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Physical Activity in an Elementary Classroom

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This action research examines how elementary grade students perceive physical activity (PA) in their general education classrooms. There has been extensive research on the benefits of physical activity in schools and teacher perceptions of PA in school, however at the time of this study there was little existing research on how younger students perceive PA. The purpose of this mixed-methods study was to deeply understand elementary student perceptions of PA in the classroom through questionnaires and qualitative focus group interviews. The participants in this study were 14 third graders (8-9 years of age) from a midwestern affluent school and data was collected between the months of February and March. The data suggested that as a whole students perceived PA positively, there were mixed opinions about the frequency, length, and time of PA integration or PA breaks. Gender seemed to play a role in this, and the COVID-19 pandemic greatly impacted student perceptions of PA.

Keywords: physical activity, physical activity breaks, integration, third grade, elementary education

Worldwide, over 2.8 million people die each year as a result of being overweight or obese (World Health Organization 2021). In 2020, 39 million children under the age of 5 were overweight or obese (World Health Organization 2021). According to the United States Center for Disease Control (CDC), the prevalence of childhood obesity within the United States is a serious problem and “is still too high” (Centers for Disease Control and Prevention 2021b). For example, in 2016, 22.7 percent of children ages 5-9 were considered obese in the U.S. while only 10.4 percent of children in France and 11.4 percent in South Africa were obese (World Health Organization 2021). Therefore, it is clear child obesity is specifically alarming in the United States.

Obesity is a disease that stems from excessive body fat and increases one's risk for other serious health conditions (Kopelman 2000). The effects of obesity on the youth are even more devastating—this causes high blood pressure, type 2 diabetes, high cholesterol, certain cancers, sleep apnea, along with numerous other unhealthy conditions (Kopelman 2000). The typical cause of obesity is an individual consuming more calories than they burn through exercise.

Because of this, and many other health reasons, the CDC (2021a) recommends that children ages 3-5 should be “physically active throughout the day” and adolescents between ages 6-17 should participate in physical activity (PA) up to sixty minutes each day.

Studies have shown that these recommendations by the CDC are not being met in many schools (CDC 2012 & Robert Wood Johnson Foundation 2012). For example, results from the CDC Youth Risk Behavior Survey (CDC 2012) show that 13.8 percent of students had not participated in PA for the past week and only 28.7 percent of students in grades 9-12 reported that they met the recommended amount of PA in the past week. Therefore, it is clear that some schools do not meet the recommended amount of PA each day. Furthermore, there has been a decline in physical education programs in elementary schools. According to the Robert Wood Johnson Foundation (2012), due to budget cuts and the pressure on standardized testing, physical education programs have been declining and in some schools in the United States have been completely eliminated. Recently, due to the COVID-19 global pandemic, as schools are reopening, many are thinking about laying off physical education teachers to save money (Jones 2021). This is problematic for students’ health and is unfortunate because school is the ideal place to assist students in meeting those PA recommendations.

According to Donelley et al. (2009), schools are one of the most impactful places for student development despite being the place where students are physically inactive for the majority of the day. PA can easily be implemented into schools and classrooms to help young children establish a healthy and active lifestyle, which in turn can help contribute to decreasing childhood obesity (Pate et al 2006). Considering all these factors, my study examines elementary students’ perceptions of PA in the classroom. If teachers are aware of how their students feel about PA and learn what components of PA they prefer, then teachers will be able to adjust their instruction to incorporate PA in the classroom in a more enjoyable manner for their students. The net result is students are able to enjoy learning, while simultaneously being active, meeting overall health guidelines, and reducing the odds of being obese.

At the time of this study, most of the existing literature focuses on the benefits of PA and how teachers feel about incorporating PA in their classroom—not much research has been done on students’ opinions about this topic. Listening to student perceptions and providing students with opportunities to use their voice is critical to not only instructional improvement, but educational reform. Schools exist because of students and, as educators, we have the opportunity to impact, teach, and prepare our students. To make sure we are doing the best that we can, we must hear directly from students on major topics within education. This starts with teachers giving students opportunities to share their beliefs and opinions.

Furthermore, research shows that students who believe that they have a voice in school are seven times more likely to be academically motivated (Quaglia Institute 2016). The study surveyed 12,157 students in grades 3-5 and 48,185 students in grades 6-12 throughout 249 schools in 14 states and was able to conclude that student voice leads to an “increased likelihood that students will experience self-worth, engagement, and purpose in school” (Quaglia Institute, 2016, p. 6). Therefore, my study seeks to close the gap in research and answer additional questions—through questionnaires and interviews—regarding student perceptions about PA. These questions include: How do elementary students perceive PA in the classroom? How does PA in the classroom affect

their learning? Do they prefer PA breaks or PA integrated throughout lessons? At what time in the day is PA most beneficial for them? Do these findings align with existing literature? After empowering students to use their voices, teachers can use this data to adjust their instruction to help students enjoy learning, while also being active and meeting health guidelines. In this study, physical activity (PA) refers to any movement or exercise in the classroom instructed by the teacher.

