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Fit to Focus: Measuring the Effects of Physical Activity on Behavior Management

Kaylee Vaughan

Southern Adventist University

Fit to Focus: Measuring the Effects of Physical Activity on Classroom Management

INTRODUCTION

A well known notion is that physical activity has many health benefits such as reducing the risk of obesity and preventing diseases such as diabetes, high blood pressure, and heart conditions, but the impact of physical activity on increasing concentration, academic performance, and reducing fidgeting is not as well understood (Mahar, Murphy, Golden, Rowe, Shields, Raedeke, 2006). WebMD suggest that physical activity does in fact help students not to zone out in class and helps keep them calm (2014). Similarly, Tony Yancey (2010), MD, in her book *Instant Recess*, states that physical activity promotes optimal functioning as well as increased attentiveness. Therefore, could there be a possibility that physical activity also has behavioral benefits? The purpose behind this study is to answer that question. More specifically, does physical activity improve the behavior of students in a classroom setting?

Many teachers, especially beginning teachers, consider classroom management to be one of the most ongoing worries in their career. When the management of a classroom is poorly executed, the teacher ends up putting more time into disciplining the children and less time into teaching them, which in turn can result in lower academic achievement. What if it was possible to significantly improve the behavior (and possibly the academic performance) of a classroom simply by including physical activity into the curriculum? This study sought out to validate that by implementing short sessions of physical activity in a classroom setting, the classroom behavior would improve.

LITERATURE REVIEW

Berlyne (1966) and Ellis' (1984) Novelty Theory suggest that when a person has a change of pace, or recess, they function better, and when they are engaged in an activity for a long enough period of time, they become bored and seek novelty. Research has shown that when children are withheld from a recess, they become less on-task, less attentive and more fidgety. This suggests that children work and think less efficiently when engaged in nonstop instructional time (Jarrett, Maxwell, & Dickerson, 1998).

The study that was most relevant to ours was conducted by Pellegrini who has written several books and articles on the subject of recess (termed physical activity in this study) and its effects on classroom behavior. According to Pellegrini and colleagues, children are generally more restless when recess is delayed and less attentive than before they had recess (1995). According to a similar study by Jarrett (1998) and colleagues, 90% of the students were on-task and only 7% were fidgety after recess. An inconsistency of Jarrett's study was that of the approximately 60 children who participated in this study, 6 children worsened after recess by becoming more fidgety, although 4 of them were from transient housing – shelters or hotels (1998). Pellegrini also observed that the more active children became less on-task after recess, and the more sedentary children became more on task after recess (1993).

Upon researching for this study, I discovered that there was little to no written research conducted on implementing physical activity within the classroom, such as was completed for our study; rather, there was research about the impact of recess on classroom behavior. By definition, the term *recess* refers to a break in whatever one is doing, “a period of time away from the task at hand: an interlude, a change of pace” (Jambor, 1994). According to this definition of recess, the short sessions of physical activity that were used during our research

could be interpreted as recess and therefore, literature about the effects of recess on classroom behavior would be relevant to this study as well.

METHODOLOGY

This research study was conducted in a medium-sized southern suburban parochial school system. We were given permission by the school to implement approximately 10 minutes of physical activity 5 times a week into one 4th grade classroom in an attempt to compare the student's classroom behavior before and after physical activity.

Participants

The participants were all students from one fourth grade classroom with 18 students from a middle-upper class suburban neighborhood located in Tennessee. The ethnicity of the class was approximately 17% Black (n = 3) and 83% White (n = 15). The gender of the class was approximately 45% boys (n = 8) and 55% girls (n = 10).

Each parent, as well as each child, signed consent forms (see Appendix A) and assent forms (see Appendix B) to participate in this study and were informed of its purpose – to study the effect of physical activity on classroom behavior. Altogether, eight students did not participate in this study due to the fact that consent forms were not returned, making a total of ten participants.

Procedure

Before implementing the physical activity into this classroom, my colleague and I first observed this class as a whole while keeping anecdotal notes on which students were called out by the teacher for being off-task, as well as how many times they were called out. The next week, we implemented short sessions of physical activity each Monday, Wednesday, and Friday

mornings. The activities took place between 8:10 a.m. and no later than 9:45 a.m. each morning. Each workout session was an instructional video that could include cardio, stretching, and strength exercises. After each session of physical activity, we would stay to observe for another half hour and take notes on their post activity behavior. On Tuesday and Thursday, the classroom had morning P.E., so on those days we would just observe them before and after their P.E. class to see how or if their classroom behavior changed. We observed them with implemented physical activity for a total of two weeks.

