

**The Effect of Focused Attention Span on
Overall Academic Achievement**

By Kiley Stasch

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Abstract

This study focused on the effect of in-class exercise prior to a lesson on first graders' attention span. The null hypothesis was that exercise would not significantly alter the student's ability to maintain a longer attention span during the subsequent lesson. The subjects in this study were eight first grade students, six boys and two girls. Four of the boys were Caucasian; two were African American. One of the girls was Caucasian and the other was African American. Tallies were used to collect data through in-class observation of predetermined "off-task" behaviors, including calling out, getting out of their seat, talking to a neighbor, etc. Data was then compared between the lesson observed following a class-led exercise break and the lesson observed without exercise implemented at any point. The null hypothesis was rejected and the findings concluded that class-led exercise prior to a lesson did significantly reduce students' observed "off-task" behaviors.

CHAPTER I

INTRODUCTION

Throughout every level of education, there are frequently issues with students' ability to maintain their attention throughout the entirety of a lesson. Specifically, first grade students tend to have an extremely difficult time with attention spans. Many studies have focused on the challenge of lack of attention in students both with learning disabilities and without any diagnosed learning disabilities. Other studies have looked into ways to assist students in learning to better control and increase their attention spans. In this study, scheduled implemented exercise/movement breaks in the classroom will be observed as a potential additional strategy that may help first grade students to develop increased attention spans.

Overview

Many first grade students are unable to maintain attention throughout long lessons in classrooms. With a large number of students in an average public school classroom, there are many distractions and students of such a young age can find their minds wandering very easily. As this researcher began volunteering in a first grade classroom this year, she noticed the difficulties students were having and how it was affecting not only their own academic success by a loss of interest and attention, but also their peers by their behavior.

Statement of Problem

The goal of this study is to determine the impact of implementing a short movement opportunity before a lesson has upon student attention spans throughout the following lesson.

Hypothesis

The null hypothesis for the study is that there will be no difference in frequency of off-task behavior in first grade students after they receive a short pause for physical activity before a lesson.

Operational Definition

For the purpose of this research, the term “*off-task behavior*” is defined as undesirable behavior such as playing at their desk, talking to a neighbor, getting out of their seat, calling out or looking around the room.

CHAPTER TWO

LITERATURE REVIEW

The literature review seeks to explore the lack of attention first grade students have in the classroom and methods to implement techniques to improve and increase the amount of time spent attentively. The first section of the review focuses on the importance of children's ability to focus, and how it can affect their immediate and future academic success. The second section discusses various causes and explanations of student inattentive behavior. The third section explains several successful interventions.

The Importance of a Child's Ability to Focus

Students' ability to focus often presents a consistent difficulty for first grade teachers. Many first grade students are not yet mature enough to be able to focus for the length of time needed to do independent work. This inability often perplexes teachers who are expected to interact with every student within a given time frame. Sometimes the best way to work with such students is to give students time to complete work on their own as the teacher works with smaller groups or provides one-on-one attention. Children's ability to focus may directly affect their academic achievement by preventing the mastery of new material. This problem may also prevent the teacher from having the allotted time for both group and individual work.

In a study determining the importance of seatwork in first grade classrooms, Anderson, Brubaker, Alleman-Brooks and Duffy (1985) indicates it is clear that

students' ability to work independently on seatwork is essential for the functioning of the class in its entirety. Seatwork, generally considered as independent assignments completed by students as they remain at their desks, may fulfill both instructional goals and goals set for managing the classroom. Seatwork allows students time to work independently without feeling the need to have immediate teacher facilitation and guidance. Seatwork gives students time to practice and develop skills such as using the dictionary, checking their work, and pacing themselves. These activities also have the potential of engaging students quietly and acting as a time for students to practice new skills. Anderson notes that seatwork affects classroom management allowing for a well-managed classroom and thus allows students to focus on their studies and achieve a higher level of academic success.

Anderson et al., (1985) also notes that the conversations held with students about their perceptions of the importance of seatwork were significant. By having open communication on the importance and meaning behind the tasks given, students find purpose and are able to find seatwork meaningful, leading to a higher overall understanding of the material. When students find tasks to be significant, their attention span tends to improve, resulting in higher academic achievement.

Children's ability to focus on seatwork tasks not only allow teachers time for individualization, but researchers note that children's attention skills are important in helping their social-emotional and academic competence (Rhoades, Warren, Domitrovich,. & Greenberg, 2006). These researchers suggest that

emotional knowledge does later effect children's academic achievement, and children's attention acts as a mediator of the relationship between the two. Without the ability to focus their attention, students may not be able to grasp emotional knowledge and might then be prevented from reaching their highest academic success. It appears, therefore, that the ability of children to focus their attention is extremely important both for their immediate progression in academics as well as for their long-term achievement.