Literature Review

There has been extensive research done on physical activity in the classroom and the benefits it has on students. However, there is very little research done on students' perceptions of PA and their thoughts on how it benefits them. This review explores existing literature related to physical activity in the classroom and explains how my study advances existing research.

First, it is important to point out that physical activity and physical education have expanded dramatically over time in schools. According to Graber et al (2008), before the twentieth century in the U.S. there was not much school-based instruction in physical education. If children participated at all, it would be during their leisure time outside of school and those activities were influenced by culture and ethnicity. By the twentieth century, physical education became a formal part of elementary school curriculums (Graber et al 2008). Furthermore, physical education in the U.S. has been shaped by history—World Wars I and II and the fitness boom in the 1960s as physical education was crucial during wartime. Graber et al (2008) argues that physical education will continue to be influenced by political events and national health concerns like the epidemic of childhood obesity, as mentioned previously. In the past, physical education was important specifically for wartime, but today the focus of physical education in schools is for “providing students with ample opportunities for vigorous physical activity, teaching basic motor skills, and guiding children toward subsequent adoption of physical active lifestyles...” (Graber et al, 2008, p. 151). As shown, physical education in classrooms has changed over time and is now seen to have greater benefits for students that goes beyond just physical health.

Within the past 10 years, physical education has been broken up into two categories in the general education classroom: active lessons and active breaks. Both of these strategies have helped teachers find time to incorporate physical activity into the school day. After surveying data from 640 public elementary schools in the United States, Turner and Chaloupka (2017) concluded that active lessons (physical activity integrated into the curriculum) were used in 71.7 percent of schools while active breaks were used in 75.6 percent of schools. Additionally, active lessons were significantly less likely to be used in majority-Latino schools and active breaks were significantly less likely to be used in lower socioeconomic schools (Turner and Chaloupka, 2017). They believe this is due to other challenges that occur in disadvantaged communities, such as underfunding and lack of teacher training. Regardless of the reason, it is important all schools and teachers implement these PA strategies in the classroom because research has shown that PA has many benefits on students.

Specifically, studies have shown that implementing PA in the classroom has positive effects on students' academic performance in a way that does not take away from instructional time. Mullender-Wijnsma et al (2015) conducted a study that implemented a PA intervention to a

group of elementary students for one year. The intervention group participated in physically active lessons while the control group participated in regular lessons. Each group was given both a pre and posttest in math and reading (Mullender-Wijnsma et al 2015). After one year, the results showed that the intervention group scored significantly higher on their math and reading posttests, thus researchers were able to conclude that PA contributed to the academic success of these students. Mullender-Wijnsma et al (2015) highlight that “physically active academic lessons do not come at the expense of academic lesson time” (p. 370) and that school administrators should encourage their staff to integrate more PA in their classrooms.

In addition to academic performance, integrating PA in the classroom has also been found to help student behavior. Daly-Smith et al (2018) examined ten physical active learning studies. Their findings suggest that classroom behavior improves after both long (>10 minutes) physical activity and after a shorter more intense physical activity (<5 minutes). This is significant because there was diversity in the mode and duration of the PA interventions seen in the studies they examined, yet they still yielded similar results (Daly-Smith et al 2018). Similarly, Harvey et al. (2018) found that classroom-based PA provides opportunities for all students to participate, and in turn “is a potential solution to increasing behavioral engagement” (p. 304). This study is important because it was conducted on students with identified learning behavioral difficulties. If PA integrated in the classroom helps a diverse range of students, such as those with behavioral problems, then the odds of it helping students without behavioral problems is quite high.

As shown, most existing literature argues that integrating PA in lessons is beneficial for students, and this argument aligns with many progressivist ideals. Many progressivists believe that individuality, growth, and change are critical to one's education (Dewey 2012a). They typically advocate that education should be based on the needs, experiences, interests, and abilities of students. As one of the most influential leaders of the progressive movement in education, John Dewey, believes that progressive education should include engaging learning experiences that are developmentally appropriate for young children (Dewey 2012b). Furthermore, he believes that classrooms should represent real life situations that allow children to learn in a flexible manner. Dewey may argue that introducing too much academic content that does not relate to students' lives stunts students' growth, and I believe that integrating PA in lessons can help with this issue. Lastly, Dewey is widely known for his strong belief that humans learn by doing through a “hands on approach”; students must interact with their environment in order to learn (Williams 2017). After reviewing Dewey's works, it is clear that many of the things he advocates for would align with student movement and PA in the classroom as it promotes 'learning by doing' and is an engaging way for students to participate in learning experiences.