This research in its entirety (both the activity and observations), took place in the students regular classroom while their regular school routine was taking place. The teacher's classroom management style was fairly relaxed. The students, for the most part, were allowed to roam about the classroom freely, whether that was to use the restroom, sharpen pencils, or blow their nose, even if the teacher was teaching a lesson to the class as a whole. The teacher often taught while the students sat on the floor, and at each students desk was an aerobic exercise ball instead of a chair. There were also various stations around the classroom in which students could go to read on a couch, play with the classroom pet, etc., as long as the teacher was not up front teaching the entire class.

The last day that the students participated in implemented physical activity was the day that they received and filled out the closing interview questionnaire (see Appendix C) for this study. The questionnaire consisted of five questions: three yes-or-no questions and two short answer questions. The following day we interviewed the teacher whose class took place in this study to hear her thoughts about the effects (or lack of) the physical activity had on her students' behaviors.

RESULTS

The expected results of this research were that classroom behavior would improve, possibly significantly, with the implementation of daily physical activity.

Observation prior to the implementation of daily physical activity showed that, on average, students were called out three times in the span of the approximate hour that was spent in the classroom each day. After the students engaged in the physical activity, an average of one student were called out in the approximate hour spent observing the class.

The teacher rated the effectiveness of physical activity on classroom management a six on a scale of one to ten. The students, on the other hand, had very mixed feelings about the physical activities' effectiveness. According the end interview questions, approximately 28% of students did not feel that they had become more focused as a result of the physical activity, 17% of students felt that they had become more focused because of the physical activity, and 55% of students were unsure of the effects that physical activity had on them. The percentages of students who felt that physical activity affected their schoolwork go as follows: 23% felt that physical activity helped them do better academically, 44% felt that it did not help them improve academically, and 33% were not sure of the physical activities effect on their academics. As far as physical activities effect on their in classroom behavior, 22% thought that physical activity positively affected their classroom behavior, 39% thought that physical activity did not affect their classroom behavior, and 39% did not know if physical activity affected their classroom behavior.

Another aspect of the questionnaire was the short answer section. The two questions that the students were asked were, "What else, if anything, do you like about doing the daily physical activity?" and "What do you dislike, if anything, about doing the daily physical activity?" The

answers that we received were quite varied. Most of the answers that the students wrote were as simple as that they liked it or that they did not, it was fun or it was not fun. On the other hand, some students responded that they enjoyed physical activity because they were, “able to get [their] energy out and stretch” or “stay fit and get out jiggles”.

CONCLUSION

This study intended to prove the effectiveness of physical activity on classroom behavior, but we found that the improvement of the classroom behavior was short-lived. Within an hour or less of the physical activity, the students no longer seemed as attentive or less fidgety. One possible explanation in this particular studies case is that the length of the exercise sessions were no longer than 10 minutes, therefore the students were not able to get out as much energy. According to the teacher, long implementations of an hour or so, such as recess, have a much more significant effect on the students classroom behavior, both in attentiveness and fidgetiness. Also, the positive effects on classroom behavior lasted significantly longer. These finding by the teacher, likewise, correlate with Pellegrini’s studies on the positive effects of recess on classroom behavior.

One of the strengths of this study is that the research was conducted in a natural setting with the students acting as their own controls. Also, the fact that improvements were visible in this classroom, where freedom was allowed, shows that in a more rigid structured classroom, the benefits of physical activity could have greater significance on classroom behavior.

Limitations of this study include, but are not limited to, the listings in the following paragraph. One limitation of this research study is that the study only took place in one grade level of one classroom in one school. More research would be necessary to determine the effects

of physical activity on various grade levels, classroom settings, and socioeconomic backgrounds. Further research would also be necessary to determine the effects of physical activity on academic success. Another limitation mentioned by the teacher was the fact that, in her particular classroom, physical activity might be more beneficial later in the day seeing as the students are less attentive then and are in need of ways to release their energy. If this study were to have been conducted in the evening rather than the morning, the results of the student's behavior might be more significant. A final limitation of this study was the notion that not every student answered the questionnaire to the best of their ability or knowledge seeing that he or she filled out the questionnaire without any assistance from the stakeholders of this study,

The results of this study, along with the backing of other studies, show that, for most students, physical activity is beneficial for students' classroom behavior and attentiveness. Therefore, uninterrupted classroom instruction is not a sufficient use of instructional time.

