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They Just Need to Move: Teachers' Perception of Classroom Physical Activity Breaks

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Abstract

The purpose of this study was to explore 1) perceptions of preschool-8th grade teachers' in regard to classroom physical activity (PA) and 2) multiple levels of factors impacting preschool-8th grade teachers' ability to implement PA into the classroom. Sixty preschool-8th grade teachers from five school districts participated in semi-structured interviews following a guide developed from constructs of the social ecological model. All teachers implemented classroom PA but had varied levels of confidence for implementation. Teachers identified barriers to implementation and requested additional classroom PA resources. Furthermore, they identified collaboration with other teachers as an underutilized resource for promotion of classroom PA.

Keywords: class activities, physical activity level, elementary school teachers, qualitative research, movement, teacher role

Abbreviations: Physical activity (PA)

1. Introduction

Regular participation in physical activity (PA) is essential to the optimal health and development of any child. PA has been associated with numerous health benefits including the development of healthy bones, muscles, and coordination; maintenance of a healthy body weight; reduced levels of anxiety and depression; and improvements in social development (World Health Organization, 2011). Despite these benefits, less than half of children in the United States meet the recommendations of engaging in 60 minutes of moderate-to-vigorous PA every day (Troiano et al., 2008). In addition to a lack of PA, children are spending more time in sedentary behaviors (Active Living Research [ALR] Brief, 2014; Bergouignan, Rudwill, Simon, & Blanc, 2011; Hamilton, Hamilton, & Zderic, 2007; Riddoch et al., 2004). Recent estimates suggest children spend six to eight hours per day in sedentary behaviors which results in an increased risk for obesity and other chronic health conditions (ALR Brief, 2014). One reason for the reduced levels of PA and increased levels of sedentary behaviors is the lack of opportunities for PA in multiple settings, one of which is school (Mahar, 2011; Tremblay et al., 2011).

Due in part to testing and accountability pressures, schools have increased the focus on academic subjects such as mathematics, science, and reading, and decreased PA opportunities provided to children throughout the school day (Parks, Solmon, & Lee, 2007; Sherman, Tran, & Alves, 2010). The reduction in time allocated for physical education and recess are thought to increase the amount of instruction time, thus improving test scores (National Association of Sport and Physical Education [NASPE], 2009; New York City Department of Health and Mental Hygiene, 2009). However, multiple studies have shown physically active children are able to perform better academically than peers who are not as physically active (Ahamed et al., 2007; Carlson et al., 2008; Castelli et al., 2007; Trudeau & Shephard, 2008).

Despite academic pressure, schools can serve as prime opportunities to improve children's PA because the vast majority of children attend (97%) and spend a large amount of time in schools (6 or more hours/day, 180 days/year) (Katz et al., 2005; Peterson & Fox, 2007). Thus, public health entities throughout the world have advocated for an increase of PA opportunities for children through comprehensive or whole-of-school approaches. In this approach, PA is no longer isolated to recess or physical education classes nor is it the sole responsibility of physical education teachers. For example, classroom teachers (those who provide instruction in core academic areas such as mathematics, science, reading, writing, and social sciences) are also intentionally embedding PA into their teaching strategies throughout the entirety of the school day.

For example, within the United States the Centers for Disease Control and Prevention (CDC) along with Society of Health and Physical Educators (SHAPE) America have developed and promoted the use of the Comprehensive School Physical Activity Program (CSPAP) framework (SHAPE America, 2016; CDC, 2010). A major goal of the CSPAP model is to facilitate a healthy school environment by promoting PA within the school that enables students to take part in 60 minutes of moderate-to-vigorous PA every day. The focus areas of the CSPAP model include: physical education, PA before and after school, staff involvement, family and community engagement, as well as PA during the school day. Thus, increasing classroom-based PA is one method to increase PA rates for children during the school day. Incorporating PA into the classroom can occur in a variety of forms. Classroom PA can be included in class content (e.g., children jumping every time they hear a verb in a story), utilized during transitions between class subjects (e.g., walking to a different area of the room), or strictly as a pause in the current instruction.

Multiple classroom PA programs have been successful and several studies have explored teachers' perceptions of the use of these specific programs (e.g., Kibbe et al., 2011; Maher, 2011). However, these studies have often focused on a specific program at a single school building or single school district (regional nomenclature referring to several schools physically located within one city or other delineated geographical area or schools operating under a common administrative structure). If this information were available, it could help guide dissemination of effective classroom PA strategies with both pre-service and in-service teachers across a variety of school sizes and locations.

1.1. Classroom PA

Numerous classroom PA programs have been developed for teachers. Several programs have been found to increase children's PA, on-task behavior, and academic outcomes (Bartholomew & Jowers, 2011; Donnelly et al., 2009; Dunn et al., 2012; Fedewa & Ahn, 2011; Kibbe et al., 2011; Mahar, 2011; Mura et al., 2015). Even when classroom PA is delivered in brief sessions, students are able to improve on-task behavior and academic performance in areas such as mathematics and reading (Kibbe et al., 2011 & Maher, 2011). In fact, PA may have the greatest impact on students who are in the most need of academic support, those with cognitive impairments or learning disabilities (Erwin, Fedewa, & Ahn, 2013; Fedewa & Ahn, 2011). Importantly, studies have found such improvements with minimal staff training (Donnelly, 2009; Dunn et al., 2012).

Due to the potential impact that classroom PA may have on children's overall physical and academic well-being, several studies have focused on teachers' perceptions and use of classroom PA (Gately, Curtis, & Hardaker, 2013; Howie, Newman-Norlund, & Pate, 2014; McMullen, Kulinna, & Cothran, 2014; Stylianou, Kulinna, & Naiman, 2015). Understanding

teachers' use of and perceptions of classroom PA is essential to understanding how to promote the use of classroom PA to all teachers, especially those who are not currently implementing (Webster, Russ, Vazou, Goh, & Erwin, 2015). Additionally, because implementation is the responsibility of all teachers in widely varied classroom contexts, the fidelity and consistency of any classroom PA program is contingent on what teachers may perceive as benefits and barriers of incorporating PA into their instruction.

