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Themes for Motivation to Participate in Physical Activity Breaks in College Classrooms

Taylor Polson

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University of Northern Colorado

Greeley, Colorado

THEMES FOR MOTIVATION TO PARTICIPATE IN PHYSICAL ACTIVITY
BREAKS IN COLLEGE CLASSROOMS

A Thesis
Submitted in Partial
Fulfillment for Graduation with Honors Distinction and
The Degree of Bachelor of Science

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School of Sport and Exercise Science

May 2018

THEMES FOR MOTIVATION TO PARTICIPATE IN PHYSICAL ACTIVITY
BREAKS IN COLLEGE CLASSROOMS

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Abstract

It is well known that physical activity (PA) has many physiological and psychological benefits to the human body (Donaghy, 2007; Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009; VanKim & Nelson, 2013; Gerber, Brand, Elliot, Holsboer-Trachsler, & Puhse, 2014). Research on the psychological effects of exercise has shown that PA can decrease depression and feelings of hopelessness (Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009). Specifically, the effects of PA in classrooms on the psychological health and academic performance of students has become an area of focus, both in and out of the United States. Physical activity has been implemented into the classroom in the form of physical activity breaks (P.A.B.s), in which students participate in short bouts of exercise during class. Research on P.A.B.s has shown many benefits, including decreasing off-task behavior, improving test scores, and increasing the amount of PA outside of classrooms (Bray & Born, 2004; Ma, Mare, & Gurd, 2014; Bailey & DiPerna, 2015; Bunkertorp et al, 2015; Ma, Mare, & Gurd, 2015). However, most of the research has been focused on elementary and middle school students. This project analyzed the questionnaire responses from a study that implemented P.A.B.'s into the undergraduate university/college class, which was a context of P.A.B.s implementation that had yet to be explored. Survey responses of reasons, or motives, students gave regarding participation, or not, in the P.A.B.s were thematically content analyzed. Enjoyment, needing a break, and contributing to the study were the top reasons students chose to participate. Not feeling well, being unprepared, or just not wanting to were the main themes found for why students chose not to participate in the P.A.B.s.

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Introduction

During times of maturation, such as the transition from high school to college, several changes are experienced for many students. This transition may mark the first time that young adults have been away from their parents for an extended amount of time, the first time they are fully responsible for themselves and their choices, and the first time they must prioritize school, social life, physical health, work, and many other factors on their own. Clearly, this could be a difficult transition, and during this transition there is a decrease in the number of students who get the recommended amounts of exercise on a regular basis (Bray & Born, 2004). Physical activity (PA) is vital for health, academic success, and cognitive function (Ma, Mare, & Gurd, 2014), yet a significant number of college students are not meeting the recommended guidelines. In addition, students' exercise and diet habits are greatly influenced by their peers, and college is a very social time for many (Harmon, Forthofer, Bantum, & Nigg, 2016), which could also potentially add to the PA deficit experienced by these students. It is also important to note that depression, suicidal thoughts and actions, and feelings of hopelessness are quite prevalent among college students (Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009). This could be largely due to the decrease in PA during the transition from high school to college. Since PA is essential to psychological health, the relationship between PA, its benefits, and the implementation of physical activity breaks (P.A.B.s) into college classrooms was examined.

The purpose of this study was to analyze themes for why college students in a Sport and Exercise Science course chose to participate, or not participate, in P.A.B.s from a previous study conducted with students in a college classroom. Mental health may

decline for many students during the transition from high school to college, and time spent exercising follows the same pattern. There is a relationship between improved aspects of mental health when PA breaks are implemented into elementary classrooms; however, when it comes to implementing and analyzing the effects of these breaks in college students, there is a gap in implementation and associated research. Very little research has been done on the effects of these breaks in college students. This study examined the data from a previous study completed at the University of Northern Colorado that analyzed the impact of P.A.B.s in college classrooms on students. This study examined existing data from surveys taken during this ongoing study. Themes for the reasons college students chose to participate, or not participate, in P.A.B.s during class were determined.