The empiricist philosopher John Locke also has great respect for children's spontaneity and play. He argued that learning should be enjoyable and there is no reason that children should hate to learn and love to play. He states,

“...were Matters ordered right, learning anything, they should be taught, might be made as much a Recreation to their Play, as their Play is to their Learning...they want their Liberty so Get them but to ask their Tutor to teach them, as they do often their Play-fellows, instead of his Calling upon them to learn; and they being satisfied that they act as freely in this, as they do in other Things, they will go on with as much Pleasure in it, and it will not differ

from their other Sports and Play. By these Ways, carefully pursued, a Child may be brought to desire to be taught anything, you have a Mind he should learn” (Locke, 1693, 135-136). Therefore, according to Locke, play and work should be one and the same. This relates to integrating PA into lessons as both work and play occur at the same time in the classroom.

Existing research also shows the benefits of PA breaks in the classroom. For example, Erwin et al. (2017) found that teachers who take time out of their day to incorporate a PA break have a direct impact on helping students achieve academically. They collected data on reading fluency, physical activity, standardized tests, and grades from 29 third grade students. Students who experienced the PA intervention had higher reading fluency, math test scores, and average standardized test scores (Erwin et al., 2017). It is clear that the time the students spent on PA breaks outweighed the loss of academic instruction as students performed better. Some teachers claim that breaks take up too much time and hinders students’ attention, but in reality, this is not the case. Rosenshine (2015) states that “more allocated time does not lead to less engagement” (p. 42). Oftentimes, teachers spend up to 45 minutes a day on off-task activities like transitions, housekeeping tasks, and waiting between activities (Rosenhine 2015). If teachers are skeptical about the amount of time PA breaks take in their classroom, they should reflect on what they normally spend their time on and how they could redistribute that time to include PA breaks. A.S. Neill would also agree with this idea. He was an educational reformer who founded Summerhill, a school based on the principle that students should be given the choice in their own ways of living and learning. The purpose of Neill’s education was to be happy and interested in life in which children needed some freedom to find their interests. He states, “Childhood is not adulthood; childhood is playing, and no child ever gets enough play. The Summerhill theory is that when a child has played enough, he will start to work and face difficulties, and I claim that this theory has been vindicated in our pupils’ ability to do a good job even when it involves a lot of unpleasant work” (Neill 1960). It is clear that Neill would disagree with the idea that active breaks are a “waste of time” as he believes that children need play time in order to begin work.

Academic success is not the only benefit from PA breaks in the classroom. Howie, Beets, & Pate (2014) conducted a study on 96 fourth and fifth graders. Student behaviors were monitored during instructional time as well as after PA breaks. They found that off task behaviors decreased significantly after PA breaks, especially after breaks that lasted ten minutes (Howie, Beets, & Pate, 2014). Not only do PA breaks improve academic performance and student behavior, but they are found to positively affect attitudes toward physical activity in general. Specifically, Popeska et al (2018) conducted a study in Macedonia to explore the effects of brain breaks on interest and motivation for physical activity. A total of 283 elementary students filled out a self-report questionnaire as a way for researchers to gather data on their attitudes toward physical activity both before and after the intervention (PA break) took place. Popeska et al (2018) found that PA breaks in the classroom positively affected students’ attitude and motivation toward physical activity. This is a crucial finding because if students feel more motivated to stay active both in and outside the classroom, childhood obesity could decline. This also sheds light on how important and beneficial PA in the classroom can be and the lasting effects it has on children’s lives.

Additionally, research shows that any type of physical activity in the mornings, before school begins, can benefit students greatly throughout the school day (Xu et al 2017 & Ha et al

2013). Specifically, after conducting a mixed-methods study that involved a 16-week “Morning Blast” intervention program for elementary students, Xu et al (2017) concluded that students in the experimental group had increased test scores and greater confidence in their academic ability. The students in this group stated that they felt “more ready to learn” after they participated in the PA intervention program in the morning. Similarly, Ha et al (2013) also investigated how early morning PA affected elementary students during a 12-week period. They concluded that PA in the morning induced positive effects on students’ academic achievement throughout the school day. Therefore, these studies demonstrate that an increase in PA in the morning time has positive benefits for students throughout the school day. At the time of this review, no studies were found that explored specific benefits of PA during any other part of the day. As shown, a lot of existing research highlights the benefits of both PA and PA breaks in the classroom and the benefits of PA in the morning. These are important to lay out as my study explores how students feel about PA in comparison to these research findings.