In general, educators have positive views of classroom PA and can identify the physical, mental, and academic benefits of PA (Cothran, Kulinna, & Garn, 2010; Howie, Newman-Norlund, & Pate, 2014; Martin & Murtagh, 2015; Parks et al., 2007; Stylianou, et al., 2015). An additional benefit is students' enjoyment of classroom PA (Martin & Murtagh, 2015; McMullen et al., 2014; Stylianou et al., 2015). These benefits have been more likely to be realized and classroom PA utilized when classroom PA was easy to implement, integrated into academic concepts, and lasted five minutes or less (Howie et al., 2014; McMullen et al., 2014). However, the day-to-day realities of classroom instruction may create barriers to actually implementing PA.

As previously noted, in an environment of high-stakes testing and strict adherence to the prescribed scope and sequence of the curricula, classroom teachers may be reluctant to implement PA or feel they do not have the instructional autonomy to do so (Cothran et al., 2010; Gately et al., 2013). Unless teachers can identify how PA supports academic standards or content areas, they may resist incorporating them into their lessons (Erwin, Beighle, Morgan, & Noland, 2011; Gately et al., 2013; Gaus & Simpson, 2009; McMullen et al., 2014; Parks et al., 2007; Sherman et al., 2010). Researchers need to better understand the ways in which classroom teachers utilize classroom PA (e.g., how often, how long), what core academic content areas may

be well-matched for classroom PA, and what can be done to increase the use of PA by teachers who either minimally use classroom PA or do not use classroom PA at all (Webster et al., 2015).

Other commonly identified barriers include limited time, lack of infrastructure (e.g., materials or physical space), concerns about classroom control, lack of experience, negative attitudes about PA, and teachers' perceptions that PA may interfere with daily routines or academic demands of the classroom (Dwyer et al., 2003; Erwin et al., 2011; Evenson, Ballard, Lee, & Ammermann, 2009; Gatley et al., 2013; Howie et al., 2014; Goudeau, Baker, & Garn, 2014; McMullen et al., 2014; Morgan & Hanson, 2008; Parks et al., 2007; Stylianou, et al., 2015). In addition to these specific barriers, teachers' lack of interest and/or motivation in increasing PA may be a broader philosophical barrier limiting the implementation of classroom PA (Erwin et al., 2011; Evenson et al., 2009; Morgan & Hansen, 2008).

Notably, teachers' past experience with integrating classroom PA can impact their efficacy for implementing PA (Webster et al., 2015; Parks et al., 2009). Teachers who lack confidence in their ability to understand movement and the use of PA to promote learning, may be reluctant to implement PA (Breslin, Morton, & Rudisill, 2008; Parks et al., 2009). This may be a particularly significant barrier for beginning teachers in that pre-service teacher education programs do not systematically include the use of PA in their courses of study (Goh et al., 2013; Wadsworth, Robinson, Beckham, & Webster, 2012). However, if barriers related to PA are to be thoroughly investigated, the impact of staff development, modeling, and opportunities for practice and feedback as they relate to the efficacy of both beginning and experienced teachers warrants further examination (Goh et al., 2013).

Further, researchers have suggested administrative attitudes and support related to PA may impact teachers' perceptions of classroom PA (Centeio, Erwin, & Castelli, 2014; Howie et al.,

2014; Stylianou et al., 2015). Goudeau, Baker, & Garn (2014), examined this possible barrier, but their research was limited specifically to physical education teachers. Erwin, Beighle, Morgan, and Noland (2011) found classroom PA interventions were most effective when teachers were consistent in their implementation and suggested this is most likely to happen if building administrators endorsed classroom PA. Stylianou and colleagues (2015) found teachers feel supported in their implementation of classroom PA when administrators provide professional development, opportunities for sharing, ideas, and constructive feedback related to PA. However, teachers in this study also mentioned the importance of support from the research team who provided multiple professional development sessions. As several of the studies examining teachers' perceptions of classroom PA have been conducted in conjunction with a research study promoting the use of classroom PA, it is important to explore these concepts with teachers who have not had the support of researchers (Centeio, Erwin, & Castelli, 2014; Howie et al., 2014; Stylianou et al., 2015).

Finally, within educational districts there is a hierarchical process for determining content curriculum as well as the professional development opportunities provided to classroom teachers. Individual teachers often have limited input into either curriculum standards or professional development initiatives. Decisions related to curriculum and professional development offerings are most often made at the building or district level. However, there has been minimal qualitative research examining the potential impact of building and district-level administrative support such as providing resources and professional development related to classroom PA or policies/standards related to classroom PA. Additionally, little research has explored the impact of the support of other teachers within the school or district. More research is needed to examine the types of support teachers need to better utilize classroom PA (McMullen et al., 2014).

1.2. Theoretical Framework

The Social Ecological Model (SEM) of health promotion was developed to examine the interaction and interdependence of multiple levels that can influence an individuals' or a groups' behavior (McLeroy, Bibeau, Steckler, & Glanz, 1988). The framework posits health promotion behaviors are based on beliefs, understanding, and determinants of behavior. It evolved from a systems-based approach which holds individuals must understand parts of something to understand its whole (Bronfenbrenner, 1994).

The SEM consists of five different levels. The first level is intrapersonal factors (i.e., individual factors). This level includes items such as an individuals' personal knowledge, attitudes, behaviors, and skills. The second level is interpersonal factors which consists of social networks such as family members, friends, and work colleagues. The third level is institutional (i.e., organizational) factors. This level includes characteristics of an organization including procedures and administration support. The fourth level is community factors which includes the relationship both formal and informal between organizations (i.e., school districts). The fifth and final level is policy. This level includes local, state, and national laws and policies. By examining all of these levels it increases our understanding of factors that impact our behaviors as well as what factors could be targeted for health promotion programming (McLeroy et al., 1988).

