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The Effects of Physical Movement Breaks Prior to Direct Reading Instruction of Kindergarten Aged Students

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Abstract

When observing our kindergarten students, we have observed that our students struggle to maintain attention during direct instruction times. It was our intention to aid in increasing the ability of kindergarten students to pay attention during instructional time to increase academic gains. The research took place in two kindergarten classrooms in central Minnesota. During the action research, the researchers compiled quantitative data in the form of a class focus observation chart and qualitative data in the forms of a teacher log, post intervention student conference, and a student self-assessment. This data was used to determine the effectiveness of physical movement breaks on attention with kindergarten students. Collectively the four data sources triangulate to show that movement breaks before direct reading instruction have a positive correlation on the effect of time kindergarten students are able to focus. This action research study adds to the research that states that movement breaks have positive impacts on students. This study has the potential to inform future classroom instruction and action research studies.

Keywords: kindergarten, movement breaks, focus

When observing a kindergarten classroom one can easily notice that kindergarten students often have trouble focusing during direct instruction in school. Direct instruction, for this study, is defined as "instructional approaches that are structured, sequenced, and led by teachers" (Partnership, 2013, p. 1). Student inattentiveness has been found to be the biggest cause of loss of academic instruction time in elementary schools (Godwin, Almeda, Seltman, Kai, Skerbetzm Baker, & Fisher, 2016). Even small focus issues can cause significant problems later in life (Pagani, Fitzpatrick, & Parent, 2012).

Children who experience academic difficulties, including focus, in kindergarten have a higher risk of underachieving throughout school and a greater risk of dropping out of school as a result (Fitzpatrick, 2012). Paying attention, or having focus, in kindergarten is defined as having eyes on the teacher, ears listening, body still and voice quiet. Increasing attention skills in kindergarten can lead to higher engagement throughout elementary school despite outside factors (Pagani, Fitzpatrick, & Parent, 2012). Physical movement breaks are one way to increase attention in school-aged students. "Spending more time engaged in instruction and keeping students in an upright position for longer periods of time requires movement" (Wiebelhaus & Fryer Hanson, 2016, p. 1381). Physical movement breaks have many benefits for learning. According to Furnamack (2014), brain studies link improved cognition to movement.

When observing our kindergarten students, we have noticed that our students struggle to maintain attention during direct instruction times. It was our intention to aid in increasing their ability to pay attention during this instructional time to increase academic gains. The research took place in two kindergarten classrooms in central Minnesota. School A is composed of the following demographics: 59% of students who receive free and reduced lunch. 49% of students identify as White, 14.9 % of students who identify as African American, 14.3% of students who

identify as Hispanic, 11.7% of students who identify as Asian. School B is composed of the following demographics: 22.1% of students who receive free and reduced lunch, 78.9% of students who identify as White, 6.0% of students who identify as African American 5.2% of students who identify as Asian, 3.4% of students who identify as Hispanic, 1% of students who identify as American Indian, and 5.6% of students who identify having two or more races.

Higher academic demands on kindergarten students means more direct instruction time during the day. The literature states that movement breaks in children can increase attention and engagement (Fede, 2012; Castilla & Ward, 2012; Ciotto & Fede, 2014). Physical movement within the classroom has a positive correlation with classroom behaviors, concentration levels, and students' attention levels (CDC, 2010). Increasing attention skills in kindergarten can lead to higher engagement throughout the elementary grades despite outside factors (Pagani, Fitzpatrick, & Parent, 2012). Therefore, the purpose of this action research study is to examine if physical movement breaks prior to direct reading instruction increase student attention. Researchers examined the question "To what extent do physical movement breaks prior to direct reading instruction increase kindergarten students' attention?"

Theoretical Framework

Behaviorism is the theory of behavior analysis (Baum, 2017). Moore (2011) argued that within behaviorism, behavior is a subject all on its own. Behaviorism applies the principles of natural sciences to develop theories and explanations of those behaviors (Moore, 2011). Behaviorism focuses on behavioral changes and why these changes might have occurred (Drasgow, 2010). Behaviorism seeks to use scientific principles to examine behaviors and develop theories based on those observations (Moore, 2011). Tomic (1993) stated that

behaviorism attempts to characterize, justify, and alter behaviors. Behaviorists specialize in research methods that are based on cause-and-effect relationships (Drasgow, 2010).

Beginning in the 1950's, aspects of the behaviorism theory were applied to the field of education (Tomic, 1993). One principle of behaviorism in education is to uncover relationships between the behaviors of students and environmental stimuli (Drasgow, 2010). Another principle of behaviorism in education is to develop processes to improve behaviors of students based on the relationships discovered between the environmental stimuli and the behaviors observed (Drasgow, 2010). Finally, an application of behaviorism within education is behavior modifications, this includes changing a student's behaviors from undesirable to desirable (Tomic, 1993).

Using the theory of behaviorism, and the cause and effect relationship, researchers sought to determine whether movement breaks increase focus in kindergarten students. The cause, as defined by this study, is the introduction of movement breaks before direct reading instruction. The effect, defined by this study, is whether or not movement breaks increased focus during direct reading instruction. According to behaviorism, there is a relationship between the student's behaviors and the environment (Drasgow, 2010). In this study, the researchers observed student behaviors and environmental stimuli to determine factors that could increase focus. The behavior this study seeks to improve is student focus during direct reading instruction by changing the environmental stimuli prior to the instruction. Researchers then implemented an intervention based on the behavior analysis, to determine if the intervention could alter the behavior. The components of the behaviorism theory are at work within this study as researchers analyzed student behaviors to determine the effects of the intervention.

While researching the topic, researchers found many connections between the cause, movement breaks, and the intended effect, increased focus. The review of literature below makes a case for the need of this study as well as references different sources that contribute to the validity of the research.