Building Focus Skills

Student's focusing skills develop throughout their early elementary years. Often, focusing skills directly relate to the classroom environment in which a student is placed. In school, students are directly affected by the environment that surrounds them for a large percentage of their day. Not only does this environment include the physical conditions of the classroom, but also the psychological aspect of the school such as the materials, the enthusiasm of the teacher and his/her interactions with the students, teacher respect, and the overall stress of the classroom (Milkie & Warner, 2011). If the classroom is a negative environment, students' mental health is affected. In a negative environment, there is evidence of more emotional and behavioral problems as well as a lack of attention to daily tasks, and task persistence. These researchers also noticed the extreme significance of a teacher's perception of how appreciated and respected she/he is in the school. If a teacher perceives that they do not have respect, the children's mental health is negatively affected.

Teacher support in the classroom continues to play a significant role in student behaviors and self-regulatory skills. Social and self-regulatory skills allow children to build friendships, manage their own behaviors, and work well with others. All in all, teacher support, academic and emotional, effects learning in the classroom setting (Merritt, Wanless, Rimm-Kaufman, Cameron & Peugh, 2012). When students begin their school life without mastering important behavioral skills, there can be long-term consequences on the child's academic achievement. As Vygotsky's Zone of Proximal Development theory suggests, lessons in early education focusing on emotional support and behavioral management scaffold the child to manage themselves independently, and grow to have strong self-regulatory skills (Seng, 1997). With the teacher's positive attitude and high emotional feedback, a child is likely to have externalizing behaviors. With a strong sense of self-regulatory skills, students will be able to better manage themselves to stay focused and on task during in school activities, absorbing information, and growing to their highest potential.

Along with environmental circumstances that prevent children from maintaining their attention in the classroom, there are internal interferences such as learning disabilities including ADD(Attention Deficit Disorder)/ADHD (Attention Deficit Hyperactivity Disorder) as well as the student's understanding of the value of the subject matter that prevent students from focusing. ADHD can be defined as "a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and more severe than typically observed in individuals at a comparative

level of development” (Martin, 2013 p.145). ADHD naturally interferes with self-regulation and executive functioning, causing students’ academic outcomes to be impaired. In Anderson et al., (1985) study looking into student responses to seatwork, it was observed that students believed that the most important aspect of seatwork is simply to get it done.

Successful Interventions

Intervention techniques for improving attention span can vary and there is no one suggested technique that works best in improving a student’s ability to maintain their attention. For those with internal interferences such as ADHD, medication has shown to have immediate results, yet no long-term improvement. Similarly, behavioral interventions for focusing tend to improve productivity when implemented, though the long-term effect shows no significant progress (Rabiner, Murray, Skinner, & Malone, 2010).

Methods that appear to have long-term results include two computerized methods, Computerized Attention Training (CAT) and Computer-Based Instruction (CBI). CAT aims to hold the student’s attention through interactive, engaging activities and by giving specific goals and rules to clearly follow, allowing no room for getting lost or confused. CBI provides instruction with immediate feedback and reinforcement and highlights important information and concepts covered in the instructed material. CBI appears to reduce off-task behavior and helps guide students to learn ways to best manage themselves, which can ideally serve as an intervening technique to help students be able to work independently.

In addition to technology interventions, early childhood teachers use differentiated instruction and management strategies when attention problems are present. In the first grade classroom observed in this study, teachers utilized the information presented in the text *Teacher Management Practices for First Graders with Attention Problems* (Rabiner et al., 2010). Arguably, attentive behaviors predict later reading difficulties for students even after IQ, other behavioral problems, and earlier reading achievement is controlled. Keeping this in mind, following the best practice guidelines presented in this text have demonstrated to be an effective way to instruct and manage behavior for preventing academic and behavioral problems. These techniques include making task and instructional modifications, contingency management, peer tutoring, computer-based instruction, and proactive structuring of the classroom environment. Overall, what was found to be most beneficial for improving students' ability to focus was using actively engaging exercises to reduce distractions and provide immediate positive reinforcement.