Only a few research studies have utilized SEM constructs to assess factors influencing PA utilization within schools. Findings suggest administrative support and policy awareness may be crucial factors for promoting classroom PA (Goh et al., 2013; Langille & Rodgers, 2010; Webster et al., 2013). However, the authors suggest that additional research is needed with a larger sample of experienced classroom teachers to better understand why teachers decide to use classroom PA (Goh et al., 2013; Webster et al., 2013).

This study builds on the existing evidence by qualitatively exploring perceptions of classroom PA of classroom teachers in multiple school districts of various sizes that were not currently conducting a researcher-initiated classroom PA intervention. Therefore, the overall purpose of this study was to explore 1) perceptions of preschool-8th grade teachers in regard to classroom PA and 2) multiple levels of influence impacting preschool-8th grade teachers' ability to implement PA into the classroom.

2. Methods

Interviews were conducted as part of a mixed-methods cross-sectional study. The two-part study consisted of 1) a short online survey (results reported elsewhere), and 2) semi-structured interviews with a purposeful sample drawn from a number of different school districts. Interview participants ($N=59$) were preschool-8th grade school teachers in five school districts (four public, one private) from a mid-size city in the Midwestern United States. The semi-structured interviews occurred between May 2014 and February 2015. The study was approved by a university Institutional Review Board as well as the administration within each participating school district.

2.1. Sampling

Once approval was received, school district administrators assisted researchers in initiating contact with school building administrators (e.g., principals). School building administrators facilitated participant (teacher) recruitment via e-mail and in-person communication with teachers within their individual buildings.

The first part of the study, results reported elsewhere, consisted of a 38-question online survey which asked teachers how often and what types of classroom PA they utilized. Classroom

PA was defined as taking a short break (typically three to five minutes) within the classroom to perform some type of physical movement *or* integrating physical movement into academic concepts ([Centers for Disease Control and Prevention, 2013](#); Institute of Medicine, 2013). A total of 346 teachers completed the survey. It is important to note almost all participants (90.8%) stated they utilized classroom PA (Author, et al., in press). [The online survey primarily focused on participants' individual barriers \(intrapersonal level\) to classroom PA. Within the survey, teachers were asked to provide their contact information if they were interested in participating in an in-depth interview. The interviews provided an in-depth exploration of not only the individual barriers but also the barriers representing additional levels \(i.e., interpersonal, organizational, community, policy\) that may positively or negatively influence the implementation of classroom PA.](#)

After survey data were collected within each school district, interview participants were identified from the pool of teachers who completed the initial survey and indicated they were interested in participating in an interview (N=183). A purposeful sampling strategy was used to select [12](#) interview subjects [per district for a total of 60 subjects](#). Participants were selected based on maximum variation sampling. The criteria used to identify participants included varied districts, grade level, specialized subject area (e.g., music, art, special education), years of teaching experience, and implementation levels of classroom PA (e.g., 0, 1-2 times/week, 3 or more times/week). For the purpose of this study, physical education teachers were excluded from analysis as they incorporate classroom PA on a daily basis. Research personnel contacted participants via telephone and/or e-mail to confirm their interest in participating in the interview as well as to schedule an interview. Participants were informed the intent of the study was to

examine teachers' perceptions of classroom PA and factors which may impact the implementation of classroom PA.

If participants were still interested in participating, they scheduled a time to complete the interview with research personnel. Participants completed the semi-structured interview with one of three trained research personnel either by telephone or in-person based on the participant's preference. The research personnel were trained by an experienced qualitative researcher. Each research personnel member conducted one to two practice interviews and were provided feedback on their interviewing skills until the lead researcher was confident in their skill-level. Research personnel were instructed to follow the interview guide but were encouraged to ask additional probing questions to allow participants to further elaborate on their answers. The lead researcher periodically read transcripts to ensure the quality of interviews.

At the beginning of each interview, research personnel assured participants their answers were completely confidential and their names would not be associated with the transcripts.

Research personnel then read the definition of classroom PA included in the initial survey (see above) and asked teachers how they typically referred to this type of activity. The terminology the teacher referenced was then used throughout the remainder of the interview. Teachers most often used the term "brain breaks" to include both taking a respite from academic instruction to perform an activity as well as explicitly incorporating movement into the teaching of an academic subject. Interviews took no longer than 45 minutes and were audio recorded.

Participants were provided a \$10 gift card after completion of the interview.

2.2. Instrument

An interview guide was created from the initial online survey and constructs based on the SEM. The interview guide was developed and revised by four individuals (three with PhDs and one with an EdD) with varied expertise relevant to this study (elementary education, K-12 educational administration, health promotion, and PA). At the individual level teachers' knowledge, attitude, and skills associated with classroom PA were examined. At the interpersonal level, the influence of relationships and social interaction with other teachers was investigated. At the third level, organization, the influence of the individual school building and larger school district on PA implementation was assessed. This was followed by the community level which evaluated the impact and existence of community partnerships. Finally, at the policy level the existence or hypothetical implementation of policies involving classroom PA was explored.

The interview guide was piloted with the first four participants and then revised accordingly to improve clarity. Interview questions addressed personal opinion regarding classroom PA, past methods of learning, barriers encountered, and awareness of policies (Table 1).

[Table 1 near here]

2.3. Data Analysis

Interviews were transcribed verbatim and uploaded into NVivo10 (QSR International, 2012). Data were analyzed using the process of theory-driven immersion/crystallization (Borkan, 1999). Three trained researchers immersed themselves in the data by reading through the interviews using horizontal passes which consists of reading transcripts from beginning to end

multiple times within the context of SEM. Next the researchers reflected both independently and together to determine common themes (crystallization).