Review of Literature

Introduction

Physical movement breaks increase attention in school-aged students: "Spending more time engaged in instruction and keeping students in an upright position for longer periods of time requires movement" (Wiebelhaus & Fryer Hanson, 2016, pg. 1381). Physical movement breaks have many benefits for learning. According to Donna Furnamack (2014), brain studies link improved cognition to movement.

Benefits of Physical Movement Breaks

In the article, *Physical Activity Strategies for Improved Cognition: The Mind/Body connection* Fede (2012) stated "According to Blaydes (2000) "movement prepares the brain for optimal learning" (p. 16). Even brief periods of physical activity can have positive effects on behaviors, attention, working memory, and readiness to learn (Castilla & Ward, 2012; Fede, 2012; Ciotto & Fede, 2014).

Another benefit of physical activity is that it can help to decrease childhood obesity rates and promote a healthy lifestyle (Foran, Mannion, & Rutherford, 2017). Caldwell and Ratliffe (2014) cited the National Center for Disease Prevention and Health Promotion (2009) when they stated that obesity is caused by sedentary lifestyles and lack of physical activities and it is becoming a major problem in children. According to Savina, Garrity, Kenny, and Doerr (2016), The Center for Disease Control (CDC) survey indicated that more than 70% of American youth

do not meet the minimum of 60 minutes of daily activity. Schools are the ideal place to teach healthy behaviors associated with the whole child. Healthy behaviors are linked to better academic achievements and better physical health, which leads to a healthier lifestyle (Health and Academics: Healthy Schools, 2017). Schools should implement school-based physical activity to teach skills, knowledge, and habits that instill an active lifestyle (Ciotto & Fede, 2014).

Finally, physical activity is positively associated with childhood emotional well-being (Savina, Garrity, Kenny, & Doerr, 2016). Physical exercise can reduce anxiety, stress, feelings of depression and increase a child's self-esteem (Savina et al., 2016). Physical health is also linked to one's emotional, spiritual, and social health (Ciotto & Fede, 2014). The benefits of childhood physical movement are inclusive of optimal learning, fostering a healthy lifestyle, and increasing emotional well-being.

Kindergarten Students and Movement Breaks

The original intent for kindergarten was for children to play and explore. Recent educational practices have changed that intent and now emphasize rigorous academic policies to prepare children for future standardized assessments (Ray & Smith, 2010). Kindergarten students are at a crucial age development for future success in school. That success is dependent on the transition into a full day of school. Nationwide only, 63% of kindergarten students are enrolled in a full day kindergarten program (Ray & Smith, 2010).

Increased academic demands of kindergarten students mean that they need to sit longer than developmentally appropriate, causing attention issues (Wiebelhaus & Fryer Hanson, 2016). According to Schmitt (2014), to find the developmentally appropriate attention span for children take their age and multiply it by three to five minutes. Students at age five should be able to

focus on average for 15-25 minutes on teacher-led instruction (Schmitt, 2014). These increased academic demands contradict Lev Vygotsky's belief that children learn best when active and through hands-on experiences (Mooney, 2000). It is common nowadays during academic times to see kindergarten students wiggling and falling out of chairs (Wood, 2015). Martin, Farrell, Gray, and Clark (2018) agreed that kindergarten students are now experiencing more intense academic instruction and standardized tests at the expense of recess and physical activity. Lay (2016) stated that students exhibit more frustration after long periods of direct instruction. Off-task behaviors are on the rise. Off-task behaviors include "off-task peer interactions, self-distraction, and off task behaviors towards aspects of the classroom environment" (Godwin et al., 2016, p. 129). When students are off-task it means that they are not focused on the instruction at hand (Godwin et al., 2016). Sustained attention is vital for academic achievement. According to Erickson, Thiessen, Godwin, Dickerson, and Fisher (2015), sustained attention is the ability to process some parts of the environment and exclude others. Supportive parenting, focused on helping a child sustain attention during activities, will likely help a child develop strong attention skills, but school support is needed too (Fitzpatrick, 2012).

Fitzpatrick (2012) concluded that engagement is a concept with many facets, including behavioral, emotional, cognitive components. Fredricks and McColskey stated the definition of engagement has evolved with research but they maintained the three main components that Fitzpatrick mentioned above (2011). Behavioral engagement is defined as participation and involvement in social, academic and extracurricular activities (Fredricks and McColsky, 2011). Emotional engagement is defined as the reactions, positive and negative, to school, teachers, peers and academics (Fredricks and McColsky, 2011). Finally, cognitive engagement is defined

as the level of interest the student has with learning (Fredricks and McColsky, 2011). With these definitions, teachers can guide the development of students who are facing poor achievement. The literature states that movement breaks in children can increase attention and engagement (Fede, 2012; Castilla & Ward, 2012; Ciotto & Fede, 2014). According to the CDC, physical movement within the classroom has a positive correlation with classroom behaviors, concentration levels, and students' attention (2010). In addition to its physical benefits, incorporating physical activity into the classroom can positively affect a student's energy level, mood, and learning (Orlowski, Lorson, Lyon, & Minoughan, 2013). Rhea (2015) stated that the LiiNKProject, which incorporates four recesses for physical activity breaks before core instruction, showed a 30% increase in attentional focus compared to the control group. More research is needed to validate a positive association between movement breaks and kindergarten students specifically.

Implement Physical Movement Breaks During the School Day

The literature gave many ways to implement movement breaks during the school day beyond just physical education classes (Castelli & Ward, 2012; Orlowski et al., 2013; Goh, Fu, Brusseau, & Hannon, 2018). Castilla and Ward (2012) recommended that students engage in physical activity for at least 5-10 minutes after any 45-60 minute block of instruction. There are three different areas the literature supports for incorporating physical movement break into the school day: before daily instruction begins, within the classroom day, and recess,

According to Castelli and War (2012), before daily instruction begins students could start the day with physical movement assemblies, breakfast programs with physical movements embedded in them, or physical activity programs in the classroom that are more age-specific. Fede (2012) stated that before and after school fitness activities should be implemented to teach

fitness components to students. Physical activity breaks can begin the moment students arrive and hang up their jackets (Furmanek, 2014). Before school, physical activity should include non-structured and structured physical activities (Ciotto & Fede, 2014).