The literature studied for the background of this study revealed that overall, P.A.B.s are beneficial to elementary students, especially in improving their academic test scores, selective attention, and decreasing off-task behavior. In addition, exercise in general has many positive effects on mental health, including decreasing depressive symptoms, perceived stress, and thoughts of hopelessness. This study looked to answer the question of why college students chose to participate, or not participate, in P.A.B.s during class and how these themes aligned with the known effects of P.A.B.s. This study provided insight for students' motives/reasons to exercise or not to exercise. Based on the findings in the review of literature, it was hypothesized that the predominant reason for participation in P.A.B.s among college students in this sample would be to improve physical health and the predominant reason for not wanting to participate would be not enjoying PA.

Literature Review

Benefits of Exercise

Exercise has many different positive effects on both physical and psychological health. Physical activity can decrease and help prevent depression, help treat addiction, and is essential to all around physical health (Donaghy, 2007; Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009; VanKim & Nelson, 2013; Gerber, Brand, Elliot, Holsboer-Trachsler, & Puhse, 2014). Clearly, these benefits cannot, and should not, be ignored. The benefits of exercise range so greatly, from weight loss and cardiovascular health, to psychological health and aiding in the reduction of depressive symptoms (Donaghy, 2007). Analyzing the psychological benefits of exercise can be especially significant during times of stress or change because of its great capacity for improving mental health.

Depression

One of the most notable benefits of PA is that it can help decrease and prevent feelings of depression or hopelessness (Donaghy, 2007). According to the Center for Disease Control and Prevention (2006), more than one out of every 20 Americans older than age 12 reported having current depressive symptoms. The prevalence of depression is undeniable in the United States, but can be improved with physical activity. In addition, there is a prevalence of depression, hopelessness, and suicidal thoughts among college students, but these symptoms can also be decreased with sufficient physical activity (Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009). In a study done by Taliaferro et al (2009), it was found that rates of hopelessness, depression, and suicidal behavior among college students are significantly lower in those students who regularly exercise

when compared to those who do not. These findings could potentially help provide a basis for understanding and preventing the feelings of hopelessness, depression, and suicide rates among college students.

Specifically, exercises that involved having a ball in-hand, with most of the motion being hand and arm movement, correlate with decreasing depressive symptoms (Gerber, Brand, Elliot, Holsboer-Trachsler, & Puhse, 2014), which is significant in showing which types of exercise may most effectively decrease depressive symptoms. The study by Taliaferro et al (2009) showed that any type of PA was significant in decreasing depressive symptoms, but Gerber et al. (2014) have shown through their studies that ball exercises have the greatest association with decreasing depressive symptoms. The previous studies suggest that the prevalence of depression in the United States may be decreased by exercise prescription and supplementation.

Stress

As young adults transition from high school to college, stress levels can skyrocket, and in turn bring along symptoms of depression and hopelessness. Research has shown that meeting PA guidelines relates to lower perceived stress and improved mental health among college students (VanKim & Nelson, 2013). Interventions to improve mental health among college students may need to include PA because of its benefits for mental health. This is important for college students because of the high levels of stress and depression they may experience, but there seems to be hope that exercise can benefit mental health, especially among college students.

Barriers

Although there are psychological benefits of exercise, the desire of a person to participate may influence the benefits gained from the activity (Szabo & Abraham, 2009). Simply put, there are people that just do not like exercising or do not have a great desire to participate in PA. This is important to consider, but because it has been shown that any type of PA can improve mental health, the greatest barrier may simply be finding a type of PA suited for an individual (Donaghy, 2007). Regardless, engaging in PA has many psychological benefits in addition to physiological benefits.

Physical Activity in Schools

Children spend a considerable number of waking hours in school. Therefore, there should be consideration for how to include PA in the school day. One method used to increase time spent participating in PA for students is by adding P.A.B.s into school classrooms. This usually includes a type of short, but intense, break during class where the students engage in exercise activities. There are many physical and mental benefits of implementing P.A.B.s during class, which range from decreasing the amount of off-task behavior of the students to increasing the amount of PA performed outside of class and/or school (Bray & Born, 2004; Ma, Mare, & Gurd, 2014; Bailey & DiPerna, 2015; Bunkertorp et al, 2015; Ma, Mare, & Gurd, 2015).