This literature review has not yet covered how teachers feel about implementing PA in the classroom. According to Mannion et al (2017), teachers believe that PA enhances their students’ focus and view PA as a “teaching asset” when trying to get students to behave (p 61). They obtained this data by interviewing seven teachers from grades 1-6 (Mannion et al 2017). Benes et al. (2016) found similar results; after interviewing seventeen teachers and gathering data through surveys, they learned that many teachers thought the benefits of PA in the classroom positively impact students’ focus, engagement, and enjoyment. However, teachers were not “knowledgeable in the statements about student attitudes toward movement in the classroom and methods for integrating movement into the classroom” (Benes et al, 2016, p. 120).

Specifically, many teachers are often “conflicted by their lack of specific content knowledge” of physical activity and feel inadequate to implement this in their classrooms (Graber et al, 2008, p 153). Other teachers mention that they are simply worried about student safety and liability issues when teaching physical education. A reason for these doubts/concerns about PA in schools could be the lack of training teachers receive. In 2006, only 28 states required certification in physical education at the elementary level and in 2016, 35 states required this certification (National Association for Sport and Physical Education, 2006 & Shape of the Nation, 2016). If physical education teachers don’t receive adequate training, then general education teachers don’t have resources in their building to help them implement PA in their own classrooms. This is problematic because, as explored above, PA in the classroom benefits students in many ways, and if teachers shy away from this because they don’t feel prepared, this hinders students’ learning and engagement. One way that could help teachers gain more knowledge of how to implement PA in their classroom could be asking their own students for their thoughts and advice, yet not much research has explored this yet.

Most literature that covers the benefits of PA and PA breaks and explores how teachers feel about implementing these practices in their classrooms (many feeling that PA benefits students but are not confident in their abilities to implement PA). At the time of this study, only one study was found that explored how students perceive PA in the classroom. I find this problematic not only pedagogically but from an existential perspective, as student input and student choice is crucial in the classroom. Existentialism is a philosophy that emphasizes the individual existence

and the significance of choice (Noddings 2016). Many existentialists believe that individuals are free to take responsibility in creating meaning for themselves. Specifically, Noddings (2016) states, “People are not thrown into the world with ‘a nature.’ By planning, reflecting, choosing, and acting, people make themselves” (p 62). In other words, there is not one specific “human nature” that everyone is required to follow. Relating this idea to education, students should be able to help create the makeup of their education because they shape themselves as a result of the decisions they make. In an existentialist curriculum, students are given a wide variety of options from which to choose. Moreover, when teachers give students opportunities to share perspectives on ideas regarding their education, such as how they perceive PA in the classroom, it shows that the teacher cares about students’ opinions and believe students should have some sense of choice and control over their own education. That is the core of my study— listening to students so educators can adjust instruction to help make learning more enjoyable/beneficial for students.

The one study that influenced my action research most definitively explored student perceptions of PA in classrooms. Stoepker & Dauenhauer (2020) examined how high school students feel about movement in the classroom. By interviewing 20 students they were able to conclude that students prefer movement implemented toward the end of class, movement to be 5 minutes or longer, and state PA is valuable as it helps them stay focused and awake (Stoepker & Dauenhauer 2020). Although this study only focused on high school students, it still provides useful information for teachers and adds to existing literature as it reports findings on student beliefs. My study fills this gap even more by exploring how elementary students perceive PA in the classroom. Oftentimes teachers are skeptical of feedback from elementary students because of their age, but even younger children can provide useful information as they share insights from a different point of view. This is important because it not only will provide teachers with more knowledge about how to implement PA in their classroom, but it also helps the teacher support their student’s needs. As a teacher and researcher, once I know how my students feel about PA and learn their preferences regarding PA, I will be able to adjust my instruction to help make learning more beneficial, engaging, and enjoyable for my students all while applying current research.

Methodology

The participants in this study were 14 third graders (eight to nine years of age) from an affluent midwestern school. Of the 14 students, six were male and eight were female. These third graders were selected for this study based on convenience as each student belongs to my class this spring semester. Participation was completely voluntary, and each students’ parent/guardian provided informed consent regulated through the institutional research review board. Verbal assent from each participant in the class was also obtained. According to the IL report card, in the entire school population, 87.2 percent of student are white, 3.5 percent English Learners, and 0 percent low-income students. Although this study was conducted during the COVID-19 pandemic, learning occurred mostly in-person. Students that were exposed to COVID-19 had to learn remotely for a number of days and I did not collect data on those students until they returned in person. At the time of this study, the students in this classroom experienced PA breaks usually every day. Students engaged in a PA break in the morning, then for recess, and later in

the afternoon before dismissal. Additionally, they experienced PA integrated into their lessons about 1-2 times a week. I had observed this for four weeks leading up to this study.