To create a code book, two researchers read and analyzed the first 12 interviews separately following the SEM model to develop codes underlying each SEM level as well as any emerging codes and themes outside the model (Bradley, Curry, & Devers, 2007; Crabtree & Miller, 1999). Next, they met to discuss initial codes and themes to determine any discrepancies as well as to identify consistent terminology and similar definitions of the codes/themes within the SEM (Borkan, 1999). The researchers discussed all codes/quotations until consensus was reached. Based on this initial analysis a codebook was developed. In order to test the themes and codes, the researchers re-analyzed data from the first 12 interviews separately based on this codebook. They met again, to review all codes/quotations and discussed all discrepancies until consensus was reached. Following this, peer debriefing occurred with a third researcher who reviewed all codes/quotations in order to confirm or refute findings (Lincoln & Guba, 1985). The minimal discrepancies were resolved between all three researchers. Finally, the remaining interviews were analyzed independently by two researchers, coding was reviewed independently by the three researchers, and then coding was reviewed collectively to ensure agreement on all coding and themes.

In addition to the assurances of confidentiality and anonymity of the transcripts, researchers ensured the trustworthiness of the data by conducting in-person interview in private settings. Researchers interviewed participants in quiet and comfortable rooms with no others present. In the case of telephone interviews, participants were encouraged to find a private area in order to speak freely with the research personnel. The triangulation of analysts reduced potential researcher biases and ensured multiple viewpoints were considered when identifying

themes (Patton, 1999). Researchers also carefully considered participant statements which seemed to contradict emerging themes. Through discussion, researchers either determined if they were consistent with existing themes or noted these occurrences within the findings. These measures increased the trustworthiness of the findings.

3. Results

Of the 59 teachers who participated, approximately one third (32.2%) were assigned to teach a content area such as art, music, or special education across multiple grade levels (preschool-8th grade). The majority of participants (67.8%) were responsible for teaching all core content instruction (mathematics, science, reading, writing, and social sciences) within one grade. One third (33%) of all participants taught in a primary grade (prek-2nd grade); and the remaining participants (31.2%) taught in an intermediate grade (3rd -5th grade). A majority of teachers were female (86.4%), Caucasian (91.5%), and had five or more years of experience (73.3%). Table 2 provides additional demographic information. Within the results, behind each quote teachers race/ethnicity, gender (Male [M] or Female [F]), and years of teaching experience (YTE) has been provided.

[Table 2 near here]

3.1. Individual Factors

All participants reported they implemented classroom PA. Nearly all participants reported they implemented classroom PA when their students needed a break from academic instruction, and over three quarters did so within their instruction of academic subjects. Slightly less than a third used classroom PA as part of the transition between academic subjects. Over half stated they implemented classroom PA for affective (e.g., behavioral, refocusing) reasons. For example, one

3rd grade teacher commented, “I know kids have a hard time focusing for long periods of time, and if I’m able to break it up they stay more engaged throughout the day” (Caucasian, M, 5 YTE). A 2nd grade teacher stated, “I just notice that the kids perform better if they don’t have to sit all day long, I mean they’re only 7” (Caucasian, F, 9 YTE).

A quarter of participants reported incorporating PA for physical reasons (e.g., health benefits) such as a 4th grade teacher who noted she used PA to “get the kids doing something (because) they are not overly active as a whole” (Caucasian, M, 5 YTE). Other teachers stated cognitive reasons (e.g., reinforcing academics) for their use of classroom PA as one resource teacher explained, “I feel that they learn better that way as well and they seem to remember things a little bit better when they are moving or doing some kind of action too” (Caucasian, F, 26 YTE).

Relatedly, participants reported that students’ typical response to classroom PA was enjoyment. One 2nd grade teacher reported her students “love them...the kids have even requested it” (Caucasian, F, 11 YTE). A few teachers reported some students in their classroom did not like to participate in classroom PA though because “they think they’re looking really bad to their peers” or “they’re too cool for it” (8th grade science, Caucasian, F, 10 YTE; 5th grade, Caucasian, F, 11 YTE).

The response of participants varied when asked to identify the frequency and time of day students most needed PA. Over half of teachers reported doing some type of PA four to five days per week while other teachers implemented three days or less. The time of day in which teachers believed students were in most need of PA also varied. Some teachers reported students needed PA in the mornings while others stated afternoons and others felt it was needed consistently throughout the day. A first grade teacher reported she used classroom PA “a couple of times in

the morning just to kind of get their brains going and then...in the afternoon when they are getting really antsy and can't sit for as long as they could in the morning" (Caucasian, F, 5 YTE).

Still other participants commented they used classroom PA for specific situations. For example, one 1st grade teacher stated, "I typically wouldn't do anything very long on the days that they had PE...but the days that they would go to art or after our school counselor had come in...we always would do a brain break" (Caucasian, F, 11 YTE). Conversely, another 2nd grade teacher explained "The best approach that I have is to have a designated time for breaks, so that the students are not surprised by them, they know it is part of my procedure" (Caucasian, F, 10 YTE).

Regardless of when participants reported using classroom PA, almost all teachers reported they were confident in their ability to implement PA breaks. Interestingly though, slightly less than half of teachers reported they were "pretty confident" compared to "very confident." One 3rd grade teacher stated "I think I feel more comfortable now, I think it would probably help to do it more" (Caucasian, F, 10 YTE).

To further explore individual implementation of classroom PA, participants were asked to identify specific subject areas in which they implemented PA breaks. Teachers most often reported incorporating PA into reading, writing, and mathematics. One special education teacher (Caucasian, F, 16 YTE) explained she incorporated PA in these subjects because "I find that they sit a bit longer" while a kindergarten teacher stated "they're longer subjects, I feel that with those longer time frames it's when it's best utilized" (Caucasian, M, 4 YTE). Other teachers mentioned incorporating PA into these subjects because "there's a lot of material that can go with them." Several teachers also mentioned they used classroom PA for transitions between subjects as one music teacher stated, "I used them for transition so when the kids come in we have something

going on [and] ... there is always something that I do to transition them out” (Native American/Caucasian, F, 16 YTE).