Physical activity is necessary for physical and mental health. However, the amount of time that students spend participating in PA decreases significantly from high school to college (Bray & Born, 2004). Bray and Born (2004) found that at least 42% of students reported a decline in participation in PA from high school to college, and many of those were students who previously got sufficient PA. As shown earlier, sufficient PA can decrease depressive symptoms (Taliaferro et al, 2009), so this decline in PA could be

exaggerating the prevalence of depression among college students. This is one of the many reasons that P.A.B.s could be incredibly beneficial to college students.

High intensity activity breaks during class have been shown to correlate with a decrease in off-task behavior in elementary students on days that the breaks were implemented. This decrease was even more significant for those students who usually showed higher levels of off-task behavior (Ma, Mare, & Gurd, 2014). This means that by implementing a short activity break, attention and good behavior during class may be improved. In addition, participation in P.A.B.s during class are strongly associated with increased PA outside of the classroom (Bailey & DiPerna, 2015). Student step counts outside class increased after P.A.B.s were implemented into their classrooms (Bailey & DiPerna, 2015). Because there are so many benefits of exercise, both physical and mental, exercise outside of the classroom could ultimately contribute to improving the psychological well-being of students.

In a study by Bunketorp et al (2015), hippocampus structure and standardized test scores were analyzed after the implementation of a P.A.B.s program in a school and then compared to a school with no such intervention. Although there were no observed alterations in hippocampus structure, there were significant increases in standardized test scores in the intervention school when compared to the control school (Bunketorp et al, 2015). Students, especially females, were more likely to have improved test scores after participation in the P.A.B.s intervention (Bunketorp et al, 2015). These findings provide a basis for implementing PA as a means of improving academic outcomes. Again, this shows yet another benefit of implementing P.A.B.s into classrooms.

Similarly, Mead, Scibora, Gardner, and Dunn (2016), found that standardized math scores in middle school classrooms can be improved by the implementation of P.A.B.s. Mead and colleagues' study examined the effects of 5-minute activity breaks in one classroom and the use of stability balls in a second classroom versus a classroom without either. Students in both types of activity breaks implemented in the classroom showed significantly improved test scores, but the improvement was even greater for the students in the classroom with stability balls (Mead, Scibora, Gardner, & Dunn, 2016). These findings are important because they show that PA is beneficial for students, regardless of the specific type of activity.

When Ma, Mare, and Gurd (2015) conducted their second study on P.A.B.s in classrooms, their results showed that brief, high-intensity, P.A.B.s can improve selective attention in 9- to 11-year-olds, which could therefore potentially increase academic performance. There is a relationship between performance on a selective attention test and participation in P.A.B.s during class time (Ma, Mare, & Gurd, 2015). The very essence of school is education of students, so determining ways that academic performance can be improved is important and should be considered in all schools. The implementation of P.A.B.s has been successful both in transitioning to the breaks, as well as improving academic performance and psychological well-being.

Successful Implementation of Physical Activity Breaks

Research has repeatedly shown that implementing P.A.B.s into classrooms has multiple significant benefits (Bray & Born, 2004; Ma, Mare, & Gurd, 2014; Bailey & DiPerna, 2015; Bunkertorp et al, 2015; Ma, Mare, & Gurd, 2015), but creating and implementing a program successfully must take more than just the benefits the students

receive into consideration. The major consideration to successfully implementing a P.A.B. program into a functioning classroom is the teacher's perceptions of the effectiveness and importance of the programs (Delk, Springer, Kelder, & Grayless, 2014; Bailey & DiPerna, 2015; Benes, Finn, Sullivan, & Yon, 2016). Although these programs have been shown to have many benefits, there are other factors to consider when creating, and implementing, a program that may determine its impact and success.

An important factor to take into consideration when implementing a P.A.B.s program into a school is the teacher's willingness to include the program into their curriculum. Delk et al (2014) found that teachers had a willingness to accept, and implement, PA programs into their classrooms. The study also found evidence that an increase in education on the purpose and effects of implementing a P.A.B. program would increase the probability, and willingness, of a teacher to implement the program into a middle school classroom. Teacher willingness to implement the program is significant and should be considered when determining where to include the program.