Surprisingly, there has been little research on how teachers work with inattentive classroom behaviors. A study by Rabiner et al., (2010) collected questionnaire data from teachers about the management skills they used for attentive students. Teacher modifications were found to be reported more frequently for students who displayed inattentive behavior, specifically those who also qualified for special education. In terms of which strategies were found to be most effective, teachers suggested that time out and reward systems were not to be ignored. The teachers also report that strategies rarely aligned with educational

literature, demonstrating that there was room to implement proper strategies more effectively. It is important to take into consideration proper management strategies, such as modifying instruction, to meet the individual's needs, implementing individual behavioral plans, and using systematic computerized systems that demonstrate assistance in academic progress.

There appears to be a correlation between family involvement using daily report cards and strategies to improve parent-child relationships in order to improve academic success. The families of ADD and ADHD children appear to be particularly important for student success even beyond that which is needed by all children. (Mautone, Marshall, Sharman, Eiraldi, Iawad, Power, 2012) suggested that strong parent-child relationships and parental-involvement in school promotes academic success for ADD and ADHD children but that the relationship is complicated. "Structuring the home environment so that it promotes their children's education may be difficult for these families, because of conflicted parent-child relationships and non-compliant child behavior. Moreover, parents of children with ADHD generally feel less welcome in school compared to parents of children without ADHD and conflict between the family and school is common among students with ADHD" (Mautone, et al., 2012, p. 449). Therefore it is important to integrate family involvement in the intervention process for students with ADHD in regard to their education and in-school relationships.

One way to integrate family involvement with ADHD children is to focus on family therapy, parent group meetings, and family-school consultations. Alternative

strategies include parent support and education programs that include techniques such as discussing the child's progress, establishing a context within which parents can support each other, and providing generic education to parents about ADHD.

Overall, family therapy was found to be the strongest intervention and more effective than education and support in improving parenting practices, strengthening the student-teacher relationship, and reducing child behavior problems in school (Mautone et al., 2012). Not only did therapy improve student-teacher relationships and reduce behavior problems, but it was also found to have an effect on family involvement in their child's education. This is a great intervention for students struggling academically due to ADHD and demonstrates a successful way to improve parent practices and student's school functions.

Setting personal best (PB) goals is another way to approach tackling the inattentiveness of students with ADHD and other learning disabilities that interfere with their academics. Personal best goals can be defined as 'specific, challenging, competitively self-referenced targets towards which students strive' (Martin, 2013). It has been found that PB goals benefited ADHD students in enhancing achievement and engagement of school activities. PB goals aim to provide specific information for the child to aim and direct attention to a specific task. The student aims for an attainable goal that can be used to surpass previous benchmarks leading to improved confidence, increased effort, enhanced student intrinsic motivation, and finally an increase in the overall chance of success.

To help students in designing proper and appropriate PB goals, the goals

must be specific for a given time frame, have steps written out, a way of recording the steps as they are achieved and time for reflection. It is important that students can observe their progress by plotting it so they can find purpose behind their efforts. By viewing their growth, they become aware of the link between their prior knowledge and the new material they have mastered. This serves as a perfect motivator and way to build their self-esteem, which tends to be lower in students with ADHD.

Similarly, self-monitoring studies find increased on-task behavior correlates with an increase on academic achievement. Two types of self-monitoring appear to be particularly important with ADD and ADHD students - self-monitoring of attention and self-monitoring of academic accuracy. Both strategies appear to improve attention to task (Rooney, Polloway, & Hallahan, 1985). Research finds that increased attention did correlate with the accuracy of completed problems. Therefore, self-monitoring was found to be useful in improving on-task behavior and attention skills for students with learning disabilities. The use of pictorial cues, videotape practice and backup reinforcement also improved self-recording ability. With evidence that self-monitoring does work in promoting better attention skills, teachers need to use these strategies, but also need to know the proper techniques that best fit each individual in order to attain the most successful results.

Summary

Students' ability to focus their attention is critical to their academic and lifetime success. This needs to be something that teachers can quickly identify as a learning disability and diagnose their students so they can get the necessary help. If it is not a learning disability, they must begin implementing new class-wide interventions in hopes of finding best solutions to assist their students in focusing their attention. Additional factors that have been found to contribute to student's lack of attention include the teacher's emotional support, parental involvement and classroom management strategies. Teachers must take all of these factors into consideration when providing the most beneficial educational experience for the students in their classrooms.

CHAPTER III

METHODS

Design

This study utilized a pre-experimental design with a pre-test/post-test using tallies to compare the effectiveness of lessons taught after a movement break was used with lessons where no movement break was used.

