

## PHYSICAL ACTIVITY

# Secondary Student and Teacher Perceptions of Classroom Physical Activity



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## Abstract

*Recent literature has shown that the implementation of classroom physical activity (PA) has had a positive impact on overall student performance. However, most of the classroom-based PA literature has explored the impact on elementary students. The purpose of this study was to examine how high school students and teachers feel about the implementation, feasibility, and application of integrating movement into the classroom. Findings from nine individual teacher interviews, one teacher focus group (n = 4), and five student focus groups (n = 20) were analyzed. Four themes were created from the teacher interviews and student focus groups: (a) implementation time of classroom PA, (b) desirable minutes of classroom PA, (c) yoga is the preferred activity, and (d) classroom PA value. Results from this study suggest that students and teachers value the integration of classroom PA but that they have conflicting viewpoints on various components that go into providing movement opportunities.*

Regular participation in physical activity (PA) is essential to achieving optimal health and development of children (Centers for Disease Control and Prevention [CDC], 2015). Because children and adolescents spend a large percentage of time at school, the school environment can act as an important setting for youth to engage in and accumulate PA (Dollman et al., 2005; Mahar et al.,

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2006; Wilson et al., 2016). With adolescents spending the majority of their day in the school setting, it is becoming important to consider whole-of-school strategies for PA promotion. The Comprehensive School Physical Activity Program (CSPAP) model is a multicomponent approach to increase daily PA among children and adolescents. The CDC has adopted this strategy as the national framework for physical education and PA (CDC, 2017). CSPAP includes five components: physical education, PA during the school day, before and after school PA, family/community engagement, and staff involvement (CDC, 2013).

Due to high-stakes testing and the cutting of physical education classes, classroom PA during the school day is becoming an important strategy for increasing student PA levels (McMullen et al., 2016; Webster et al., 2017). Integrating PA into the classroom has shown positive effects in improving in-class student on-task behavior (Goh et al., 2016; Howie, Beets, & Pate, 2014; Stoepler et al., 2018), academic performance (Howie et al., 2015; Mahar et al., 2006; Mullender-Wijnsma et al., 2015), and daily PA participation (Kriemler et al., 2011; Wilson et al., 2016).

Even with the documented evidence to support how classroom PA has positive effects on student learning and overall daily PA, it is still an underutilized strategy by classroom teachers. According to the CDC (2016), only 10.7% of elementary, 7.5% of middle school, and 2.2% of high school districts require that schools provide regular classroom PA breaks during the school day. Due to the limited amount of schools integrating PA into the classroom, recent literature has started to explore school stakeholder perceptions and barriers to classroom movement integration. Examinations of stakeholder perceptions have found that teachers are less likely to implement movement into the classroom due to time and space (Goh et al., 2016), lack of PA knowledge (Benes et al., 2016), and threats to classroom control (McMullen et al., 2014). Due to these recent findings, it is becoming important to explore whether classroom movement integration is an appropriate instructional strategy (McMullen et al., 2016). Furthermore, most of the literature surrounding classroom PA has focused on the elementary school context, with little evidence relating to stakeholder perceptions or the effects of classroom PA at the secondary level.

We know a great deal known about classroom PA at the elementary school level (e.g., Erwin et al., 2011; Kibbe et al., 2011; Mahar et al., 2011), and numerous resources are available for teachers to incorporate PA into the classroom (e.g., GoNoodle, Classroom Energizers, Take 10!). However, we know much less about the integration of classroom PA at the secondary level due to the limited amount of classroom PA resources that cater to this specific age level. Evidence has shown that of high school students across the United States, only 27.1% participate in the recommended amount of PA per week and 29.8% attend physical education class daily (CDC, 2015). A potential solution that could help address the low levels of PA for this age population is the integration of classroom movement. However, we know very little about why teachers are not implementing PA and why student participation rates are low when classroom PA is offered.

The purpose of this study was to examine high school (Grades 9 to 12) student and teacher perceptions of classroom PA and to determine what types of activities are perceived to be age appropriate and relevant at the high school level, in hopes to maximize student and teacher PA participation. Findings from this study could aid in the development of how to plan and implement classroom PA at the secondary level.