Additionally, it should be considered whether the teachers believe that the breaks will take away from instructional time, and would therefore decrease academic performance. Bailey and DiPerna (2015) found that elementary teachers did not seem to think that implementing a P.A.B.s program into their classroom took away from instructional time. Instead, most teachers in their study had positive thoughts regarding the implementation of a program into their classroom and did not observe any negative effects of the breaks (Bailey & DiPerna, 2015). Bailey and DiPerna (2015) also found that the teachers of the classrooms that the programs were implemented into seemed to

think that the program did not take away from instructional time and seemed to be incredibly beneficial, regardless of what the actual results of the study were.

In a study by Benes, Finn, Sullivan, and Yon (2016), classrooms in which a P.A.B.s program had been implemented were observed and the teachers of those classrooms were surveyed. The surveys of high school teachers showed that there was a great number of perceived positive effects from using PA in classrooms. The teachers recorded that there appeared to be an increase in both enjoyment and engagement in class once physical activity was implemented (Benes, Finn, Sullivan, & Yon, 2016). The perception of the teachers may again influence the willingness of the teachers to implement or continue the use of a program in their classrooms. Yet again, this study contributes to the fact that teacher perceptions and education of the effects of the program are important and should be considered when creating the program.

Because full-time university/college students spend so much time in classrooms, there is a great need to implement P.A.B.s in an effort to improve their well-being and perhaps academic performance. When creating a program, taking teacher perceptions of the program into consideration is important, as well as educating the teachers on the potential effects of the program. This would reduce some concerns that the teachers may have about the programs. The benefits of PA for students' health and well-being are significant, and college seems to be a time when psychological health is not ideal. The psychological well-being of college students can potentially be improved through the implementation of a P.A.B.s program into the classroom. Physical activity programs in elementary and middle schools have been successfully implemented into classrooms and results show associations between participation and improvements in student test scores,

well-being, and decreased off-task behavior. The benefits of P.A.B.s have been mostly explored in younger-aged classrooms, but the findings are still important. These factors need to be examined in students at a college level to determine the effects of PA during class on psychological well-being of older students.

Methods

Participants

This study examined questionnaire responses from college undergraduate students, both male and female, from three different sections of SES 323 - Motor Learning and Development, a required course for Sport and Exercise Science students. Two of the sections were from the Spring 2016 semester and one was from the Summer 2016 semester. Data was collected from 74 students in the Spring sections combined and 17 students in the Summer section. With the three sections combined, the data was collected from a total of 91 students. The questionnaire responses were already collected by a research team. Participation in the completion of the questionnaires was voluntary and specific student information was anonymous to all researchers. Data was collected as part of a larger, ongoing study, that had IRB approval prior to the start of the project. This present study examined data collected with these surveys and synthesized it to answer the research question. Themes for participation emerged through analysis of the previously collected data. Each student was assigned a number to keep their responses anonymous.

Data Collection

The data analyzed for the present study was collected as part of a more in depth study that is currently being conducted at the University of Northern Colorado in Greeley, Colorado. Short, five-minute P.A.B.s were included periodically throughout the

semester in three different sections for a major-required Sports and Exercise science course. Students were assigned a number in order to keep their responses anonymous to the researchers. Students chose to either participate, or not participate, in the activity, then record their responses to the questions “Did you participate in P.A.B.s today? Why or why not?” Students watched an exercise video on a projector screen or were lead by a live instructor and followed along with the exercises, if they chose to participate. After the P.A.B. the students took a short, post-activity questionnaire that included whether they chose to participate or not, and if so, why they chose to participate or not. Three different types of P.A.B.s were implemented (“Just a Minutes” [JAMS] “Bootcamp,” “Martial Arts,” and “Yoga” in blocks of four times for each type across a two-week timespan of class.

Data Analysis

In this study, the questionnaire responses from classrooms in which P.A.B.s were implemented were analyzed. Themes of participation in P.A.B.s over a semester of using P.A.B.s in classrooms were content analyzed. The responses to the survey questions were put into Excel spreadsheets, separated by class section. The data was analyzed by thematic content analysis and then by cross comparison to check for consistency in coding. The data was then coded individually by the researcher as well as by an associate in the Sports and Exercise Science department. The data was grouped by similar themes for participating or not participating. The occurrence of each theme was tallied and the overall themes were ranked by how frequently they appeared. This was done individually for each section, then combined to find overall themes. The two individuals that analyzed the data each recorded their overall themes, then met to come to a consensus with their

coding. They worked to match their responses and group them until they agreed on the predominant themes for participating or not participating. The themes were then sent to third researcher, who used the agreed upon themes to code the data in the opposite way than done by the first two researchers. The coding was then checked for consistency with the first two sets of coding. The students' responses remained anonymous, but their responses were matched from day to day by assigning a number to each student to track trends over time. The themes were analyzed by unique P.A.B., then compared across P.A.B.s to current research findings stated in the literature review.