When asked about specific programs used to implement classroom PA, over half of the participants reported they used GoNoodle (a website with a variety of classroom PA videos). Additionally, over half of the teachers reported using various forms of general movement. One 8th grade teacher described how she incorporated movement, “we call it four corners where I’ll ask them a question and they have to decide what they think the answer is by going and standing in the corner that has it (the right answer)” (Caucasian, F, 10 YTE). Another 4th grade teacher explained, “When we do counting I’ll have them do jumping jacks when we count it by tens, you know different movements like that” (Caucasian, F, 11 YTE).

A majority of participants identified barriers to implementing classroom PA. Close to half of teachers mentioned time was their biggest barrier. One music teacher explained, “I only have the students for so long so I want to engage them and yet I don’t want to use up all of my time doing that” (Native American/Caucasian, F, 16 YTE). Additionally, almost half of teachers mentioned classroom management was a barrier. A 2nd grade teacher mentioned, “Sometimes we’ve had to stop them if kids get too off task” (Caucasian, F, 10 YTE). Several teachers also mentioned classroom management was more of a barrier for their peers. One 3rd grade teacher discussed the reason her colleagues limit classroom PA stating, “If they can’t get their kids back on track they won’t implement it” (Caucasian, F, 2 YTE).

Infrastructure (e.g., lack of space, resources, technology) was also cited as a barrier by almost a third of the participants. As one kindergarten teacher recalled, “I think there were a handful of times where I tried to log on [to access online resource] and it was either too slow, or wouldn’t load all” (Hispanic, F, 13 YTE). An art teacher discussing her barriers noted,

“Definitely space, my room is pretty small, so I don’t have a lot of room for the kids to move around” (Caucasian, F, 5 YTE).

Over half of the participants mentioned that despite these barriers and their current level of implementation of classroom PA, they thought they could incorporate more PA into their classrooms. For example, one 5th grade teacher stated “There’s always more room for brain breaks” (Caucasian, F, 6 YTE). Of the teachers who wanted to incorporate more PA, a majority identified the benefits for students as a motivating factor, “I think any time you throw a PA or physical movement into a lesson, the kids are more engaged and they are going to get more out of it...” (4th grade, Caucasian, F, 4 YTE).

Additionally, the majority of participants requested more ideas on how to incorporate PA. As one art teacher noted, “It’s always good to have lots of different resources that you could go to for different types of brains breaks” (Caucasian, F, 11 YTE). Approximately a third of teachers reported a desire to know more about the research on the effectiveness of classroom PA. A resource teacher described why she would like to see more research on classroom PA because “I really feel like it is [positive], I guess I don’t always see it documented” (Caucasian, F, 26 YTE).

3.2 Interpersonal Factors

To explore interpersonal factors that may impact the ability of teachers to implement PA into the classroom, participants were asked to describe their perceptions of their colleagues’ opinions of classroom PA within their school. Teachers stated a majority of their colleagues were either supportive or their colleagues’ opinions were split. Some teachers mentioned comments such as “I think in our school on a whole it’s pretty good with the use of the brain breaks” (3rd

grade, Caucasian, M, 3 YTE). Other teachers made comments such as “Some of the teachers use them and some don’t, that’s just kind of a personal preference” (4th grade, Caucasian, M, 4 YTE).

Half of those interviewed believed colleagues who did not implement classroom PA had a different philosophical perspective than colleagues who did implement classroom PA. In addition, some interviewees attributed this to years of teaching experience. For example, one 2nd grade teacher noted “I know a lot of teachers who once they’ve found what works for them they don’t really want to change it ... it’s worked for this many years why would [they] change it now, and I think the answer to that is I think the kids are different now than they were 30 years ago” (Caucasian, F, 9 YTE).

Participants were also asked about their current collaboration or opportunities to discuss classroom PA with their peers. Approximately a third of teachers reported “never” or “rarely” collaborating with other teachers regarding classroom PA. Other responses ranged from daily to once a month. Half of the teachers reported the structure of these collaborations was informal. For example, one science teacher stated “When we go out in the hall to do our hall duty and in-between classes we’ll say ‘oh I did this’” (Caucasian, F, 10 YTE). Another 1st grade teacher reported “It’s very informal I would say it would just be in casual conversation probably in the lounge, ‘we did this brain break today’” (Caucasian, F, 22 YTE).

Finally, participants were asked how collaboration related to classroom PA could be improved within their school. Slightly less than half of teachers thought collaboration should occur during existing meetings and consist of time for sharing between teachers. One 6th grade teacher explained, “It would be good to collaborate with all teachers at our school just to kind of get more views...just at our meetings is when we are all together, that would be a good time to

do it” (Caucasian, F, 7 YTE). Importantly, a third of teachers emphasized they needed time to collaborate as one 1st grade teacher noted, “It would be nice if we had just time to talk” (Caucasian, F, 9 YTE).

3.3 Organizational Factors

To explore organizational factors impacting teachers’ perceptions of classroom PA, interviewees were asked about their building and school district administrators’ beliefs about classroom PA. Answers to these questions and follow-up probes of the researchers revealed considerable ambiguity related to this factor. When discussing their building administrators’ beliefs about classroom PA, the majority of participants reported administrators were supportive and promoted the use of classroom PA. One guidance teacher stated, “They’re very supportive, I think they stress to do it more” (Caucasian, F, 11 YTE). However, several teachers were not able to definitively describe this support. For example, one science teacher reported “I think it’s positive but not necessarily a focus” (Caucasian, F, 5 YTE). Conversely, a few teachers reported their building administrators were not supportive.

When asked about their school districts’ support of classroom PA, the majority of interviewees reported their administrators were supportive. However, half of teachers could not explicitly describe this support. One 2nd grade teacher (Caucasian, F, 10 YTE) reported, “Yes definitely” but in the same district another 8th grade teacher (Caucasian, F, 2 YTE) reported “I’d say they are probably supportive.”