Physical movement breaks can be incorporated into the classroom routine as well. Two types of physical movement breaks are discussed in the literature: activity breaks and integrated lessons (Castelli & Ward, 2012; Orlowski et al., 2013; Goh et al., 2018). Activity breaks can happen within a teacher's daily schedule. Examples may include stretching while waiting in line, movement transition breaks, marching while distributing materials, running before recess (Orlowsk et al., 2013; Castelli & Ward, 2012). The other type of movement break discussed is integrated lessons, which takes place when physical activity is linked to the curriculum (Ciotto & Fede, 2014). Movement Integration, another name for integrated lessons, is one strategy that can be used to increase movement in the school day (Goh et al., 2018). Examples of integrated lessons include reading and rhyming and moving to the beat, center time, moving with objects, and free play time (Furmanek, 2014).

Recess was discussed at length in the literature in terms of importance and benefits (Castelli & Ward, 2012; Orlowski et al., 2013; Goh et al., 2018; Furmanek, 2014, CDC, 2010). Recess is a way for physical activities to occur outside of the classroom. The teacher is not responsible for instructing the physical activity that is occurring (Orlowski et al., 2013). According to the CDC (2010), students' attention is better after recess than before recess. A combination of all of the types of physical activity increases academic success in students (Castelli & Ward, 2012; Orlowski et al., 2013; Goh et al., 2018; Furmanek, 2014, CDC, 2010).

Conclusion

One benefit of physical movement breaks is that they increase attention in school-aged children. This literature review looked at the benefits of physical movement breaks, why kindergarten students would benefit from movement breaks, and how to implement movement breaks in school. It was noted that there was an increased need for review on kindergarten classroom demands within the last five years and how movement breaks would specifically benefit kindergarten students. Moving forward, more studies should be done to see the correlation between movement breaks and attention as well as movement breaks and overall academic achievements. After looking at the research, a question arose: "Why aren't more schools increasing physical movement breaks for students?"

Methodology

The researchers used the classroom action research method to collaboratively study and improve our educational practices within the kindergarten classroom. Hendricks defines classroom action research as "a form of action research that is conducted by teachers in their classroom with the purpose of improving practice" (Hendricks, 2017, p. 7). The researchers completed a classroom action research study that included observations, student reflection conference, student self-assessments and checklists. During the action research, the researchers compiled quantitative data in the form of a class focus observation chart and qualitative data in the forms of a teacher log, post intervention student conference, and a student self-assessment. This data was used to determine the effectiveness of physical movement breaks on attention with kindergarten students.

The population for this action research study was kindergarten students in central Minnesota. The sample included two kindergarten classes from different schools and districts.

Classroom A is composed of 21 students, eleven of which are boys, and ten of which are girls. Classroom B is composed of eighteen students, six of which are boys, and twelve of which are girls. The samples were selected based on class placement and are representative of typical classroom makeup within each of the two districts. Parents of students in both classes were given passive consent forms. The passive consent form outlined the teacher researcher was under the guidance of a faculty member at St. Catherine's University. The passive consent form explained the study would be happening within the classroom and only required a parent signature if the parents did not want their student's data included within the study. No student's data was excluded from the study.

The tools used in this action research study include the class focus observation chart, teacher log, student self-assessment, and post intervention student reflective conference (See Appendix A-D). The class focus observation chart provided quantitative information on the number of students that paid attention to the lesson as time elapsed. The goal of the class focus observation chart was to determine the amount of time students could focus on the direct reading instruction. The teacher log provided qualitative information. The goal of the teacher log was to provide insight into student movement break activity level and attention span after the movement break. The student self-assessment provided qualitative information on student reflections of their attention during direct instruction. The intent of the student self-assessment was to begin teaching kindergarten students metacognitive strategies to increase self-awareness. This data provided the researchers insight on student perception of their own focus during direct reading instruction. The post intervention student reflective conference provided qualitative information. The goal of the post intervention student reflective conference was to provide insight into what students perceived was happening from the intervention.

The researchers began by creating a baseline of students' ability to focus during direct reading instruction. During the baseline period, students were taught the focus expectations in conjunction with the beginning of the year kindergarten classroom rules and procedures. Students were taught what focus looks and sounds like using the following terminology: eyes watching, brain thinking, body still and mouth quiet, as well as what their body and mind feels like to be focused on instruction. The researchers then collected data on direct reading instruction time for six weeks to determine a baseline. The baseline data was recorded in the following frequencies: daily on the class focus observation chart, daily on the teacher log, and the student self-assessment was completed 50% of student contact days each week during the six-week baseline period.

The class focus observation chart was used to document how many students were focused on the direct reading lesson as time elapsed. The researchers recorded the number of students focused in five-minute intervals for the duration of the lesson on the chart. The teacher log was used during the lesson or at the completion of the lesson. The researchers logged observations about the intervention, class behaviors, or anything deemed notable by the researcher. The student self-assessment was passed out to the students at the completion of the reading lesson. Students were asked to self-assess how they focused during the lesson on the following areas: eyes watching, brain thinking, body still, and mouth quiet. Students assessed themselves in each category by circling a smile for most of the time, a straight face for some of the time, and a sad face for needed reminders.