Results

Three higher level hierarchical themes were determined overall for all three sections and all P.A.B. types for both reasons students chose to participate, as well as reasons students chose to not participate. The three top reasons students chose to participate were (1) enjoyment, (2) needing a break, and (3) to contribute to the study. Enjoyment was defined as: students expressed having fun, liking the activity, and/or getting pleasure from participating in the activity. There were 143 responses total that indicated that participation was due to enjoyment. Needing a break was defined as: students manifested a need to break the monotony of lecture to either refocus or re-energize. There were 121 total responses that indicated participation in P.A.B.'s was due to needing a break. Contributing to the study was defined as having a desire to help-out with the study and/or be a part of the research. There were 74 total responses that indicated participation was due to a desire to contribute to the research. The overall themes varied for each type of P.A.B and for each class section. The three top reasons students stated for not participating were (1) not feeling well, (2) being unprepared, or (3)

not wanting to. Not feeling well was defined as: students expressed sickness, tiredness, or not feeling alright physically or mentally. There were 81 total responses that indicated that students chose to not participate because they were not feeling well. Being unprepared was defined as: students expressed not having appropriate attire or space to engage in the activity. There were 27 total responses that indicated that students chose to not participate because they felt unprepared. Not wanting to was defined as: students expressed a lack of desire to participate without providing any further detail. There were 26 responses that indicated that students chose not to participate because they did not want to, but did not give any further explanation. Curiosity appeared initially as a strong theme for the Spring sections, but did not persist for the entire semester. Additionally, one of the Spring sections showed a theme of peer pressure being the motivating force for P.A.B.s participation, but this theme was not seen in either the other Spring section or the Summer section. When extra credit was offered towards the end of the semesters, it emerged as a strong theme for why students chose to participate and also increased overall participation in the activities. There were 25 total responses for “extra credit” being the reason students participated during the Martial Arts P.A.B.s in the Spring sections. As each type of P.A.B. was delivered more than once, students who chose to not participate did express the reason being that they did not enjoy or were bored with the specific exercise. Similarly, if the students enjoyed the type of exercise, there was a stronger theme for wanting to participate because they knew they enjoyed the exercise.

Discussion

The predominant theme for why students would choose to participate in P.A.B.s in the college classroom was originally hypothesized to be for improved physical health,

while the predominant reason for not participating was not enjoying PA in general. Both of these hypotheses were not supported by the data. In fact, the only responses similar to the hypothesized reason for not participating were that students did not enjoy the specific type of P.A.B., not exercise in general. This relates to the study completed by Donaghy (2007) because that research showed that one of the greatest barriers to getting sufficient exercise is not finding a mode of exercise that is enjoyable to the individual. However, there were very few responses that showed that the students even thought of the P.A.B.s as exercise. Instead, the responses showed that the P.A.B.s were actually seen as a break from class rather than exercise. It is significant to note that several of the responses that ultimately got categorized in the “needed a break” theme involved needed time to refocus their attention, and these responses persisted throughout the study. This shows that students’ perceived attentiveness likely went up after the P.A.B.s. It has also been shown that exercise can decrease perceived stress, however, for the students who chose to not participate, there were responses that stated it was because they were too stressed. Although research shows that breaks may have actually helped them relieve stress, stress could potentially be another barrier to exercise.

Although the data coding was cross-checked for consistency, it is likely that this could be a source for error in the data. Many students wrote somewhat unclear, or ambiguous, responses that were coded into major themes, but the responses were very short. It is likely that the written response did not clearly reflect the students’ complete intended reasoning. There were also some students who wrote the exact same response on every questionnaire. This could mean that they did not want to take the time or effort to write down genuine responses. In addition, since many of the students did not see the

P.A.B.s as exercise, no conclusions can be drawn about student perceptions on exercise in general from the data collected in this study.