## **Method**

Before data collection, both the University Institutional Review Board and the schools in which the project was implemented granted approval for this study. The parents of the students gave written consent, and the students verbally affirmed assent. All high school students and teachers within the district had the opportunity to take part in the study.

### **Areas of Inquiry**

This study examined three areas of inquiry and their relation to understanding student and teacher perceptions of classroom PA. The primary areas of inquiry were (a) what types of classroom physical activities do students and teachers want to participate in, (b) what is the desirable amount (in minutes) of classroom PA that is preferred by students and teachers, and (c) do teachers and students at the secondary level value the implementation of classroom PA. Interview

questions related to specifics around types of PA activities, preferred classroom PA length, amount, feasibility, and perceived importance of integrating PA into the classroom.

### **School Environment and Participant Characteristics**

Students and teachers from two of the district high schools were selected for this study based on convenience and recommendations from the district wellness coordinator. The two high schools were rural public schools located in the Western United States that served a total of 1,988 students across Grades 9 to 12. School-level reported ethnic/racial data for one high school was 75% Hispanic, 21% White, 1% American Indian/Alaskan Native, 1% Asian, 1% Black, and 1% two or more races. The second high school ethnic/racial data was 60% Hispanic, 30% White, .3% American Indian/Alaskan Native, 4% Asian, 3% Black, and 1% two or more races. School 1 reported 66% and School 2 reported 65.2% of students were eligible for free or reduced-price lunch, per the state's Department of Education website in 2017.

### **Participants**

After selection of the two high schools with help from the district wellness coordinator, teachers who participated in the study were recruited via email. After teachers agreed to participate in the study, a research team member visited a class selected by the teacher, to discuss the study for student recruitment. Individual student and teacher demographic information was collected during the focus group and interview process at the beginning of each session. Five student focus groups were conducted. These included 10 seniors, seven juniors, and three sophomores, for a total of 20 high school students. Nine individual teacher interviews and one teacher focus group ( $n = 4$ ) from various disciplines were conducted (see Table 1 for complete teacher demographic characteristics). A teacher focus group was conducted because a group of teachers in a single department (math) preferred to discuss as a group instead of being interviewed individually. Additionally, of the teachers who participated in the study, only one had classroom PA integration experience. The remaining teachers had not implemented PA into the classroom as part of their classroom routine and teaching practice.

**Table 1**  
*Teacher Demographic Characteristics*

Name	Years of experience	Grade level	Discipline
Jim	10	Senior	Math/Science
Joan	7	Soph–Senior	Special Education/Math
Roger	20	Junior–Senior	English
Jessica	7	Soph–Senior	Foreign Language
Tiffany	3	Senior	Science
Pierre	3	Junior–Senior	Math
Susan	4	Senior	Math
Cynthia	20	Junior–Senior	Math
Brandon	4	Soph–Senior	Math
Marie	5	Soph–Senior	Math
Dorothy	4	Junior–Senior	Math
Marybeth	6	Junior–Senior	Math
Jones	18	Soph–Senior	Math

*Note.* Grade Level column refers to the grade range taught by the individual teacher. “Soph” is an abbreviation for “Sophomore,” which usually indicates second year of high school.

## **Data Collection**

### ***Interview Protocol***

All semistructured interviews ( $n = 9$ ) and student focus groups ( $n = 4$ ) were conducted by the lead author and took place between January 2017 and April 2017 in person at a convenient time for the teacher and students. The interview guide included questions that were asked to all participants in addition to unique questions for both types of participants (i.e., teacher or student). All interviews and focus groups were audio recorded and later transcribed verbatim, and pseudonyms were assigned during data analysis.

**Student Focus Groups.** Student focus groups were conducted during scheduled break periods (e.g., during lunchtime or before school). While other students were on break, a small group of

students remained in the classroom with the researcher. Focus group questions were related to (a) if students want to be active during class, (b) what types of activities would they like, (c) when during the class period would they like PA to be implemented, and (d) do they value PA in the classroom. A sample student question was “What types of physical activities would you like to participate in?” Focus groups lasted between 12 and 22 min ( $M = 17$ ), were audio recorded using a digital audio recording device, uploaded to a password-protected computer, and transcribed verbatim for subsequent analysis.