After completing the baseline data, physical movement breaks were implemented that lasted at least seven-ten minutes prior to direct reading instruction. Physical movement breaks included: playground time, exercise circuits, running in various ways, GoNoodle workouts, and

other age appropriate interventions. During the intervention phase of the study, data was recorded in these ways: daily on the class focus observation chart; daily on the teacher log; and the student self-assessment was completed 50% of student contact days each week during the six-week intervention phase. The data was collected in the same manner as the baseline data so comparisons could be made.

After the intervention period each teacher completed post-intervention student reflection conferences to see what students' views were on focus and if the students felt like the physical movement breaks made a difference in their ability to focus or not. The conferences were held in a reflective learning manner that was naturally occurring within the kindergarten curriculum and year. The researchers talked to each student individually to ask the four questions on the post-intervention student reflection form.

At the end of the intervention period, the researchers had baseline and post-intervention data to analyze. The researchers used the class focus observation chart to help answer whether physical movement breaks prior to direct reading instruction had an effect on the number of students that were focused on the direct reading lesson as time elapsed. Researchers used this quantitative data to analyze the duration students maintained attention before movement breaks and after the application of the intervention. The researchers used the qualitative data from teacher logs to provide insight into student movement break, activity level and attention span after the movement break. Teacher logs were also used to examine common behavioral themes that occurred in Classroom A and within Classroom B. The researchers used the qualitative information from the student self-reflections to identify student perceptions of their attention during direct instruction to find commonalities between Classroom A and Classroom B. Finally, researchers used the post-intervention student reflective conference to determine whether

students felt the intervention was successful. All the tools and data gave the researchers a holistic view of the effects of physical movement breaks before direct reading instruction in the two classes studied.

Analysis of Data

The raw data collected during this study came in the form of teacher observations, student self-assessments, and post-intervention student reflective conferences. The data consisted of both qualitative and quantitative information. The quantitative data came from teacher observations, using a class focus chart to document the time students were able to focus during a lesson and student self-assessments. This data is in the form of percentages and minutes elapsed. The qualitative data was collected on the teacher log and post-intervention student reflective conferences. This data is in the form of short phrases, and simple sentences.

Class Focus Chart

This quantitative data source detailed the number of students focused at 5-minute intervals. Researchers compiled the data to create two tables, see Table 1 and Table 2 below. The tables list the date, at what 5-minute interval of the lesson that 25% of students lost focus, and what percentage of the total lesson that 75% of the class was focused. Table 1 shows the baseline data and Table 2 shows the intervention data. Based on information found in both tables, researchers found the average percentage of students who were focused for 75% of the lesson, for the entire baseline period and intervention period to compare the effects of the intervention.

Student Self Assessment

The student self-assessment gave the researchers quantitative data once compiled. The researchers took the data from each day the self-assessment was given, and documented the percentage of students that indicated that they were focused most of the time in the four areas:

eyes watching, body still, mouth quiet, and brain thinking. Researchers then graphed the average percentage of students who indicated that they were focused most of the time, in the four categories, during the baseline and then during the intervention period.

Teacher Log/Post-Intervention Student Reflective Conference

The teacher log and the post-intervention student reflective conference information were both qualitative data sources. Researchers compiled the teacher observations into one common document. Researchers also compiled the post-intervention student reflective conference data into another common document. Then researchers examined the simple sentences and phrases for commonalities. The commonalities were grouped into themes. The themes that emerged in both classrooms included ways to calm down, types of movement breaks, and ways to focus. The themes were compared to the class focus observation chart and the student self-assessment to triangulate the data.

Findings

The purpose of this action research study is to examine if physical movement breaks prior to direct reading instruction increase student attention. The researchers completed a classroom action research study that included observations, student self-assessments, checklists, and a student reflection conference. During the action research, the researchers compiled quantitative and qualitative data to determine the effectiveness of physical movement breaks on attention with kindergarten students.

Effects of Movement Breaks Prior to Direct Instruction

The research question that this study addressed examined the effects of physical movement breaks on kindergarten students' attention. To examine this question researchers collected data in four ways. One way researchers examined the effects of movement breaks was

by observing student focus during direct reading instruction using the class focus chart (See Appendix A). Then researchers compiled the data and compared the baseline data and the intervention data. Another way data was collected, was by the researchers documenting observations in regard to student attention during the lesson and recording the data on the teacher log. Researchers then examined the observations for common themes. During the study, data were collected on student perception of focus in the form of self-assessment (See Appendix B). Students ranked their level of focus on whether they believed they were focused most of the time, some of the time, or needed reminders. The data was then compared from the baseline period to the intervention period. Finally, data were collected during post-intervention student conferences (See Appendix D). The responses were compiled and then examined for common themes.

TABLE 1
Weekly Percentage of Students Focused (Baseline)

	Classroom A	Classroom B
Week 1	38	27
Week 2	46	76
Week 3	45	53
Week 4	57	85
Week 5	44	85
Week 6	63	100
Baseline Average	56	69

TABLE 2
Weekly Percentage of Students Focused (Intervention)

	Classroom A	Classroom B
Week 1	100	100
Week 2	100	100
Week 3	100	36
Week 4	77	87
Week 5	74	84
Week 6	74	80
Intervention Average	87	90

