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Partnerships for Active Children in Elementary Schools (PACES): First year process evaluation

Cate A. Egan[a,*], Collin Webster[b], R. Glenn Weaver[b], Ali Brian[b], David Stodden[b], Laura Russ[b], Danielle Nesbitt[b], Spyridoula Vazou[c]

[a] University of Idaho, College of Education,875 Perimeter Drive MS 2401, Moscow, ID, 83844, United States
[b] University of South Carolina, 1300 Wheat Street, Blatt PE Center, Columbia, SC 29208, United States
[c] Iowa State University, 534 Wallace Road, Ames, IA 5001, United States

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ABSTRACT

Movement integration (MI) is a strategy within comprehensive school physical activity programs (CSPAP). School-university partnerships are recommended to leverage teachers' capacity to use MI. A mixed method process evaluation was conducted of the first year of implementing Partnerships for Active Children in Elementary Schools (PACES). Classroom teachers (N = 12) from four schools participated. Data were collected in Fall 2014 (baseline) and Spring 2015 (~ four months of intervention) using the System for Observing Student Movement in Academic Routines and Transitions and semi-structured interviews. There were no significant differences between intervention classrooms and control classrooms MI promotion. Differences approaching significance (U = 5, p = 0.04, d = 1.2) were observed when comparing classrooms that received two (community of practice, community-based participatory research) or three components (two components plus service learning) of the intervention and classrooms that received one (community of practice) or no components. Qualitative findings revealed that teachers in classrooms that were more successful responded more favorably to the intervention components than teachers in classrooms that were less successful. Quantitative and qualitative results supported the effectiveness of community-based participatory research as a component of PACES. This study provides information about MI process variables in the context of a CSPAP intervention.

1. Introduction

The Institute of Medicine (IOM, 2013) advocates for a whole school approach to promoting youth physical activity (PA). One example of such an approach is a comprehensive school physical activity program (CSPAP; Centers for Disease Control [CDC], 2013; National Association for Sport and Physical Education, 2008) consisting of five components: (a) physical education, (b) PA during school, (c) PA before and after school, (d) staff involvement, and (e) family and community engagement. Together, these components are intended to provide children with sufficient opportunities to accumulate 60 min of PA each day (IOM, 2013).

In order to maximize the potential of each CSPAP component for increasing children's PA, it is important to understand the affordances and limitations of promoting PA within each CSPAP component. The present study focuses on the general education classroom as a key context for PA promotion during school. Integrating movement opportunities within general education classrooms is widely recommended as an evidence-based strategy to increase children's PA during school hours (CDC, 2013; IOM, 2013; Pangrazi, Beighle, Vehige, & Vack, 2003). Movement integration (MI) is defined as infusing PA, at any level of intensity, into regular classroom time (Webster, Russ, Vazou, Goh, & Erwin, 2015). Opportunities for classroom-based PA can be teacher-directed (e.g., organizing and directing the class in a transition between lessons) or non-teacher-directed (e.g., students using stand-biased desks or moving around the classroom to get materials they need) and can include academic movement activities (e.g., integrating PA into a math lesson), and non-academic movement activities, (e.g., providing a "brain break;" Russ et al., 2016). In a recent meta-analysis, MI interventions revealed a large overall effect size (d = 0.99) on children's PA (Erwin, Fedewa, Beighle, & Ahn, 2012). In addition to increasing PA, MI can have academic (Adams-Blair & Oliver, 2011) and social-emotional (Howie, Newman-Norlund, & Pate, 2014; Vazou & Smiley-Oyen, 2014) benefits for children.

While MI can increase children's PA and simultaneously promote other valued educational outcomes in schools, classroom teachers

* Corresponding author.
E-mail addresses: eganca@uidaho.edu (C.A. Egan), websterc@mailbox.sc.edu (C. Webster), weaverrg@mailbox.sc.edu (R.G. Weaver), brianali@mailbox.sc.edu (A. Brian), stodden@mailbox.sc.edu (D. Stodden), laurabruss@gmail.com (L. Russ), drnesbitt13@gmail.com (D. Nesbitt), svazou@iastate.edu (S. Vazou).

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report numerous barriers to integrating movement in their classroom. A common perception of classroom teachers is that providing opportunities for PA adds to an already overcrowded schedule (Cothran, Kulinna, & Garn, 2010; Gately, Curtis, & Hardaker, 2013; McMullen, Kulinna, & Cothran, 2014; Naylor, Macdonald, Zebedee, Reed, & McKay, 2006). Thus, it is not surprising that classroom teachers have reported lack of time for MI (Cothran et al., 2010; Dinkel, Lee, & Schaffer, 2016; Gately et al., 2013; McMullen, Martin, Jones, & Murtagh, 2016). Moreover, classroom teachers feel they lack sufficient training for MI (McMullen et al., 2014). Despite these challenges, classroom teachers have expressed positive attitudes towards MI (McMullen et al., 2016; Parks, Solmon, & Lee, 2007), and they desire support and resources (e.g., easy to use MI strategies with little to no equipment needed) for integrating movement into their classrooms (McMullen et al., 2016; Naylor et al., 2006).