For the Likert scale questionnaire, a computer or smart device was needed to collect data electronically through Google Forms. Additionally, a voice recorder, interview script, and questions were needed to conduct the focus group interviews that were partially transcribed by me.

In this convergent mixed-methods study (phenomenological and survey design), I first collected data through a questionnaire that adopted aspects of the Likert scale. This started during the fourth week of the semester—after I had received the parental consent forms and after the students had become accustomed to me in the classroom. Because students were absent frequently due to COVID, it took two weeks for all questionnaires to be completed. This questionnaire was anonymous and asked students to rate statements that related to PA in the classroom, according to their level of agreement. Although Likert scale questionnaires typically use a 5-7-point scale, this study used a 3-point scale to eliminate any confusion since the participants were young. The options were agree, neutral (no opinion), and disagree. This questionnaire helped me get an initial sense of how my students perceived PA in the classroom, how often and what time of day they felt PA should take place, and whether they preferred PA breaks or integrated PA throughout the day. The questionnaire was read aloud to the participants to ensure that they were able to understand each question.

The second part of data collection involved multiple focus group interviews. This was crucial as my participants had an opportunity to express their beliefs and perceptions about PA in the classroom, without the limitations of a physical instrument (Cresswell & Cressell 2018). Additionally, conducting group interviews allowed me to hear multiple perspectives at once. These interviews were semi-structured to allow for some open-endedness with the questions that were asked. The interviews started taking place a week after I electronically collected the questionnaires. There were five interviews in total with about 2-3 students in each interview that were grouped randomly. All interviews occurred within a three-week window, after they had completed the questionnaires, and took place during their extended learning period during the school day. If a student was absent on the day of their interview, I postponed that interview to the next day as it was important to interview the same participants who filled out the questionnaire, for data analysis purposes. After starting the voice recorder, I stated directions and expectations to the participants to make sure they all knew that they should not talk over one another, and I emphasized how they did not have to share or talk if they didn't feel comfortable. The questions that were asked in this interview were similar to the questions asked in the questionnaire, but gave participants additional opportunities to answer why they felt the way that they did about PA in the classroom (See Appendix A for more details). This helped provide me as the researcher with more detailed information on the students' perception of PA in the classroom. After all interviews were conducted and audio recorded, I partially transcribed them/jotted down notes to help with analysis.

By collecting data through the questionnaire and interview process, I was able to merge results from both quantitative and qualitative data to thoroughly understand student perceptions of PA in the classroom (Cresswell & Cressell 2018). This allowed me to triangulate my data to

strengthen both the reliability and validity of the study (Cresswell & Cressell 2018). Lastly, all procedures were approved by the institutional Human Subjects Review Committee (HSRC) to ensure the study was ethical.

Results and Discussion

- Five major themes emerged from the survey and interviews data. To analyze the data, the questionnaire questions were separated by themes (within various tables) that emerged from the interview data. The first theme that emerged was that the majority of the class perceived PA in the classroom positively, both in the interviews and questionnaire. Table 1 shows the questionnaire results of the questions that relate to how students feel about PA in their classroom. As seen, the majority of the students answered that they enjoyed PA in their classrooms (71.4%) and that PA helps them focus and reduce their stress levels (57.1%). With that being said, only 14.3 percent thought that PA helps improve their test scores and 35.7 percent thought that PA helps them remember things they learned. Although no students mentioned that PA in the classroom made them feel tired in the interview, two students did answer “agree” on the questionnaire. Overall, students mentioned during the interviews that physical activity makes them feel “energized and ready to learn,” “more focused” (with 64.3% agreeing), “get the wiggles out of [their] body so [they are] ready to learn,” helps them “become more engaged in class,” “become more awake in class,” and “improve [their] social skill.” Furthermore, Tables 2 and 3 show the results from the questionnaire questions that relate how often students would like PA in their classrooms. As shown, 71.4 percent of students thought that PA should be mixed into learning every day and 85.7 percent of students would include PA in their lessons everyday if they were a teacher. In the interviews, all students mentioned that PA should be included in their classrooms at least once a day because it has various benefits, such as those mentioned above. This theme aligns with Stoepker & Dauenhauer (2020) as they found the majority of the students thought PA was valuable as it helped them stay focused and awake.