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Appendix A

[Informed Consent Form for parents of adolescent girls and boys participating in the research titled, “Fit to Focus: Measuring the Effects of Physical Activity on Behavior Management”]

[Kaylee Vaughan and Rochelle Daughma]

[Southern Adventist University]

[“Fit to Focus: Measuring the Effects of Physical Activity on Behavior Management”]

This Informed Consent Form has two parts:

- **Information Sheet (to share information about the study with you)**
- **Certificate of Consent (for signatures if you agree that your child may participate)**

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

Our names are Kaylee Vaughan and Rochelle Daughma, and we are students at Southern Adventist University in Collegedale, Tennessee. We are doing some research which might help your school do more to help adolescents become healthier and more focused. In our research we will observe in the classroom, implement short physical activities, and talk to the students, both girls and boys, and ask them a number of questions. Whenever researchers study children, we talk to the parents and ask them for their permission. After you have heard more about the study, and if you agree, then the next thing we will do is ask your daughter/son for their agreement as well. Both of you have to agree independently before we can begin.

You do not have to decide today whether or not you agree to have your child participate in this research. Before you decide, you can talk to anyone you feel comfortable with.

There may be some things that you do not understand. Please ask us to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of us or of your child’s teacher.

Purpose

In this study we will implement physical activity within your child’s classroom to see if it has any effect on their behavior, focus, and academic achievements.

Type of Research Intervention

Observation, questionnaires, and/or interviews.

Selection of Participants

We would like to ask your daughter/son to participate in this research study because she/he is an elementary school student and lives in this region.

Voluntary Participation

You do not have to agree that your daughter/son participates in this study. We know that the decision can be difficult when it involves your children. You can ask as many questions as you like and we take the time to answer them. You don't have to decide today. You can think about it and tell me what you decide later.

Procedure

1) Observation:

For the first part of the study, we will simply be observing your child's classroom as a whole to see how they behave in a classroom setting.

2) The following applies only to interviews:

Your daughter/son will participate in interviews with Kaylee Vaughan and/or Rochelle Daughma. If your daughter/son does not wish to answer any of the questions during the interview, she/he may say so and the interviewer will move on to the next question. The interview will take place in A.W. Spalding Elementary. The information recorded is confidential, and no one else except Kaylee Vaughan or Rochelle Daughma will have access to the information documented during the interview.

3) The following applies only to questionnaire surveys:

Your daughter/son will fill out a questionnaire. **OR** The questionnaire can be read aloud and she/he can give me the answer which she/he wants us to write. If your daughter/son does not wish to answer some of the questions included in the questionnaire, she/he may skip them and move on to the next question. The information recorded is confidential, and no one else except Kaylee Vaughan and Rochelle Daughma will have access to her/his questionnaire.

The types of questions likely to be asked will be about her/his feelings of the implemented physical activity on their behavior and focus.

Duration

The entire course of the study will take a month at most. We are asking your child to participate in about ten minutes of physical activity each day for approximately two weeks and in two interviews which will take no more than 30 minutes of her/his time. We will do this inside of school hours. There may also be a questionnaire that we will either provide to your child or which we will do together with her/him. This also takes no more than 30 minutes.

Risks and Discomforts

You must know that your daughter/son does not have to answer any question or take part in the activity/interview/survey if he/she doesn't wish to do so, and that is fine. He/she does not have to give us any reason for not responding to any question, or for refusing to take part in the interview.

Your daughter/son may choose to tell you about the interview and the questionnaire but she/he does not have to do this. We will not be sharing with you either the questions we ask or the responses given to us by your child.

Benefits

There may be no immediate benefits, but it is our hope that your child will become, if only slightly, more physically fit, and obtain increased focus and academic achievement.

Reimbursements

Your daughter/son will not be provided with any payment to take part in the research.

