et al. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. *Adm Policy Ment Health.* 2011;38(2):65–76. doi:10.1007/s10488-010-0319-7.
- Glasgow RE, Harden SM, Gaglio B, et al. RE-AIM planning and evaluation framework: adapting to new science and practice with a twenty-year review. *Front Public Health.* 2019;7:64. doi:10.3389/fpubh.2019.00064.
- Kelder SH, Springer AE, Barroso CS, et al. Implementation of Texas Senate Bill 19 to increase physical activity in elementary schools. *J Public Health Policy.* 2009;30(1):S221–S247. doi:10.1057/jphp.2008.64.
- SHAPE America, American Heart Association. *Shape of the Nation: Status of Physical Education in the USA*. Annapolis Junction, MD: SHAPE America; 2016.
- National Cancer Institute. Research-tested interventions programs. <https://rtips.cancer.gov/rtips/index.do>. Published February 14, 2019. Accessed October 18, 2019.
- U.S. Department of Health and Human Services. EBP resource center. *Substance Abuse and Mental Health Services Administration*. <https://www.samhsa.gov/ebp-resource-center>. Published October 9, 2019. Accessed October 18, 2019.
- Wandersman A, Duffy J, Flaspohler P, et al. Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation. *Am J Community Psychol.* 2008;41(3–4):171–181. doi:10.1007/s10464-008-9174-z.
- Janssen M, Toussaint HM, van Mechelen W, Verhagen EA. Translating the PLAYgrounds program into practice: a process evaluation using the RE-AIM framework. *J Sci Med Sport.* 2013;16(3):211–216. doi:10.1016/j.jsams.2012.06.009.
- Olstad DL, Campbell EJ, Raine KD, Nykiforuk CI. A multiple case history and systematic review of adoption, diffusion, implementation and impact of provincial daily physical activity policies in Canadian schools. *BMC Public Health.* 2015;15(1):385. doi:10.1186/s12889-015-1669-6.
- Lounsbury MA, McKenzie TL, Trost S, Smith NJ. Facilitators and barriers to adopting evidence-based physical education in elementary schools. *J Phys Act Health.* 2011;8(s1):S17–S25. doi:10.1123/jpah.8.s1.s17.
- Hayes CB, O’Shea MP, Foley-Nolan C, McCarthy M, Harrington JM. Barriers and facilitators to adoption, implementation and sustainment of obesity prevention interventions in schoolchildren—a DEDIPAC case study. *BMC Public Health.* 2019;19:198. doi:10.1186/s12889-018-6368-7.
- Webster CA, Zarrett N, Cook BS, Egan C, Nesbitt D, Weaver RG. Movement integration in elementary classrooms: teacher perceptions and implications for program planning. *Eval Program Plann.* 2017;61:134–143. doi:10.1016/j.evalprogplan.2016.12.011.
- McGoey T, Root Z, Bruner MW, Law B. Evaluation of physical activity interventions in children via the reach, efficacy/ effectiveness, adoption, implementation, and maintenance (RE-AIM) framework: a systematic review of randomized and non-randomized trials. *Prev Med.* 2016;82:8–19. doi:10.1016/j.ypmed.2015.11.004.
- Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res.* 2005;15(9):1277–1288. doi:10.1177/1049732305276687.
- Neale J. Iterative categorization (IC): a systematic technique for analysing qualitative data. *Addiction.* 2016;111(6):1096–1106. doi:10.1111/add.13314.
- Spence JC, Lee RE. Toward a comprehensive model of physical activity. *Psychol Sport Exerc.* 2003;4(1):7–24. doi:10.1016/S1469-0292(02)00014-6.

23. Scaccia JP, Cook BS, Lamont A, et al. A practical implementation science heuristic for organizational readiness: R= MC2. *J Community Psychol.* 2015;43(4):484–501. doi:10.1002/jcop.21698.
24. Cook CR, Lyon AR, Locke J, Waltz T, Powell BJ. Adapting a compilation of implementation strategies to advance school-based implementation research and practice. *Prev Sci.* 2019;20(6):914–935. doi:10.1007/s11121-019-01017-1.
25. Colabianchi N, Griffin JL, Slater SJ, O'Malley PM, Johnston LD. The whole-of-school approach to physical activity: findings from a national sample of U.S. secondary students. *Am J Prev Med.* 2015;49(3):387–394. doi:10.1016/j.amepre.2015.02.012.
26. Beets MW, Beighle A, Erwin HE, Huberty JL. After-school program impact on physical activity and fitness: a meta-analysis. *Am J Prev Med.* 2009;36(6):527–537. doi:10.1016/j.amepre.2009.01.033.
27. Hernandez BF, Peskin MF, Shegog R, et al. iCHAMPSS: usability and psychosocial impact for increasing implementation of sexual health education. *Health Promot Pract.* 2017;18(3):366–380. doi:10.1177/1524839916682004.