A second theme emerged had mixed opinions about how often per day their teacher should include PA in their classroom. Specifically, males stated they wanted longer PA breaks. In the questionnaire, 42.9 percent of students thought that the teacher should include more PA in their school day, 50 percent were neutral, and 7.1% disagreed. In the interviews, all but two students mentioned that they like how often they participate in PA in their classroom. Within this group of students, regarding the question of who would like to keep the amount of PA the same, they all stated that they may begin to feel tired or bored if they have to do it more than 3 times a day. The two students (both males) who stated that they would like more mentioned that they would like it for longer periods of time (specifically 15 minutes instead of 10-minute breaks, or longer within each lesson). One reason for this could be because on movement breaks outside I notice that the males play specific tag games that require longer periods of time for each round. They could be saying they want more time so that they could finish a full game of tag with their friends.

Yet, when students were asked in the questionnaire how often PA breaks should take place in the classroom, the results did not match the results I found in the interviews (see table 4).

The third theme that emerged was that the majority of students prefer PA breaks over PA integrated into their lessons, but the few (two females) who stated that they prefer PA integrated into lessons had a similar reason. Specifically, 57.1 percent of students prefer PA breaks over PA integrated into lessons. The interviews revealed that there were various reasons for this. Some students mentioned that they prefer breaks because they have more freedom with what they do during that time (they can choose how they would like to move with GoNoodle videos or go outside on the playground), whereas with PA integrated into the lessons, it is usually more structured where students have to perform a certain task. Another student mentioned that PA breaks help them transition between certain subjects throughout the day. They like how they can use PA breaks to split up their long school day. In the interviews, two students mentioned that when PA is integrated into the lessons, it distracts them from the content they are supposed to be learning for school, so they prefer the PA breaks.

Nearly 43 percent of students in the questionnaire answered that they prefer PA mixed into their lessons, although in the interviews, only two (female) students stated that they preferred PA integration over PA breaks. Specifically, one female mentioned that they like how the integration of PA in the lessons makes the academic lessons more fun because PA looks different with different subjects. Specifically, she shared that a writing lesson with PA is very different from a math lesson with PA in it because the teacher mixes in the PA to make the lessons different. Another female student said they prefer PA integration because they like how everyone participates together (as opposed to PA breaks where some students are doing different things depending on their interests/choice). Although the number from the questionnaire (42.9%) doesn't line up with the number of students (two) who shared in the interview that they prefer PA integration, it is very evident that the majority of the students enjoy the PA breaks because it is a true break from their academic day.

Further analysis of the data regarding PA breaks revealed a fourth theme: students are fairly equally split on when they prefer PA breaks. According to the questionnaire results, 50 percent of students prefer PA breaks in the morning and 50 percent prefer them in the afternoon. Those that stated they preferred morning in the interview (mostly male) said that PA breaks in the morning help them wake up since they are usually sleepy in the morning. Additionally, they stated that they get recess in the afternoon where they "run around a lot" so they would rather have a PA break that is not around that time. Of the students who said they prefer afternoon PA breaks in the interview (mostly female), their reasoning was that they find that they need movement at the end of the day because they have been sitting and working hard for most of the day. Specifically, some females mentioned that they didn't care if it is close to recess because at recess sometimes, they are not running around.

The last theme that emerged from this data was that the majority of students' opinions of PA have changed since the COVID-19 pandemic hit. In the questionnaire, 57.1 percent selected that they value PA more now, 28.6 percent selected neutral, and 14.3 percent selected disagree. In the interviews the majority of students mentioned that they value PA more. The reasons that were shared include:

“I like PA breaks more now because we can go outside and take our masks off.”

- Some students mentioned that it is harder for them to be physically close with friends and play, but when they are active in the classroom it gives them a chance to be closer to their friends, especially when they go outside for PA breaks.
- Some students mentioned that before COVID-19 they only got one PA break a day, but now they have more because of the classroom rules (restrictions) with movement. They like the time they get to move around because they have been stuck in their own 3 foot “bubble” for a lot of their schooling.

Lastly, one student stated that their opinions changed because they “like to go outside more now for breaks because [they] can take [their] masks off and get fresh air, but before [they] liked staying in [their] classroom.”

In general, the main takeaway from the data analysis is that although the majority of students think PA is beneficial within their school day, there were mixed opinions about the frequency, time of day, and length of PA integration or PA breaks. It seems as though within each of these, gender played a role. Specifically, of the students who wanted longer PA breaks, all were males, of the students who preferred PA integrated into lessons all were females, and lastly mostly males preferred morning breaks and mostly females preferred afternoon breaks. A reason for this could be because these groups of students each prefer to play different things during their breaks or recess, which could impact their opinions about PA in the classroom. Lastly, two of these findings do align with existing research. As discussed in the review of literature, PA in the classroom is very beneficial for various reasons, and my students agreed with this. Although they thought it was beneficial for various reasons, all of these reasons were positive. Additionally, research shows (Xu et al 2017 & Ha et al 2013) that PA in the morning can positively impact students and although only 50 percent of class stated that they preferred morning breaks, no one spoke negatively of morning breaks, they just had a different preference.