**Teacher Interviews.** One-on-one teacher interviews and one teacher focus group were conducted. The interviews were scheduled on a day and time when the teacher had the most availability. Interview questions were related to (a) the feasibility of implementing PA into the classroom, (b) how often the teacher is willing to implement classroom PA, (c) main barriers that hinder the implementation of classroom PA, and (d) is the implementation of PA into the classroom important. A sample teacher interview question was “How important do you believe the implementation of classroom PA breaks is?” The interviews lasted between 13 and 26 min ( $M = 18$ ) and the same audio recording and transcriptions procedures used for student focus groups were employed for teacher interviews. For all questions in both of the focus groups and teacher interviews, detailed oriented, elaboration, clarification, and contrast probes were used to elicit additional information from participants (Patton, 2002; Rubin & Rubin, 2005).

### ***Data Analysis***

Data were analyzed inductively (Creswell, 2013). Before analysis, interviews were transcribed and transcriptions were imported into an analysis software program (NVivo 11). Data analysis data began with open and axial coding methods. These methods allowed for identification of emerging themes (Creswell, 2013). Once data were coded, similar codes were grouped and themes were identified. After the completion of the coding process, key findings from student focus groups were compared with results from the teacher interviews. These comparisons allowed for exploration of similarities and differences between student perspectives and teacher perspectives.

**Trustworthiness.** Trustworthiness was ensured during the data analysis process through multiple strategies. Transcriptions from

the interviews and preliminary interpretations were sent to the participants, ensuring accuracy (member checking; Creswell, 2013). Findings were triangulated through student focus groups and teacher interviews. Additionally, a qualitative research expert reviewed codes, commented on emerging themes, and provided support and input on the analysis process (peer debriefing). Last, a negative case analysis was completed, which ensured generated themes did not have an abundance of contrasting support (Merriam, 2009).

## **Results**

Findings from this study suggest that students and teachers value the integration of classroom PA but that they have conflicting viewpoints on various components that go into providing movement opportunities. The data associated with each theme (implementation time of classroom PA, desirable minutes of classroom PA, yoga is the preferred activity, classroom PA value) are presented separately and represented by experts from the data.

### **Implementation Time of Classroom Physical Activity**

Both teachers and students were asked what time they preferred classroom PA to be integrated during class. Classroom teachers differed in their views of the “best” time for classroom PA. Teachers preferred PA to be implemented during the halfway point of class, whereas students preferred PA toward the end of the class period.

#### ***Teachers Preferred Movement to Be Implemented During the Halfway Point of Class***

Jim mentioned, “I would like it in the middle of class just because they get really bored taking notes and listening to me.” Marybeth stated, “I say middle of class because it provides a certain amount of motivation, if I see a student who is not doing anything, then I could say, you need to focus now, in 20 minutes you are going to get a break and I feel like it provides motivation.” Brandon confirmed this theme by adding, “I need to do them in the middle of class; that’s when I believe they are most useful.”

#### ***Students Preferred Movement to Be Implemented Toward the End of Class***

One student said, “The end of class, we only have 1 hour in class, why would you move in the middle? I just think it is better at the

end, so you can get all your stuff ready and you can be ready to go.” Another student stated, “I said the end because we usually get bored and irritated from what we are doing; we would be able to refresh our memory and go to a different class.” Another student confirmed with others by simply stating, “I would prefer the activity break to be implemented toward the end of class.”

### **Desirable Minutes of Classroom PA**

A question asked to both teachers and students was what length (in minutes) of classroom PA they would prefer. As in the implementation time theme, the teachers and students had different preferences in regard to the amount of time they prefer for classroom PA. Teachers preferred classroom PA to be less than 5 min, whereas students desired a longer duration of PA time (> 5 min).