Confidentiality:

We will not be sharing information about your son or daughter outside of the research team. The information that we collect from this research project will be kept confidential. Information about your child that will be collected from the research will be put away and no-one but the researchers will be able to see it. Any information about your child will have a number on it instead of his/her name. Only the researchers will know what his/her number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except Kaylee Vaughan, Rochelle Daughma, and Mrs. Musick.

Sharing of Research Findings

At the end of the study, we will be sharing what we have learnt with the participants and with the community. We will do this by meeting first with the participants and then with the larger community. Nothing that your child will tell us today will be shared with anybody outside the research team, and nothing will be attributed to him/her by name. A written report will also be given to the participants which they can share with their families. We will also publish the results in order that other interested people may learn from our research.

Right to refuse or withdraw

You may choose not to have your child participate in this study and your child does not have to take part in this research if she/he does not wish to do so. Your child may stop participating in the discussion/interview at any time that you or she/he wishes.

Who to Contact

If you have any questions you may ask them now or later, even after the study has started. If you wish to ask questions later, you may contact any of the following: Kaylee Vaughan, 423-310-1009, kayleevaughan@southern.edu or Rochelle Daughma, 914-426-1134, rdaughma@southern.edu

This proposal has been reviewed and approved by Southern Adventist University IRB, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Bonnie Eder at beder@southern.edu.

PART II: Certificate of Consent

Certificate of Consent

I have been asked to give consent for my daughter/son to participate in this research study which will involve her/him completing daily physical activity for the duration of the study, and interviews or questionnaires. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate as a participant in this study.

Print Name of Parent or Guardian _____

Signature of Parent of Guardian _____

**Date _____
Day/month/year**

If illiterate

A literate witness must sign (if possible, this person should be selected by the participant and should have no connection to the research team). Participants who are illiterate should include their thumb print as well.

I have witnessed the accurate reading of the consent form to the parent of the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

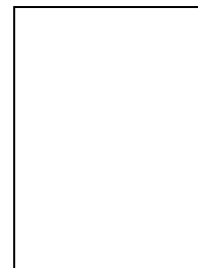
**Print name of witness _____
participant**

AND

Thumb print of

Signature of witness _____

**Date _____
Day/month/year**



Statement by the researcher/person taking consent

I have accurately read out the information sheet to the parent of the potential participant, and to the best of my ability made sure that the person understands that the following will be done:

- 1.**
- 2.**
- 3.**

I confirm that the parent was given an opportunity to ask questions about the study, and all the questions asked by him/her have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this Informed Consent Form has been provided to the parent or guardian of the participant _____

Print Name of Researcher/person taking the consent_____

An Informed Assent Form will _____ OR will not _____ be completed.

Appendix B**RESEARCH ASSENT FORM**

Research Title: “Fit to Focus: Measuring the Effects of Physical Activity on Behavior Management”

Principal Investigators: Kaylee Vaughan, 423-310-1009, and Rochelle Daughma, 914-426-1134

We want to tell you about a research study we are doing. A research study is a way to learn information about something. We would like to find out more about the effect of activity on focus, behavior, and academic success of school children. You are being asked to join the study because you are an elementary student in the area.

If you agree to join this study, you will be asked to do no longer than ten minutes of daily activity with your classmates for two weeks at most and answer a few short questions throughout the study.

The only possible risks associated with this study are injury due to the physical activities. The activities will not be strenuous or time consuming by any means.

We do not know if you will be helped by being in this study. We may learn something that will help other children with their behavior, focus, and academic success someday.

You do not have to join this study. It is up to you. You can say okay now, and you can change your mind later. All you have to do is tell us. No one will be mad at you if you change your mind.

Anything we learn about you from this study will be kept as secret as possible.

Before you say yes to be in this study, we will answer any questions you have.

If you want to be in this study, please sign your name. You will get a copy of this form to keep for yourself.

(Sign your name here)

(Date)

Appendix C**End Interview Questionnaire**

1. Do you feel that doing the daily physical activity has helped you become more focused?

 Yes No

2. Do you feel that doing the daily physical activity has helped you do better in your school work?

 Yes No

3. Do you feel that doing the daily physical activity has helped you behave better in the classroom?

 Yes No

4. What else, if anything, do you like about doing the physical activity?

5. What do you dislike, if anything, about doing the daily physical activity?