Conclusion and Future Studies

In conclusion, the questions this research study attempted to answer were: How do elementary students perceive PA in the classroom? How does PA in the classroom affect their learning? Do students prefer PA breaks or PA integrated throughout lessons? At what time in the day is PA most beneficial for students? This action research was successful in providing insight into students' perceptions of PA and their reasons for their views. While the quantitative data did not match up with the qualitative data, the qualitative data are beneficial for educators as we now know why students prefer certain things regarding PA in their classroom. This study shows that educators should listen to existing literature AND student preferences to ensure they are adapting to all students needs within the classroom regarding PA.

Gender seemed to be a prominent factor after examining the results in this study, future studies could dive deeper into this idea of how gender affects student perceptions of PA in the classroom. Future studies could also look into student perceptions of the structure of PA breaks and if that is something the students should have complete control over. Regardless, this study shows that majority of students do prefer movement throughout their day, and as educators, this is something we have to take into consideration when lesson planning.

Yet, it should be borne in mind that this research took place in a 3rd grade classroom in an affluent midwestern school. The results were specific to this (and perhaps, similar) classrooms and therefore they cannot be generalized to fit any other third grade classroom across the world. Similarly, this study was very small so these results cannot be generalized to a larger population of students until additional data is analyzed from a larger sample size. In the future, I could collect data from a larger population (multiple classrooms within third grade) or even collect data on different grade levels (another elementary grade or even middle school grades). It is important to note that collecting data from a larger population may increase the chances of collecting data from a group with more mixed experiences of PA in their classrooms, which could be valuable. Specifically, this group of students have been in school for the majority of the COVID-19 pandemic, so their experiences with schooling during this time definitely impacted their responses.

Indeed, the COVID-19 pandemic itself constrained how much data could be collected from students, even in the in-person setting, due to inconsistent attendance. Out of 24 of my students, I could only collect data from 14 of them, and this is hardly representative of my entire class. Hopefully in future studies I will be able to collect data from every student within each classroom.

Lastly, some of the students' responses or answers could be biased. While I attempted to reduce the odds of this by keeping results anonymous, stressing that there are no wrong answers, and explaining that I am looking for their honest opinions, the inherent power imbalance that comes with collecting data from my own students could lead to bias. This is relevant with questions that include ideas about what the teacher should do/change. Within the interviews, some students may have been more likely to answer in a way that they thought as favorable to me as I was the researcher and their teacher.

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Appendix A: Interview Script

Directions: “Thank you for taking time out of your extended learning to talk to me and answer some questions about physical activity in the classroom. This is how it will work: I am going to ask a question and if you want to answer tap and hold your hand flat on the table in front of you. I will call on students one by one to share what they want to say. This will help make sure no one talks over one another, and each person gets a turn if they want to. You don’t have to answer every question if you don’t want to- talk as much or as little as you feel comfortable! There are no wrong answers. I will be audio recording the interviews so I am able to go back and review what was said, but this recording will not be shared with anyone else”

1. I know you have experience with physical activity in your classroom. Would you like this to change?
2. Why or why not?
3. How does physical activity in the classroom make you feel?
4. Why?
5. Do you believe there are any benefits from participating in physical activity in your classroom?
6. If so, what? If not, why not?
7. What do you prefer: Physical activity breaks in class throughout the day or physical activity woven into lessons throughout the day?
8. Why?
 - a. If a student says they prefer breaks, I will then ask: What part of the day do you prefer to have a physical activity break? After I will ask, how often do you think breaks should take place? Why?
 - b. If a student says they prefer physical activity woven into lessons, I will ask: How often would you like this to occur? Why?
9. Do you think your teacher should incorporate more physical activity in your class?
10. Why or why not?
11. Have your opinions changed about physical activity in the classroom since the COVID 19 pandemic hit?
12. Why or why not?
13. Is there anything else you want to tell me about physical activity in school?

Appendix B: Results

Table 1: Questions Related to Feelings about PA in the Classroom

Statement	Agree	Neutral	Disagree
I enjoy physical activity in my classroom.	71.4%	21.4%	7.1%
Physical activity in the classroom helps me focus.	64.3%	28.6%	7.1%
Physical activity in the classroom helps reduce my stress.	57.1%	28.6%	14.3%
I enjoy physical activity BREAKS in the classroom.	78.6%	14.3%	7.1%
Physical activity in the classroom makes me feel tired.	14.3%	21.4%	64.3%
Physical activity in the classroom helps me remember the things I learn.	35.7%	35.7%	28.6%
Physical activity breaks in the classroom helps improve my test scores.	14.3%	64.3%	21.4%