#### ***Teachers Felt That 5 Min or Less Is the Ideal Time for Integrating Physical Activity***

During the interviews, teachers answered the question, “How long would you like (in minutes) the movement to be?” Jones responded, “Obviously 20 minutes is too long, it needs to be something that we can do quickly but still be useful, the 3- to 5-minute range would be ideal.” Jessica stated, “1 to 3 minutes is great, perfect, more than that is no, I have got other things to do.” Dorothy added, “Realistically the intervention would have to be between 3 and 5 minutes.”

#### ***Students Preferred for Movement to Be 5 Min or Longer***

One student stated, “The 1- to 4-minute range is too short because it goes by really fast and you get caught up in the moment and then it’s done, and you are like I want to continue though.” Another student added, “it would depend on what we are doing, I mean if we are doing something like a walk, then 10 to 15 minutes, if we are doing something vigorous then 5 to 10 minutes.” Another student mentioned, “I would say 5 to 10 minutes because it would help people wake up.”

### **Yoga Is the Preferred Activity**

Due to the limited experience both the teachers and the students had with classroom PA, they were asked what types of activities they

would prefer doing. After review of transcriptions, it became evident that yoga was the preferred activity for both teachers and students.

### ***Teachers and Yoga***

Tiffany stated, “Yoga and the meditation stuff, I talk a lot about just trying to relax, just trying to breathe low in your abdomen, and just trying to sit straight up.” Jones added, “Yoga and meditation stuff, just trying to get students to relax.” Cynthia simply stated, “I would like some yoga.” Marie confirmed what others reported:

If I could do anything in the classroom, I would do some yoga. That is something I would feel comfortable leading. Yoga is culturally interesting, people do yoga, yoga is normal and ok, so I feel like [the students] would do that and I could certainly do a fast-paced yoga that would be more cardiovascular and strength building.

### ***Students and Yoga***

One student stated, “I think yoga would be good because it is relaxing and would help people to calm down.” Another student added, “I would say yoga because it is more like stretching and stuff.” One student simply stated, “I would like to do yoga,” and another student added, “Yoga would be good.”

### **Classroom Physical Activity Value**

Both teachers and students were asked if they believe the implementation of classroom PA is important. It became evident after review of the transcripts that both teachers and students felt that classroom PA is important to implement.

### ***Teachers Value Classroom PA***

When asked how important he believes the implementation of classroom PA is, Roger stated,

I think it is one of the most important things you can do, I think we are doing our students a disservice if we are not bringing some sort of activity to their class, it’s a long day and to ask them to sit in a chair all day long and even just one class period long, that’s a lot to ask for anybody.

Joan added,

Oh yes, I think they are a necessity, I think that it is huge, I just finished reading Spark, which is, oh my gosh, it is so awesome, and it really does reset their brains and makes them be able to learn more.

Jones said, “I think it could be very beneficial.” Jessica added, “I think it could be a valuable teaching tool.”

### ***Students Value Classroom Physical Activity***

Students were asked, “On a scale of 1 to 10 with 10 being extremely important, how important do you view the integration of classroom PA?” A student stated, “I think probably an 8 because here at our school we don’t really do any, or some students don’t have a gym class and its very good for someone to be having some kind of PA throughout the day.” Another student mentioned, “I would say about a 9 because our teachers get frustrated with us to wake up or something and they get frustrated because we are bored, and this would help.” Another student stated, “I would say a 7 or 8 because we get tired and it will help us focus.”

## **Discussion**

### **Classroom Physical Activity Duration**

There were conflicting findings from teachers and students in regard to their preference for the duration of the classroom movement. Teachers preferred movement breaks to be 5 min or less, whereas students preferred the time to be longer than 5 min. The literature that has reported on the effectiveness of a 5-min break has found it to have very little value. It has been discovered that a 5-min activity intervention does not enhance cognition or improve student on-task behavior (Kubesch et al., 2009). Similar research discovered that students did not show any cognitive improvements after a 5-min break and that changes in math scores were statistically higher after a more extended PA break compared to breaks of 5 min or less (Howie et al., 2015). Research has found that from the student’s perspective a 5-min PA break is too short and holds very little value and students do not feel like anything significant occurs during a 5-min break (Howie, Newman-Norlund, & Pate, 2014). The

conflicting results from these studies in regard to the length of time suggest that further inspection within this topic area could help find an adequate duration of time for PA.