One way to increase MI could be to establish school-university partnerships designed for this purpose. According to Crisp, Swerissen, and Duckett, 2000 the development of partnerships between organizations or groups is a capacity building approach that allows for a two-way flow of knowledge and resources for planning and implementing health programs. Consistent with this approach, Webster, Beets, Weaver, Vazou, and Russ (2015) proposed a partnership model for implementing and sustaining CSPAPs. The model emphasizes three complementary partnership approaches that could work synergistically to provide external support for school professionals in efforts to increase children's PA. The first approach is to use university-facilitated communities of practice (Cambridge, Kaplan, & Suter, 2005) to establish professional networks that teachers can use to interact and share ideas related to PA promotion. The second approach is to use community-based participatory research (Israel et al., 2003) in which university researchers and community members (i.e., school professionals) collaborate to identify and implement context-sensitive and optimally suitable PA promotion approaches. The third approach is to use service-learning (Borges & Hartung, 2007; Carson & Raguse, 2014), which involves having university students provide extra support for school professionals as part of formal coursework requirements.

The present study is a mixed-methods process evaluation of the first year of implementing a two year pilot intervention program called Partnerships for Active Children in Elementary Schools (PACES), which is based on the partnership model proposed by Webster, Beets et al. (2015). PACES is designed to provide PA promotion support for school professionals, especially those who currently engage in relatively little PA promotion. The purpose of this study was (a) to quantitatively examine the effect of three different PACES treatment levels (communities of practice, communities of practice + community-based participatory research, and communities of practice + community-based participatory research + service learning) on the extent of MI in the classrooms receiving the program (i.e., intervention classrooms) and (b) to qualitatively examine the program implementation process from the perspective of the teachers who taught in the intervention classrooms. With respect to the quantitative focus of the study, we hypothesized that PACES would increase MI in the intervention classrooms, and that increases in MI would be successively greater with each step up in treatment level. We further hypothesized that increases in MI would be greater in the intervention classrooms (regardless of treatment level) than in comparison classrooms not receiving the program (i.e., control classrooms).

2. Methods

2.1. Design

The PACES intervention is a non-randomized, pre-post with control group study. Specific to the data reported in the present investigation, we employed a sequential explanatory mixed-methods design (Thomas, Nelson, & Silverman, 2011).

2.2. Participants and setting

We purposively selected participants for the PACES intervention from four local elementary schools in two school districts from a greater metropolitan area in one southeastern state. School selection was based upon location (close proximity to the researchers' university), access (receptive to participating in research), and stated priorities (three of the schools identified school health as a priority in their strategic plan). We assigned the first three schools that accepted our invitation to participate (referred to from this point onward as Schools A, B, and C) to receive the PACES intervention, which lasted for three consecutive academic semesters (~12 months). The fourth school (School D) agreed to participate as a waitlisted control.

Schools A and B were magnet schools (companion campuses, i.e., two separate school campuses that share administrators and curricula focus) from one school district and Schools C and D were public schools from a different school district. Schools A and B served a combined total of 376 students. School A served students K-5 and School B students K-3. The ethnic/racial makeup of these students was 36% African American, 18% Other, and 44% White. Schools C and D served a combined total of 964 students in grades K-5. Based on publicly available school data, the ethnic/racial makeup of these students was 56% African American, 0.01% American Indian, 0.05% Asian/Hawaiian/Pacific Islander, 0.05% Hispanic, and 33% White. A total of 58.6% of the students at all schools were eligible for free and reduced lunch (South Carolina Department of Education, 2013) All students (N = 181) in the participating teachers' classrooms were eligible to participate, and 161 participated (48.45% female). Participating children's ages ranged from 6 to 9 years ($Mage$ = 7.28, SD = 0.95). Their ethnic/racial makeup included 56% African American, 2% Asian, 3% Hispanic, 7% Other, and 32% White.

During the baseline phase of the intervention (Fall 2014), classroom teachers at all four schools completed a survey (see Webster et al., 2017 for details) to provide background/demographic information and self-report data on current use of MI, which we used to identify the teachers who reported integrating movement the least in Grades 1–3 (for a total of 12 teachers). At the time of the study, Grade 3 was the highest grade in school B, so we made the decision to only include teachers from Grades 1–3 at each school for consistency. While not all study participants were the lowest-integrating teachers at their respective grade levels (i.e., some invited teachers chose not to participate in the study), the participant teachers' reported levels of MI were similar to those who chose not to participate (Webster et al., 2017). Participating teachers (female = 10, male = 2) ranged in age from 23 to 54 (M = 33.2, SD = 10.3) and self-identified as Non-Hispanic White (n = 11) and African American (n = 1). The teachers' years of teaching experience ranged from 1 to 33 (M = 10.2, SD = 11.0).

2.3. Intervention

PACES is a pilot intervention program focused on increasing children's PA during regular school hours. It specifically targets two CSPAP components: (a) physical education and (b) PA during school (i.e., opportunities to be active beyond physical education). The data reported in the present study pertain to the PA during school component of the program, which focused on classroom MI implementation. We employed three partnership approaches (communities of practice, community-based participatory research, and service learning) based on Webster, Beets et al.'s (2015) partnership model with the aim of providing external support for the participating classroom teachers in the intervention classrooms and, subsequently, increasing the extent of MI in these classrooms. The community of practice consisted of a member of the research team orienting each teacher to a virtual professional learning community, Move for Thought (moveforthought.ning.com). The website includes MI materials, videos, links, and a blog for members to ask questions, share ideas and connect with fellow