Table 2: Questions Related to Frequency of PA

Statement	Agree	Neutral	Disagree
Physical activity should be mixed into learning every day.	71.4%	14.3%	14.3%
My teacher should include more physical activity during the school day.	42.9%	50%	7.1%

If I were a teacher, I would include physical activity in my lessons every day.	85.7%	14.3%	0%
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Table 3: Question Related to Frequency of PA

Statement	Every day	Twice a day	Once every 2 weeks
In your opinion, physical activity in the classroom should take place...	85.7%	7.1%	7.1%

Table 4: Question Related to Frequency of PA Breaks Every Day

Statement	1 time	2 times	3 times	4 times	5 times	6 times
In your opinion, how often should PA breaks take place every day?	7.1%	50%	7.1%	21.4%	7.1%	7.1%



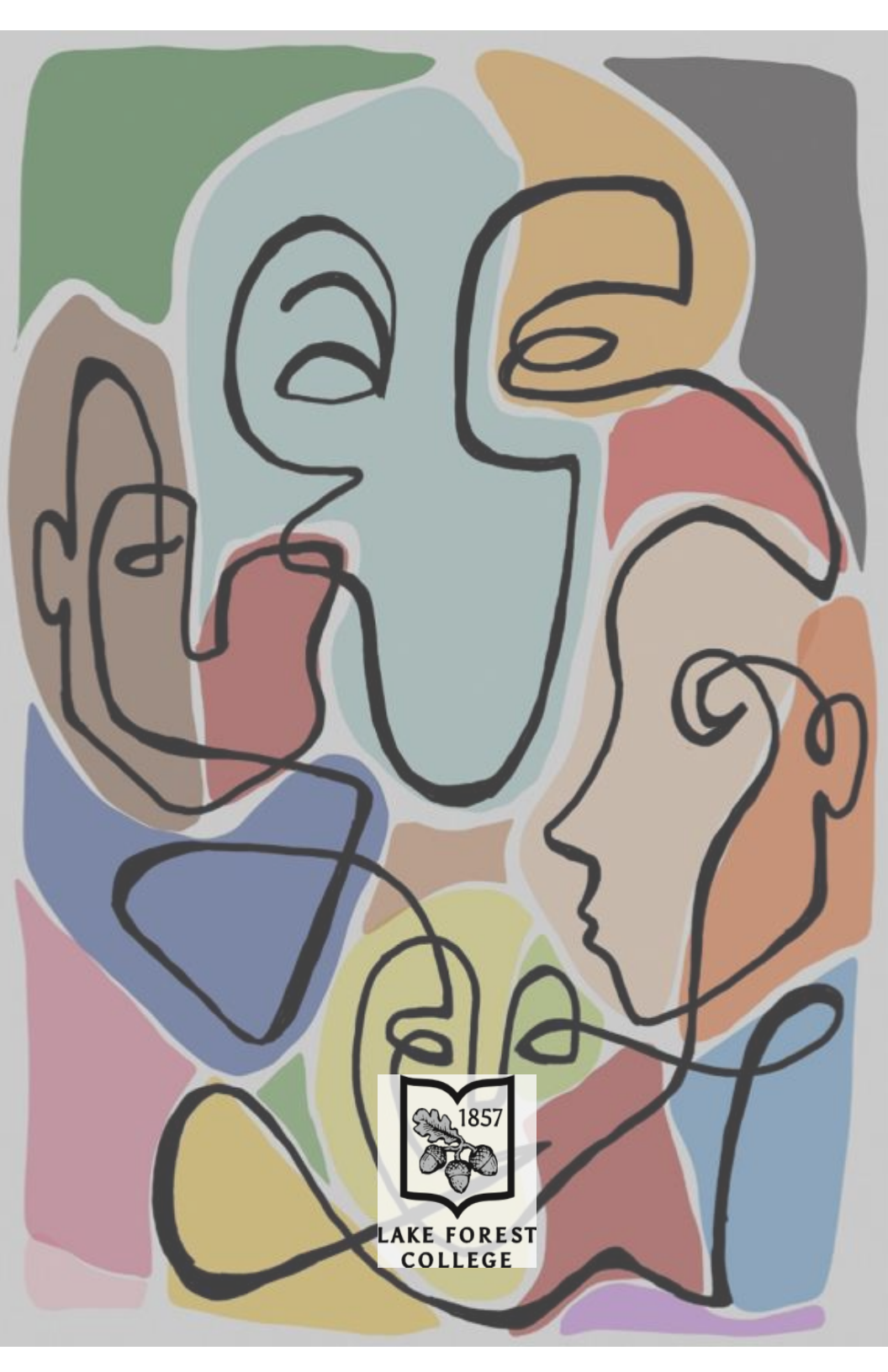
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