3.4 Community Factors

Participants were asked how other local school districts viewed classroom PA. A third of the teachers made assumptions that other districts also believed that classroom PA was important. As one 3rd grade teacher (Caucasian, F, 2 YTE) stated, “I would assume so.” Another

1st grade teacher reported, “I would assume all districts feel brain breaks are beneficial for students of all ages” (Caucasian, F, 10 YTE). The remaining teachers either stated they “didn’t know” or that other school districts did not think classroom PA was important.

Participants were also asked how the community could help them to implement classroom PA and answers varied. Half of teachers thought partnerships with community organizations could help by provide resources and programming to help with the implementation of PA. A 1st grade teacher mentioned, “Just kind of giving the teachers the resources and accessibility to a bunch of different things” (Caucasian, F, 5 YTE). Other teachers made a variety of suggestions regarding community support. This included ideas such as creating partnerships with community groups or providing donations (e.g., money, volunteers) that support classroom PA. Two teachers stated they did not want help from the community.

3.5 Policy Factors

To explore the impact of policy or guidelines, participants were asked about their awareness of school district, state, or national guidelines related to classroom PA. For all three entities, most teachers reported they were not aware of any specific guidelines or policies pertaining to classroom PA. Teachers were then asked what they thought such a policy should include. Over half of teachers thought the policy should include requirements outlining how often classroom PA should be implemented. One PE teacher mentioned, “I know some teachers there’d be a huge backlash, but it would be nice if you could implement...no less than one five to ten minute break every hour” (Caucasian, M, 8 YTE). A 3rd grade teacher suggested, “I would mandate it for at least twice a day in addition to their recess time” (Caucasian, F, 6 YTE). Several teachers thought that a policy was not needed. Another 3rd grade teacher noted, “I feel

strongly about not creating a policy. It's up to the teacher to decide on the need of her students" (Caucasian, F, 13 YTE).

4. Discussion

The purpose of this study was to explore 1) perceptions of preschool-8th grade teachers in regard to classroom PA, 2) multiple levels of factors impacting preschool-8th grade teachers' ability to implement PA into the classroom. Overall, teachers' perceived classroom PA favorably and were interested in learning and implementing more classroom PA. Several factors may impact teachers' ability to implement PA including: lack of time, limited collaboration with colleagues, ambiguity of building administrators' support, and lack of awareness of policies. The findings of this study contribute to our knowledge of teachers' perceptions of classroom PA. These findings also provide insight into what factors need to be targeted to increase teachers' utilization of classroom PA.

In terms of individual factors, teachers in this sample already implemented classroom PA, but half thought they could do so more often and a majority wanted more ideas on how to implement classroom PA. This finding is contrary to previous research findings in which teachers' attitudes and lack of interest were barriers to increasing PA (Evenson et al., 2009; Morgan & Hanson, 2008). However, this finding may align with findings from Cothran and colleagues (2010) who found that teachers interest in classroom PA was aligned with their own wellness interests. Given that close to 90% of teachers were active three or more days/week the fact that these teachers were currently implementing may be a reflection of their own personal interests.

Consistent with other research study findings teachers reported implementing classroom PA for affective (i.e., behavioral), physical (e.g., health), and cognitive (e.g., academic

improvement) as well as students' enjoyment of classroom PA (Cothran et al., 2010; Howie et al., 2014; Martin & Murtagh, 2015; Stylianou et al., 2015). Additionally, when teachers discussed implementing classroom PA within subject lessons, they more often referred to the need to do this to help students sit longer compared to helping them to learn the content matter. Researchers have found that teachers implement classroom PA for a variety of reasons, in order to increase the utilization of classroom PA by teachers who do not incorporate PA into their classroom, efforts may be needed to emphasize the evidence of the positive student outcomes in all areas (e.g., affective, physical, cognitive) (Erwin, Beighle, Morgan, & Noland, 2011; Gaus & Simpson, 2009; Parks et al., 2007; Sherman et al., 2010).

Similar to other research study findings, teachers in this study also identified time and lack of infrastructure (e.g., internet access, available space) as barriers to implementation (Erwin et al., 2011; Evenson, Ballard, Lee, & Ammermann, 2009; Goudeau, Baker, & Garn, 2014; Howie et al., 2014; McMullen et al., 2014; Parks et al., 2007; Stylianou et al., 2015). However, even though teachers implemented classroom PA to help with behavioral issues, similar to other research findings almost half of teachers still reported classroom management as a barrier to implementation (McMullen et al., 2014; Styliano, et al., 2015). Teachers in the study also reported classroom management as a barrier for their peers who did not implement classroom PA. Providing teachers with professional development opportunities focused on providing strategies for successful implementation such as outlining expectations to the class may be key to helping teachers overcome this barrier (Garrahy, Cothran, & Kulinna, 2005). Unfortunately, Stylianou and colleagues (2015) found that even after teaching management techniques in a classroom PA intervention, these strategies were not always used. More research is needed to

understand the best methods for increasing teachers' knowledge and abilities for classroom management skills related to classroom PA.

It is important to note that several teachers reported students' reluctance to participate as a potential barrier. These teachers were more likely to teach upper grade levels (5th-8th). This finding is contrary to other research indicating students' enjoyment of classroom PA (Howie et al., 2014; Martin & Murtagh, 2014; Stylianou et al., 2014). For example, Howie and colleagues found that 4th & 5th grade students specifically stated it was "fun." This finding in our study is concerning because children tend to obtain less PA as they age (Troiano et al., 2008). Identifying innovative ways for students to take part in PA, especially older children, is vital to not only improve their fitness but their academic outcomes as well. More research is needed on the demographics of those students who do not want to participate (e.g., gender, weight status, ethnicity, religion) in order to help teachers identify how to motivate these children to participate in classroom PA.