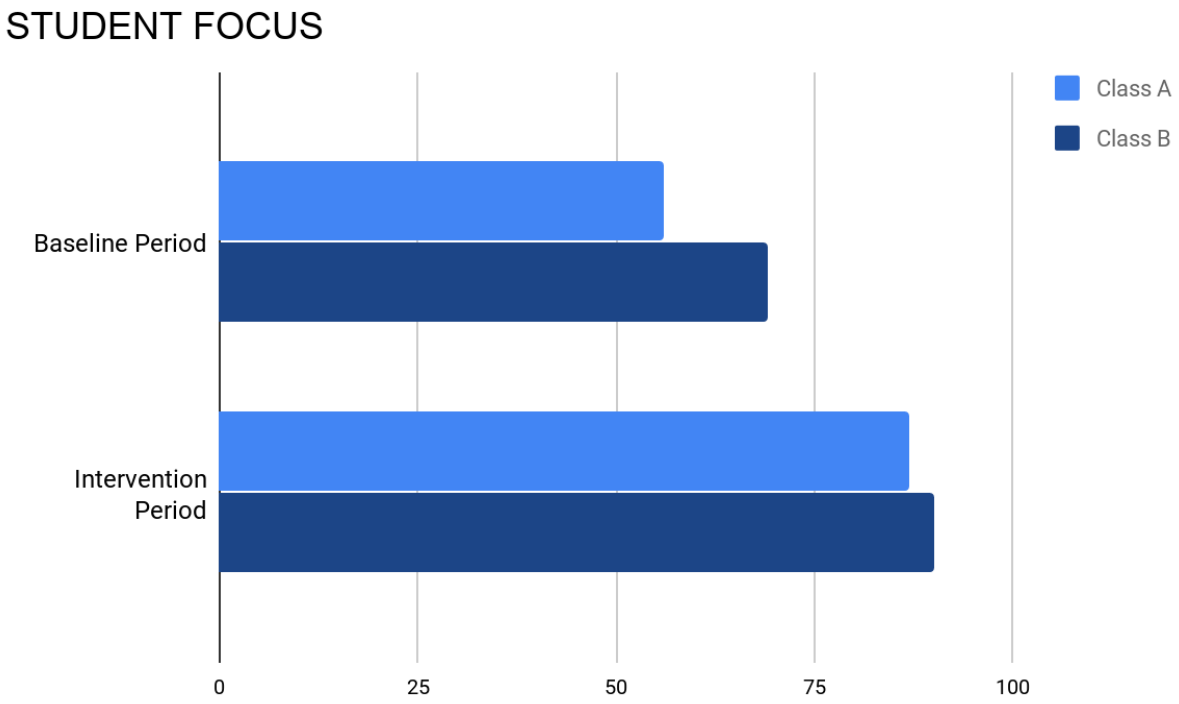

Figure 1. The percentage of time students focused during lessons during the baseline and intervention periods.

The data depicted in Table 1 represents the weekly percentage of time where at least 75% of students were focused on the lesson during the six-week baseline period. The data were

collected on the focus chart daily and then averaged to come up with the weekly numbers shown in the table for Classroom A and Classroom B. At the bottom of Table 1, the total baseline average is noted for both Classroom A and Classroom B. These averages indicate that during the six-week baseline period Classroom A had at least 75% of students focused on the lesson 56% of the time. Classroom B had at least 75% of students focused on the lesson 69% of the time.

The data depicted in Table 2 represents the weekly percentage of time where at least 75% of students were focused on the lesson during the six-week intervention period. During the intervention period, students completed a seven-ten minute physical movement break before direct reading instruction. Table 2 shows an increase in focus percentages from Table 1 for both Classroom A and Classroom B. The final row in Table 2 states the total intervention period average for both classes. Classroom A had at least 75% of students focused on the lesson for 87% of the time and Classroom B had 75% of the students focused on the lesson for 90% of the time. Figure 1 visually represents the comparison of averages from the baseline to the intervention period for both classes. The graph indicates growth from the baseline period to the intervention period in both classes. Classroom A grew by 31% and Classroom B grew by 21% with the implementation of the intervention.

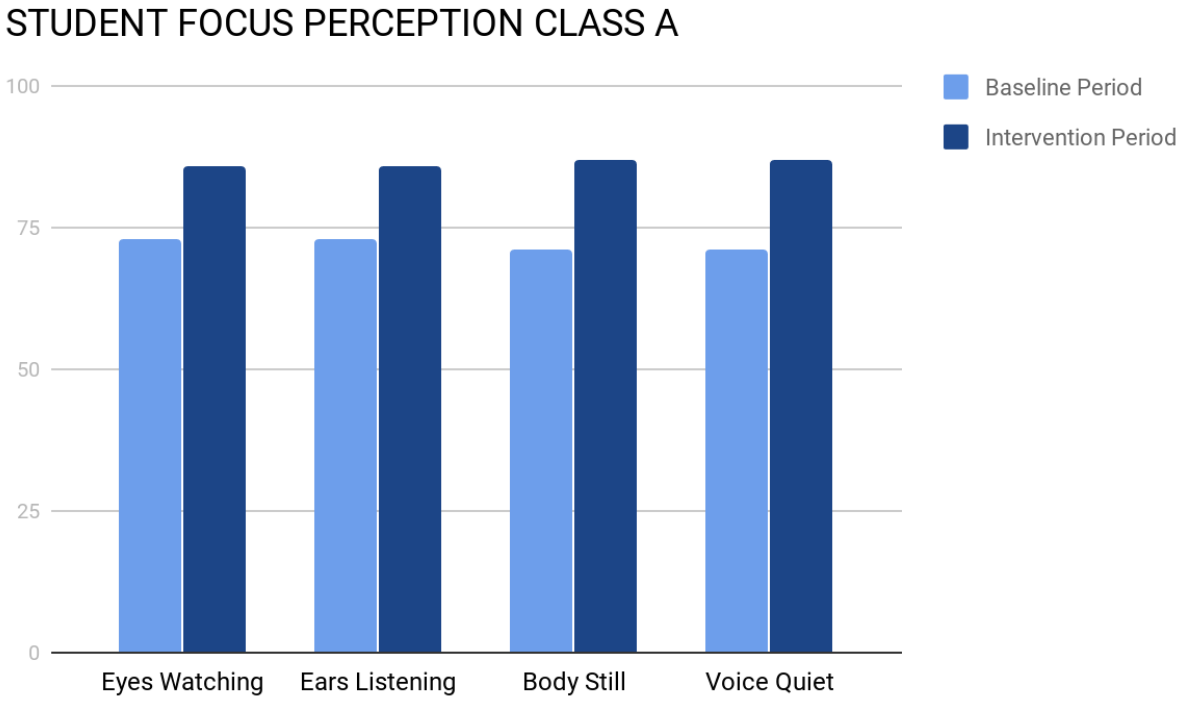

Figure 2. The average of students in class A who indicated they were focused most of the time on the student self-assessment.