It was interesting that “contribute to the study” emerged as such a prevalent theme for participation. Students expressed interest in being a part of research and helping out with the study, which means they likely gave genuine responses and sufficient effort both during the P.A.B.s themselves as well as in responding to the questionnaires. Extra credit increased overall participation significantly when it was offered, but also became one of the major themes for that section of the course. There were 46 total responses that indicated that students participated to earn extra credit points. This is significant because extra credit was only offered for participation during the last type of P.A.B. This shows that students are more likely to participate in P.A.B.s if they are rewarded in a desirable way for doing so. Although it did not ultimately emerge as a major theme, the Spring semester students had a stronger theme of participating for fitness and health reasons, while the summer students were almost entirely oriented more towards participating for enjoyment and a break from class. This could be explained by the differences in the class itself between Spring and Summer semesters. During the Spring, more students have a full class load, where as in the summer many students only take a few classes. The Spring groups may have used the breaks to get a small amount of exercise because they may have felt like there was not time in their day to do it otherwise. The Summer group may have felt the need for a break more strongly because of the longer class period. Additionally, the Summer group may have enjoyed a break from lecture more simply because it was a change of pace. In the Spring, it is more expected that students will be in classes for long periods of time, whereas in the summer, a significant number of students

do not take classes at all. Lastly, for the Summer section, the students expressed feeling a better connection as well as a stronger desire to give full effort when a live instructor was present versus when a video was played that the students could follow along with. This shows that the mode of delivery may be very important to overall participation in the P.A.B.s.

This study provided some insight as to how students perceive P.A.B.s in college classrooms and why, or why not, they participate in these breaks. However, the next steps that could be taken to further understanding would be to look at students' motivation and how it is related to participation. Additionally, collecting data for test scores, perceived stress, well-being, and PA outside the classroom in relation to participation in P.A.B.s could provide even more insight into the effectiveness of these breaks in college classrooms. In classrooms of younger students, P.A.B.s have been shown to improve test scores and selective attention, and it is feasible that these results would be similar when examined among college students. It would also be insightful to collect data for overall participation and enjoyment of P.A.B.s for different types of P.A.B.s as well as for different modes of delivery. There appeared to be some variation in participation and enjoyment when the type and mode of delivery of the specific P.A.B. was altered, but a study focused solely around those variables would provide more specific insight into how much the type and/or mode of delivery varies student participation motives.

To further support, or disprove, the conclusions of this research, a larger sample would be desirable. Each of the classes studied had relatively low numbers with no more than 45 students in each section. In addition, the course from which data was collected is a course that is required for Sports and Exercise Science majors at the University of

Northern Colorado. This is significant because these students may have a better understanding of the effects of exercise on both physical and mental health than average college students may so the questionnaire responses may have been skewed to fit what they already know to be true about exercise. To further explore the research question, students from a non-Sports and Exercise Science class could be exposed to P.A.B.s. and surveyed similarly. If data were collected from students who have little to no education in the exercise science field, the results for reasons for participation could be significantly different.

Conclusion

Overall, this sample of college students expressed their main reasons for participating in the P.A.B.s to be enjoyment, needing a break, and contributing to the study. For those who did not participate in the P.A.B.'s, their predominant reasons were not feeling well, being unprepared, and not wanting to. The themes for both participating and not participating varied based on the mode of delivery and type of the P.A.B., the class sections for Spring, and overall between the Spring and Summer sections. Different themes also emerged based on the time in the semester. When the semester first started and the P.A.B.s were first introduced, curiosity was a strong theme for why students chose to participate, but it did not persist throughout the semester in any section. Additionally, when extra credit was offered, that proved to be a strong theme for why students were choosing to participate. More research should be done to explore how these breaks affect students, perhaps analyzing perceived stress and well-being, academic test scores, or attentiveness. The effect of different types and modes of delivery of P.A.B.s could also be explored to further understand how to increase participation. This study

provided some understanding as to why students chose to participate, or not participate, in P.A.B.s during class, and could ultimately contribute to a broader understanding of how these breaks affect university/college students.

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