While almost all teachers reported they were confident in implementing classroom PA, their level of confidence appeared to differ. Less than half stated they were "pretty confident" compared to "very confident." Teachers who were "very confident" may reflect a higher level of confidence due to prior positive experiences with classroom PA (Cothran et al., 2010). Teachers who were "pretty confident" or lacked confidence, may be less likely to implement classroom PA (Bartholomew & Jowers, 2011; Parks et al., 2007). The lack of confidence may be associated with prior experience with barriers such as the previously mentioned barrier of classroom management (McMullen et al., 2014; Stylianou et al., 2014). This could be even more prevalent in preservice teachers who are just starting out and attempting to master their classroom management strategies. Providing opportunities for preservice teachers to practice implementing

classroom PA with their peers and in classroom settings could improve their efficacy for implementing classroom PA (Webster et al., 2015).

Other research suggests that a teacher's own PA and wellness experiences may impact their confidence and desire to teach PA to others (Cothran et al., 2010; Morgan & Bourke, 2008). While we did capture teachers' current PA level in this study, past PA experience was not mentioned as a barrier or facilitator of classroom PA. More research is needed to determine if there is any objective difference between specific levels of confidence and the amount of PA teachers integrate into the classroom. Future efforts could also focus on employee wellness initiatives aimed at increasing teachers' knowledge of the benefits of and self-efficacy for participating in PA (Goh et al., 2013).

When exploring interpersonal factors, a major finding was that half of teachers thought that the reason some of their colleagues did not implement was due to differences in philosophical perspectives that may be associated with years of experience (Webster et al., 2013). This is contrary to other findings indicating that additional years of experience increased the use of movement in the classroom (Vazou & Skarde, 2014). Garrahy and colleagues (2005) found that teachers' pedagogy knowledge specifically related to classroom management changed over time. In this population, teachers with fewer years of experience may have been more open to trying new ideas whereas those with more years of experience had more firmly established classroom strategies.

Researchers have found teachers had moderate levels of support for classroom PA from their colleagues within their school (Gibson et al., 2008; Naylor et al, 2006). For example, Gibson and colleagues (2008) implemented the Physical Activity Across the Curriculum (PAAC) intervention to increase the use of classroom PA and found less than half of teachers felt

other elementary teachers at their school were supportive of PAAC. Considering that pre-service teachers have identified the attitudes of other classroom teachers and their administrators as potential barriers to classroom PA, more research is needed to understand how to increase collaboration and support of PA within existing school structures (Goh et al., 2013).

Furthermore, more research is needed to explore the best way to promote classroom PA to teachers across varying levels of experience. Langille & Rodgers (2010) found key school stakeholders agreed that a PA leader was needed to create this supportive culture. Often the physical education teacher is looked upon to be this PA leader. However, having classroom teachers as well as administrators be PA leaders, may be critical to developing a supportive culture within the school.

Additionally, when exploring interpersonal factors, a third of teachers never or rarely talked about classroom PA with their colleagues. Those who did, described these communications as informal. This is concerning as those teachers who currently implement classroom PA may be the strongest advocates for training other teachers who do not implement classroom PA and could serve as potential peer trainers or the aforementioned PA leader. School buildings and/or districts which allow time for collaboration regarding effective classroom PA strategies may help to increase the utilization of movement throughout the school day (Author et al., in review). The limited collaboration could again be related back to the barrier of lack of time. However, if teachers are not allowed time within meetings to discuss strategies, this may show that integrating PA into the classroom is not a priority or encouraged by the administration.

Importantly, a majority of teachers thought their building administrators were supportive. This has been mentioned in other studies as a key indicator of teachers' willingness to use classroom PA (Centeio et al., 2014; Goudeau et al., 2014; Howie et al., 2014; Naylor et al., 2006;

Stylianou, et al., 2015). This is an important finding and may indicate a potential avenue to encourage other teachers to incorporate classroom PA. As teacher evaluations are an important aspect of the overall livelihood of teachers, teachers likely would not implement classroom PA if they felt it was negatively viewed by their administrators. However, teachers in another study mentioned that administrators were supportive but they had little involvement in classroom PA interventions (Martin, Martin, & Rosengard, 2010). Thus it may also be important not only for administrators to express their support but to commit to providing resources (i.e., classroom PA programs, professional development).

When asked about district-level, support a majority of teachers again thought that support was positive, however they were not able to definitively state this. Future efforts could focus on encouraging school district administrators to explicitly state their support of the use of classroom PA. If school district administrators promoted and/or supported the use of classroom PA, this could effectively increase utilization. For most teachers in this study, administrative support was very ambiguous. Teachers who reported more explicit support were more likely to use it. Clarifying administrative support may provide impetus for teachers to begin or enhance existing implementation of classroom PA. This is significant because many current initiatives to increase classroom PA efforts are most often directed at classroom teachers and building or district administrators may have limited involvement (Martin et al., 2010).

Few teachers were aware of any policies or guidelines related to PA. This is significant in that if teachers are unaware of building or district-level policies they are likely not meeting the guidelines in these policies. Additionally, Webster and colleagues (2013) found that teachers' awareness of PA policies predicted their level of school support. Thus, this finding may also reflect the ambiguity in school support. Future efforts are needed to ensure that policies and/or

best practice recommendations are effectively communicated to teachers. Again this may direct classroom PA efforts at school and district administrators in addition to efforts directed at teachers.

Half of teachers thought a policy should outline how often opportunities for PA should be provided. However, several teachers felt it was important not to provide such detailed guidelines. Howie and colleagues (2014) found administrative policies may be an ideal method to increase teachers' utilization of classroom PA. However, some teachers in this study were against policy guidelines which might be overly stringent or administratively driven. While establishing benchmarks may be helpful to determine if teachers are meeting classroom PA expectations, it is critically important for teachers to provide input on the creation of these policies or guidelines. Once again, the findings of this study demonstrate the important role school and district administrators play in classroom PA efforts.