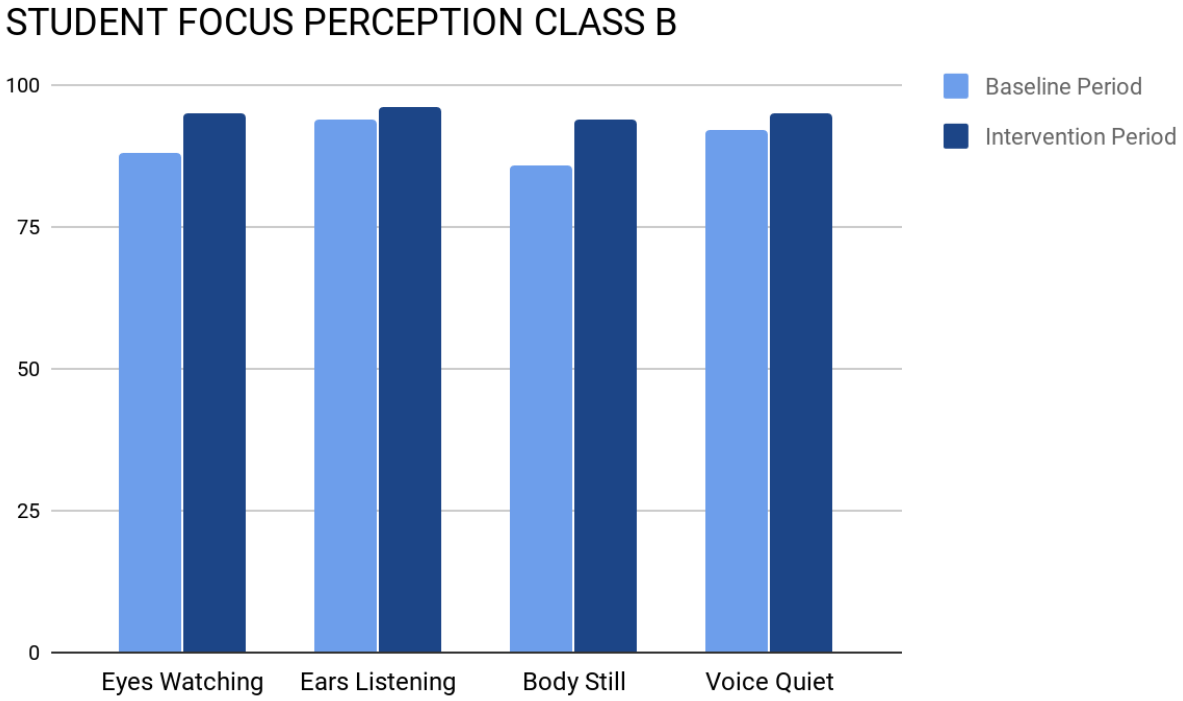

Figure 3. The average of students in class B who indicated they were focused most of the time on the student self-assessment.

Figures 2 and 3 show the results of students who indicated they were focused for most of the time during the baseline period and the intervention period of the study. Figure 2 represents Classroom A and Figure 3 represents Classroom B. Figure 2 and Figure 3 illustrate students' perception of growth within the four focus areas. Both classes show growth in all four areas. As indicated in Figure 2, Classroom A shows greater growth than Figure 3, Classroom B.

Another data source used in the study was the Teacher Log (See Appendix C). The Teacher Log collected anecdotal teacher observations throughout the baseline period and the intervention period. Common themes emerged between the two classrooms. During the baseline period, both teachers reported the need to remind students to focus. Combined, teachers reported giving reminders 23 different days during the baseline period. This varied from the intervention period where teachers only reported giving reminders on nine different days. Another common theme that emerged from the teacher log was the type of movement breaks that happened in both classrooms. Both classrooms reported using Zumba, circuit exercises such as squats, jogging in place, lunges, ect., GoNoodle, and running for movement breaks.

The last way researchers collected data was in the form of the Post-intervention Student Conference (See Appendix D). Students were asked a series of four questions and then researchers compiled the responses to look for common themes and understandings. Question 1 asked, "What does it mean to focus?" The themes that emerged when looking at student responses included: listening and watching the teacher. Question 2 asked, "How can you tell if you are not focused?" Themes of student responses included that their body is moving, they were talking to friends, or thinking about other things. Question 3 asked, "How can you tell if your mind is focused?" The two common answers between the classes were by thinking about

learning and listening. Question 4 asked, “What helps you get ready to focus?” The common answers for this included calming breaths, playing outside, and movement breaks.

Collectively the four data sources triangulate to show that movement breaks before direct reading instruction have a positive correlation on the effect of time kindergarten students are able to focus. As shown in Table 1 and Table 2, the average amount of time 75% of students were focused increased from the baseline period to the intervention period in both classrooms. The student self-assessment data also supported that movement breaks had a positive correlation in this study, see Figures 2 and 3. Both Classroom A and Classroom B saw positive growth with the addition of the intervention of movement breaks before direct reading instruction. Researchers noted on the Teacher Log that the number of reminders to focus had decreased from the baseline period to the intervention period. Finally, the Post-Intervention Student Conference detailed common themes in both classrooms that demonstrated knowledge in the definition of focus and what focus looks like in a classroom setting.