Participants

Three classroom observations were scheduled to identify students who demonstrated “off-task” behavior. To be identified, a student had to have repeated behaviors including looking away from the teacher, playing with something at their desk, talking to a neighbor, etc. Eight students were observed- six boys and two girls. Four of the boys were Caucasian, and the remaining two were African American. One of the girls was Caucasian and the other was African American.

Instrument

The instrument used was a tally sheet. There is room for error when using this instrument because it is done through observation and “off-task” behavior could be missed. Tallies are consistently reliable because they are easy to use continuously throughout the study. The validity is also generally strong when using tallies because the “off-task” behaviors are clearly sought out and immediately recorded when seen.

Procedure

This study was conducted by using tally marks to record observed “off-task” behavior in identified students. The lessons observed were the same lesson (i.e. math) but on different days. These students were first observed on a day when a movement break was not implemented prior to the lesson. The next observation was taken on a day when a movement break was implemented before the lesson. This procedure was repeated twice so there were two lessons observed without the movement break beforehand and two lessons observed with the movement break being implemented beforehand. These tallies were then compared to see if there was any evidence to show that the lessons with the movement break prior had less “off-task” behaviors.

CHAPTER IV

RESULTS

The purpose of this study was to determine whether or not the use of organized, in-class exercise impacts first grade students' attention span during the subsequent lesson.

Table 1

Means and Standard Deviations of Off-Task Behaviors for the Group

Treatment	Mean (SD)
No Exercise	16.86 (5.540)
Exercise	10.00 (4.598)

Table 1 shows the means and standard deviations of off-task behaviors for the group when no exercise was provided prior to data collection and when exercise was provided prior to data collection through observations during class time. A dependent *t*-test was run to determine if there was a significant difference in the number of off-task behaviors given these two conditions. Results show a significant difference between the two conditions, $t(7) = 4.216$, $p < .00$. Students demonstrated significantly fewer off-task behaviors when provided with exercise prior to the data collection in class. The null hypothesis was rejected. These results and their implications will be discussed in Chapter V.

CHAPTER V

DISCUSSION

The null hypothesis held that there would be no difference in the amount of off-task behaviors observed with first grade students whether or not exercise was offered prior to a lesson. The results of this study resulted in a rejection of the null hypothesis.

Implications of the Results

The findings show that implementing exercise before a lesson does lower the number of off-task behaviors overall, based on the average number of observed behaviors. With results showing a significant difference between the two conditions, it is clear that exercise did help to improve the students' attention span. However, in some individual's cases, certain behaviors increased from the initial observation, going against the class average findings. In addition to this, other factors could have affected the outcomes including student maturity, learning disabilities that may cause students' behaviors to always be there, student mood of the day, as well as teacher biases during observations.

Threats to Validity

Some threats to validity of the study include the many additional factors that could not be taken out of the observation. Students observed were a convenience sample. Because of this, students were all from one class, in one county, representing one area of the country. If the study could be tested with a larger variety of subject matter at random, this study would qualify as being more valid. Further factors include students' mood for the day, teacher observation bias, students' maturity between the observations as they

were observed 1.5 months apart. With these uncontrollable factors never being consistent, the observations made and data collected cannot be 100% valid.

Connection to the Literature

Many of the studies examined included methods to implement in class, including computerized attention training (Rabiner, et al., 2010) or differentiated instruction and management strategies such as making task and instructional modifications, contingency management, peer tutoring, computer-based instruction, and proactive structuring of the classroom environment (Murray et al., 2011). Often, these studies were conducted specifically on students with difficulties in paying attention, as was this study. However, although data was not recorded for students who were not being specifically observed as having attention difficulties, exercise was incorporated for the entire class and an improved attention span in even those who do not generally have more frequent off-task behaviors was noticed. Unlike much of the research, this study demonstrated that exercise is something that can be easily implemented in the everyday classroom and can benefit all students, not just those on the extreme ends.

Implications for Future Research

This study revealed that, although sometimes we need to look into further methods in order to really improve our students' attention spans, we can often overlook the simplest of strategies. Exercise has always been known to have great benefits for students and yet it is so often one of the first things to be taken away from them as a punishment for off-task behavior. However, this study demonstrates the benefit of adding exercise breaks to assist students in developing longer attention spans.

Conclusion/Summary

It was observed in this study that students of both genders benefitted from having exercise in the classroom before a lesson in order to aid them in developing a longer attention span. Though many additional factors undoubtedly and unavoidably play a role in these observations, it is undeniable that exercise is a key factor in a child's ability to focus and learn. Particularly at the first grade level, students' access to exercise can help to improve their attention span and should certainly be tested further.

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