4.1. Limitations

There were several limitations to this study. First, the data may have been subject to interview bias and interviewees may have been providing information they thought the researchers wanted to hear. However, given the number of districts participating and the saturation of data, the researchers do not believe this impacted findings of the study. Second, while efforts were made to recruit teachers who did not implement classroom PA, all teachers in the study implemented classroom PA to some extent. Therefore, the findings of this study may not be applicable to those who do not implement classroom PA. Third, since the interview guide questions were primarily focused on the individual level of the SEM, this may have skewed the findings in this direction. Fourth, even though probing questions were asked related to interpersonal, organizational, community, and policy levels related to classroom PA teachers had

little to discuss on these issues. This may reflect a lack of research personnel's abilities to best explore these topics. However, based on the saturation of data this is more likely a reflection of lack of teachers' knowledge. Fifth, the sample was from a Midwest population thus limiting its generalizability. Finally, the lack of representation from student and administrative perspectives is a limitation. Future research should consider collecting data from all three viewpoints within a single setting.

5. Conclusions

This study affirmed existing researcher's findings related to teachers' perceptions of classroom PA and factors that impact its implementation in preschool-8th grade classrooms. The teachers in this study expressed a consistent interest in classroom PA. Their interests included elements related to improving both the quality and quantity of classroom PA at the classroom, school, and district level. Their interest is not surprising as the teachers were able to express the benefits classroom PA had on their students. The teachers identified benefits in all three developmental domains: physical (health), cognitive (academic performance), and affective (behavioral) benefits. This range of benefits may have led teachers to the realization that not just a few but many students in their classrooms would likely derive some value from participating in classroom PA.

The perceived benefits may have contributed to the teachers' desire for additional resources related to classroom PA. The teachers who were interviewed seemed to be implying additional resources would increase the frequency and improve the quality of classroom PA. Thus, future efforts could focus on ensuring teachers have access to adequate classroom PA resources.

A number of teachers identified time as a barrier to implementation. Obviously, time is a finite resource, and neither teachers nor administrators can create additional time. However,

many teachers who participated in the study identified collaboration with colleagues as a potential resource. To promote collaboration, teachers and administrators could utilize existing opportunities such as during passing period (i.e., in the hallway), in the lounge, and/or at meetings to discuss best practices around classroom PA. Future researchers could explore how to best promote collaboration with colleagues through existing infrastructure and track the diffusion of classroom PA teaching strategies through social networking analysis to determine effective communication pathways.

The presence of ambiguity related to administrative support and policies regarding classroom PA offers considerable new insights regarding teachers' perceptions and factors impacting the implementation of classroom PA. Teachers hesitated when asked about school building/school-district support and policies related to classroom PA. Their answers were based on assumptions. If teachers speak with such hesitancy about support and policy, this may result in decreased levels of classroom PA by teachers as well as a decreased willingness to try classroom PA by those who are not currently implementing.

The significant finding is not whether teachers felt either explicit encouragement or discouragement regarding PA. The important finding was that teachers perceive ambivalence from administrators and within policies. This ambiguity may reflect 1) teachers' lack of knowledge of existing support and policy, 2) poorly articulated support and policy, and/or 3) the inconsistency or absence of support and policy. Each of these possible explanations warrants comprehensive examination. In addition to providing direction for future researchers, this study has clear implications for those who design and lead initiatives to increase classroom PA. Certainly, their focus on classroom teachers needs to continue. However, results of these efforts are likely to be hampered unless initiatives also focus on clarifying school and district-level

administrative support and policy. Efforts are needed to ensure administrative support of classroom PA and/or policies are successfully communicated to teachers.

DRAFT

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Table 1
Semi-Structured Interview Questions

<i>SEM</i> Construct	Interview Question
Individual	<ol style="list-style-type: none"> 1. Do you currently implement brain breaks*? 2. Do you use a specific brain breaks program? 3. How do you typically implement brain breaks into your classroom? 4. How confident do you feel in implementing brain breaks? Why? 5. Please describe how your students respond to the brain breaks. 6. How many days/week do you implement brain breaks? 7. How many times/day do you implement brain breaks? 8. Which subject(s) are you comfortable including brain breaks in? 9. Please describe how you first learned about brain breaks. 10. Does anything stop you from implementing brain breaks (barriers to implementing)? 11. Do you participate in brain breaks with the students? 12. Do you think you could incorporate more brain breaks? 13. What else would you like to learn about brain breaks?
Interpersonal	<ol style="list-style-type: none"> 14. Thinking about other teachers within your school and district, how do you think their opinions on brain breaks compare to yours? 15. How often do you or would you like to collaborate with other teachers to discuss classroom-based physical activity breaks?
Organizational	<ol style="list-style-type: none"> 16. Please tell me about the wellness environment at your school. 17. Please describe your school administration's and district's beliefs about brain breaks and promoting PA in general.
Community	<ol style="list-style-type: none"> 18. What do you think other districts beliefs are about brain breaks? 19. How could community organizations support the use of brain breaks?
Public Policy	<ol style="list-style-type: none"> 20. What guidelines or policies at the district, state or national level are you aware of for providing brain breaks? 21. If you were to create a policy for brain breaks, what would it be?

*Once researchers, defined classroom PA, they asked teachers, what they typically called this and used the teachers' terminology for the remainder of the interview. Teachers most often used the term "brain breaks"

Table 2
Staff Demographics

	n	%
Gender	59	
Male		13.6
Female		86.4
Age	57*	
Mean		38.5
Ethnicity	59	
Caucasian		91.5
Hispanic		1.6
More than 2 races		6.8
Education	58*	
Bachelor's		41.7
Master's		58.3
Grade Level	59	
K-3		45.8
4-5		18.6
Specials**		35.6
Years of Experience	56	
1-5		28.5
5-10		25.0
10-15		23.2
15+		25.1
PA Level	53*	
1-2x/week		9.2
3-4x/week		33.3
≥ 5x/week		57.5

*Not all teachers answered these questions due to personal preference

**Specials included Art, Music, Special Education, and Spanish