Discussion and Conclusion

The purpose of this action research study was to determine the effects of physical movement breaks before direct reading instruction had on kindergarten students’ focus. Researchers documented focus levels of students during a 6-week baseline period and then again for another 6-week period while implementing the intervention. During the baseline period, the researchers taught students the definition of focus and what focus looks like in the classroom setting. Students were also taught to self-assess their focus levels at the end of direct reading instruction time. After the baseline period, the researchers implemented a 7-10 minute physical movement break intervention prior to direct reading instruction. The researchers hoped the

intervention would increase the amount of time students were able to focus during direct instruction.

Researchers collected data within the Teacher Log that recorded the types of movement breaks implemented during the intervention period. These physical movement breaks included; Zumba, running, playing outside, circuit exercises, walks in the school, and various other gross motor activities. The movement breaks aligned with the proposed action research plan. Students and researchers in both classrooms enjoyed the movement breaks and felt they positively affected the classroom culture.

The findings showed that implementing the movement break intervention before direct reading instruction had a positive effect on the amount of time students were able to focus. The literature states that even brief periods of physical activity can have positive effects on behaviors, attention, working memory, and readiness to learn (Castilla & Ward, 2012; Fede, 2012; Ciotto & Fede, 2014). The findings in this study correspond with the literature. The physical movement break intervention showed positive growth in all the data sources outlined in this study.

In reflecting on the implementation of the study, researchers noted variables of the study that were not anticipated. As noted in the Teacher Log, Classroom A and Classroom B, both used a calming down transition before beginning instruction. These transitions included a variety of deep breathing exercises. This transition was not outlined in the research plan but naturally occurred in both classrooms. Researchers felt this natural occurrence of calming down before instruction contributed to the success of the intervention.

A question that arose from the study had to do with the cost/benefits of movement breaks prior to instruction time. Researchers understand that it does take time out of the academic instructional day to implement the movement breaks. The breaks were 7-10 minutes and

included transitional periods. Researchers would argue that the time taken on movement breaks increased overall focus lengths and made for better instruction periods. As noted in the Teacher Log, during the intervention period significantly fewer reminders to focus were needed than during the baseline period.

A question that arose from the study considers the time of year that the study was implemented as well as with the grade level it was associated with. At the beginning of kindergarten students have limited school experience and that may have affected the baseline data. How would the study results look different if you completed it during the spring of kindergarten or in an older grade? Later in the school year, kindergarteners would be more aware of school expectations. Older students would come into the school year with school experience. Considering those factors, would the study have the same effect? More research is needed to see if the findings from this study can be replicated in different grades or at different times in the school year.

A final consideration that researchers discussed was the addition of a Pre-Intervention Conference with students. The researchers wondered how Pre-intervention Conference data would compare with the Post-Intervention Conference student answers. Would those answers offer more insight into students' understanding of focus and what helps them focus?

Despite the considerations and questions that researchers still have, the researchers believe that the intervention was successful. Students are showing the ability to focus for longer periods of time and the students are able to self-assess their focus better with the use of the intervention. The data showed that it was effective and researchers feel the students understand the effects of the movement breaks because the students ask for them before direct instruction. Moving forward the researchers plan on continuing the use of the movement break

intervention with students. Researchers will share study data with colleagues in hopes that colleagues understand the benefit in this study's intervention and implement it within their own classrooms. This action research study adds to the research that states that movement breaks have positive impacts on students. This study has the potential to inform future classroom instruction and action research studies.

References

Baum, William M. "Behaviorism." *Understanding Behaviorism*. Hoboken, NJ, USA: John Wiley & Sons, 2016. 3-17. Web.

Caldwell, T., & Ratliffe, T. (2014). Investigation of intensity levels during video classroom exercise sessions. *The Physical Educator,71,* 473-490. Retrieved June 11, 2019.

Castelli, D. M., & Ward, K. (2012). Physical activity during the school day. *Journal of Physical Education, Recreation & Dance,83*(6), 20-29. Retrieved June 11, 2019.

Center for Disease Control (2010). The association between school-based physical activity, including physical education and academic performance. (2010). *U.S. Department of Health and Human Services*. Retrieved June 17, 2019.

Ciotto, C. M., & Fede, M. H. (2014). PASS: creating physically active school systems. *Journal of Physical Education, Recreation & Dance,85*(8), 13-19. doi:10.1080/07303084.2014.946191

Drasgow, E. (2010). Behaviorism. In T. C. HuntJ. C. Carper & T. J. Lasley (Eds.), *Encyclopedia of educational reform and dissent* (pp. 88-91). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781412957403.n43

Erickson, L. C., Thiessen, E. D., Godwin, K. E., Dickerson, J. P., & Fisher, A. V. (2015). Endogenously and exogenously driven selective sustained attention: Contributions to learning in kindergarten children. *Journal of Experimental Child Psychology,138*, 126-134. doi:10.1016/j.jecp.2015.04.011

Fede, M. H. (2012). Physical activity strategies for improved cognition: The mind/body connection. *Strategies,25*(8), 16-20. doi:10.1080/08924562.2012.10592177

Faur, M., Benea, R., & Pantea, C. (2018). Contribution of harmonious physical development exercises to increase bio-motor process at preschool children. *Timisoara Physical Education and Rehabilitation Journal,11*(20), 59-66.

Fitzpatrick, C. (2012). Ready or not: Kindergarten classroom engagement as an indicator of child school readiness. *South African Journal of Childhood Education,2*(1). doi:10.4102/sajce.v2i1.19

Foran, C. A., & Mannion, C. (2017). Focusing elementary students with active classrooms: Exploring teachers perceptions of self-initiated practices. *International Electronic Journal of Elementary Education,10*(1), 61-69. Retrieved June 11, 2019.

Fredricks, J., & McCloskey, W. (2011). Measuring student engagement in upper elementary through high: A description of 21 toolsschool. *Issues and Answers, 98*. Retrieved July 1, 2019.