### **Activity Selection**

Yoga is an activity that teachers believe is feasible to implement regularly. Yoga is a holistic system of practices that includes multiple techniques, including physical exercises, breathing exercises, and deep relaxation techniques (Khalsa & Butzer, 2016). The therapeutic application of yoga is a viable activity among adolescents in improving both physical health and mental health (Birdee et al., 2009). This finding matches literature about the implementation of yoga in schools. Yoga is perceived by many to be feasible, practical, and cost-effective intervention in schools and can cater to the needs of a variety of students (Khalsa & Butzer, 2016). This activity should be considered in future development of PA resources to teachers at the secondary level.

### **Preference of When Activity Should be Implemented**

The teachers and students had conflicting findings in regard to when they preferred to implement/participate in classroom PA. Currently, few studies have measured the impact of classroom PA on students when implemented at the end of a class period. However, research has explored the effects of classroom PA during the halfway point of class. Howie, Beets, and Pate (2014) found that after a 10-min intervention was implemented halfway through a class, student on-task behavior increased by 10%. Similarly, Carlson et al. (2015) found that the implementation of a PA break at the halfway mark had a positive effect on student on-task behavior. Results from these studies indicate that the midway point may act as the most effective time to implement movement. However, in regard to stakeholder buy-in (especially students) preferring PA at the end of class, research focusing on classroom PA integration should start exploring the effects of movement at the end of the class.

### **Value of Classroom Physical Activity**

Results from this study align with the findings in literature that students and teachers value classroom PA. Even though teachers in this study had limited experience implementing classroom PA, it

was evident they valued the idea of having their students engage in classroom PA. The positive value of integrating classroom PA, as the teachers and students in this study reported, aligns with the positive perceptions of implementing classroom PA at the elementary level, as students and teachers in other studies reported (Dinkel et al., 2017; Goh et al., 2016; Mullins et al., 2019). Due to the possible impact of classroom PA, and due to the value teachers and students believe it holds, it is important to expand the scope and examine beyond the elementary level and explore the impact and value of classroom PA on secondary teachers and students.

### **Limitations**

Several limitations of this study should be considered. First, the results reflect the perceptions of teachers and students from two schools in one region and, as such, could be difficult to generalize to other contexts. Second, the range of students who participated in the focus groups were mainly upperclassmen (juniors and seniors). Ideally, a broader sample that includes more freshmen and sophomores could be a better representation of high school students' beliefs. Third, the majority of the teacher disciplines were either math or science, therefore creating a viewpoint of teachers who only teach within these topic areas. Future research could include a wide variety of subjects to understand teacher perspectives of classroom PA more broadly and to fully understand teacher perspectives of classroom movement integration. Last, the district wellness coordinator helped with participant recruitment, which could have influenced teacher responses due to the known relationship before the interviews. Future work should recruit randomly to try to eliminate any bias or preconceived notions around classroom PA.

### **Future Directions**

This study examined perceptions of classroom PA from student and teacher perspectives at the secondary level. Future research could build upon this study in multiple ways. First, research could examine more in-depth the specific types of physical activities that secondary students would like to participate in across various secondary schools. Second, research could explore secondary teachers' comfort level with integrating classroom PA. Third, research could integrate a secondary PA curriculum and examine student and teacher en-

joyment and implementation barriers. Last, research could examine creative solutions that help facilitate the integration of PA into the classroom at the secondary level to help ensure teacher comfort in making it a regular teaching practice.

## Conclusion

The purpose of this study was to explore secondary teachers' and students' feelings about classroom PA. Currently, there is minimal literature on students' and teachers' feelings about classroom PA at the secondary level. Findings from this study show that students value PA and that teachers and students have conflicting views on the duration of classroom PA and about when PA should be implemented during the class. Additionally, results provide insight into students' and teachers' feelings about classroom PA and could provide further understanding of secondary school stakeholders' perceptions to guide future PA research into the classroom. Results could also influence the criteria that are considered in the development of classroom PA resources at the secondary level. Further investigation needs to confirm these results and more closely examine teachers' and students' feelings about the integration of classroom movement.

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