Furmanek, D. (2014). Classroom choreography enhancing learning through movement. *Young Children*. Retrieved June 11, 2019.

Godwin, K. E., Almeda, M. V., Seltman, H., Kai, S., Skerbetz, M. D., Baker, R. S., & Fisher, A. V. (2016). Off-task behavior in elementary school children. *Learning and Instruction,44*, 128-143. Retrieved June 11, 2019.

Goh, T. L., Fu, Y., Brusseau, T., & Hannon, J. (2018). On-task behavior of elementary students during movement integration. *Journal of Physical Education & Sport,18*(1), 103-106. doi:10.7752/jpes.2018.01013

Health and academics: Healthy schools CDC. (2017, October). Retrieved June 17, 2019, from https://www.cdc.gov/healthyschools/health_and_academics/index.htm

Hendricks, C. (2017). *Improving schools through action research: A reflective practice approach*. Boston: Pearson.

Lay, C. B. The connections between movement and student engagement in kindergarten (2016). Retrieved from https://digitalcommons.hamline.edu/cgi/viewcontent.cgi?article=5234&context=hse_all

Martin, H., Farrell, A., Gray, J., & Clark, T. B. (2018). Perceptions of the Effect of Recess on Kindergartners. *The Physical Educator,75*(2), 245-254. doi:10.18666/tpe-2018-v75-i2-7740

Mooney, C. G. (2000). *Theories of Childhood*. St. Paul, MN: Redleaf Press.

Moore, J. (2011). BEHAVIORISM. *Psychological Record, 61*(3), 449–465. https://doi-org.pearl.stkate.edu/10.1007/BF03395771

Orlowski, M., Lorson, K., Lyon, A., & Minoughan, S. (2013). My Classroom Physical Activity Pyramid: A Tool for Integrating Movement into the Classroom. *Journal of Physical Education, Recreation & Dance,84*(9), 47-51.

Pagani, L. S., Fitzpatrick, C., & Parent, S. (2012). Relating Kindergarten Attention to Subsequent Developmental Pathways of Classroom Engagement in Elementary School. *Journal of Abnormal Child Psychology,40*(5), 715-725. doi:10.1007/s10802-011-9605-4

Partnership, G. S. (2013, December 20). Direct Instruction Definition. Retrieved June 17, 2019, from https://www.edglossary.org/direct-instruction/

Ray, K., & Smith, M. C. (2010). The Kindergarten Child: What Teachers and Administrators Need to Know to Promote Academic Success in all Children. *Early Childhood Education Journal,38*(1), 5-18. doi:10.1007/s10643-010-0383-3

Rhea, D.J. (September, 2015). Why young kids need less class time — and more play time — at school. Washington Post. http://www.washingtonpost.com/blogs/answer-sheet/wp/2015/08/21/why-youngkids-need-less-class-time-and-more-play-time-at-school/.

Savina, E., Garrity, K., Kenny, P., & Doerr, C. (2016). The Benefits of Movement for Youth: A Whole Child Approach. *Contemporary School Psychology,20*(3), 282-292. doi:10.1007/s40688-016-0084-z

Schmitt, B. D., MD. (2014). Attention deficit/hyperactivity disorder (ADHD): How to help your child. Retrieved June 20, 2019, from https://www.summitmedicalgroup.com/library/pediatric_health/pa-hhgbeh_attention/

CDC (2010). The association between school-based physical activity, including physical education and academic performance. (2010). *U.S. Department of Health and Human Services*. Retrieved June 17, 2019.

Tomic, W. (1993). Behaviorism and cognitivism in education. *Psychology*, *30*(3/4), 38-46.

Tudor, M. (2015). The issue of children with special educational needs in primary and preschool education. *Euromentor Journal,6*(3), 60-69. Retrieved June 11, 2019.

Wiebelhaus, S. E., & Fryer Hanson, M. (2016). Effects of classroom-based physical activities on off-task behaviors and attention: Kindergarten case study. *The Qualitative Report,21*(8), `1. Retrieved June 11, 2019.

Wood, C. (2015). *Yardsticks: Children in the classroom, ages 4-14*. Turners Falls, MA: Center for Responsive Schools.

Appendix A

Class Focus Observation Chart

Date_____

Lesson Length_____

(Students are focused if their eyes are watching, brain is ready to think, body is still, and mouth is quiet)

Time Elapsed	Number of students focused
5 Minutes	
10 Minutes	
15 Minutes	
20 Minutes	
25 Minutes	
30 Minutes	
35 Minutes	
40 Minutes	
45 Minutes	
50 Minutes	
55 Minutes	
60 Minutes	

Appendix B

Name_____

I can reflect on my focus level for the lesson!

Think about how you focused during today's lesson. Circle the face that you feel represents how well you focused. (Most of the time, sometimes, needed reminders).

Body is still: Feet, arms, hands, legs and bottom.

Mouth is quiet.

Eyes are watching.

Brain is ready to think.

Name_____

I can reflect on my focus level for the lesson!

Think about how you focused during today's lesson. Circle the face that you feel represents how well you focused. . (Most of the time, sometimes, needed reminders).

Body is still: Feet, arms, hands, legs and bottom.

Mouth is quiet.

Eyes are watching.

Brain is ready to think.

Appendix C

Teacher Log

Directions: Complete after each direct reading instruction lesson. Include the date, type of movement break, length of lesson, and any notable observations on the type of movement break and student's attentiveness during lesson.

Date:
Movement Break:
Lesson Length:
Observations:

Date:
Movement Break:
Lesson Length:
Observations:

Date:
Movement Break:
Lesson Length:
Observations:

Appendix D

Student Reflective Conference:

Student Name_____

Date:_____

1. What does it mean to focus?

2. How can you tell if your body is not focused?

3. How can you tell if your mind is focused?

4. What helps you get ready to focus?