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The Relationship Between Physical Activity Classroom-based Lessons and Students Time-on- task

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The Relationship Between Physical Activity Classroom-based Lessons and Students

Time-on-task

by

Aliza Embling

January 2011

A thesis (or project) submitted to the
Department of Education and Human Development of the
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Master of Science in Education

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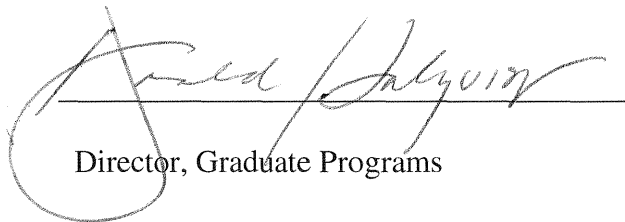
APPROVED BY:



Advisor

12/21/10

Date



Director, Graduate Programs

1/8/11

Date

Dedication

I dedicate this research to my family, who has supported me in all my life endeavors

&

To those teachers who willingly allowed me to come into their classrooms to collect my
data- this would be nothing without you.

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Abstract

This research study focused on the relationship between physical activity in the classroom and students' time-on-task behavior. Students' levels of on- and off-task behavior were compared during typical school days and days in which students received some sort of physical activity instruction. A total of three classes of approximately fifty students were used in data collection through observations and individual student interviews. The resulting data contributed answers to the following questions: Does increased physical activity through movement in classroom lessons provide students with an alternative lesson format that increases their time-on-task, when combined with the usual amounts of physical education and outdoor recess they receive in school? What are the positive and negative outcomes of student experiences with the integration of physical activity into the classroom environment? The study found that overall students' time-on-task increased after physical education and physical classroom-based lesson activities. It was also demonstrated that both male and female students spend at least some time playing outside after schools and on weekends, as well as spend sometime participating in sedentary indoor activities such as video games or watching television.

Chapter One: Introduction

It is a teacher's responsibility to provide students with the most beneficial learning experiences possible. Therefore, it is important for teachers to note all factors and variables that effect students learning, and alter them to best suit students' needs in the classroom. This can be accomplished in many ways and previous research has shown the advantages and disadvantages of many teaching techniques. The problem becomes however, that although teachers are working towards engaging students through lesson formats that move away from traditional direct instruction teaching, students are continually being faced with large amounts of time sitting in their seats. Direct instruction can be altered through the use of various strategies to engage students in learning. Although these new techniques have shown to increase students' interest, particularly socially, they do not physically stimulate students through movement interactions.

Past research demonstrates that physical activity can be included in classroom lessons without decreasing time from academic instruction (Grieco, Jowers, & Bartholomew, 2009). It was the purpose of this study to specifically determine note the effects movement-based instruction have on students' behavior through measuring their time-on-task when physical activity lessons are integrated into the classroom curriculum. Further research would be advantageous to this area of education as some significant yet inconclusive evidence has been provided in previous studies activity (Marhar, Murphy, Rowe, Golden, Shields & Raedeke, 2006). This study hopes to provide additional supporting evidence of a connection between the use of physical activity and on-task behavior of students.

Two particular research questions were central to the creation and application of this research study:

1. Does increased physical activity through movement in classroom lessons increase time-on-task, when combined with the usual amounts of physical education and outdoor recess they receive in school?
2. What are some positive and negative outcomes of student experiences with the integration of physical activity into the classroom environment?

Definition of Terms

For the purposes of this study, several terms are used in conjunction to its methods, results, and past research. Physical activity in this instance refers to the physical movement of students' bodies, where they are up and moving about the classroom setting. This term is specifically used in contrast to direct instruction teaching methods. Physical activity should not be confused with physical education, which refers to the supplemental class students attend in a given amount of time throughout the school week to receive the instruction of a separate physical education teacher.

Time-on-task is used as a measure of students' levels of concentration. When students are considered to be fully on-task, they are completely focused on the given assignment that the teacher has provided and are not influenced by any sort of distraction within the classroom setting. In contrast, when students are considered to be off-task they are giving into distractions around them or are in turn becoming an interruption themselves. Off-task behavior may be categorized into three separate categories: motor, verbal and passive. Off-task motor is categorized by students' movement within their workspace that results in their concentration being averted from the given task at hand.

Likewise, off-task verbal behavior describes incidences when students use verbal language that results in their focus moving away from being on-task. Off-task passive behavior occurs when students are not moving physically or talking verbally but are still not actively participating to the extent that their concentration is clearly on the given task.

Chapter 2: Literature Review

As the art of teaching has progressed over time, teachers have made many efforts to provide students with a well-balanced education. Teachers have developed lesson formats that provide students with a variety of experiences in engaging and safe learning environments. An experienced teacher has a significant understanding of students' needs and can effectively attend to them as needed to achieve desired results within the classroom (Satterthwait, 2010).

Prior to educational advances in various learning formats, the primary instructional technique in which teachers relied upon was direct instruction. Direct instruction is defined by Stockard (2010) as educational experiences that “involve scripted lessons designed to provide teachers with the most effective wording to allow them to present tasks to students at a relatively high rate of speed” (p. 220). This traditional teaching style is still used widely in classrooms today, but with advances it has been enhanced and combined with other learning tools and strategies. In order to increase student learning, teachers include other methods to approach educational experiences. Research has shown that the number one reason for teacher exertions in the classroom is the desire to actively impact students' wellness and needs (Cothran, Kulinna & Garn, 2010). This teacher aspiration is what drives the changes that occur with lesson formats that are attempting to meet all students' needs and engage them in a positive learning atmosphere.

Current teacher training has focused upon the integration of tools and strategies that are believed to be of benefit to students learning. The use of technology has shown to be advantageous to student success when actively used within the classroom (Shriner, Schlee & Libler, 2010). In addition approaches such as Cooperative and Object Mediated Learning allow students to interact and exchange knowledge with one another while providing the opportunity for students to question and seek out explanations (Satterthwait, 2010). All of these techniques are valuable in their own fashion to students learning, but do not move far away from the confining structure of direct instruction teaching. The idea of Embodiment however looks to a mind and body connection to allow students to understand abstract ideas by moving through them (Satterthwait, 2010). This type of learning begins to move towards the idea of including forms of physical activity into the classroom setting. It offers students an outlet to shape their knowledge in a way that varies from the strict structural constraints of direct instructional teaching.

The idea of learning through movement in the classroom environment brings about many questions in terms of the appropriate place for physical activity to occur for children. Should physical activity be confined only to recess time? Researchers Gibson, Smith, DuBose, Greene, Bailey, Williams, Ryan, Schmelzle, Washburn, Sullivan, Mayo & Donnelly (2008) observe the results of direct instruction as “children are required to sit quietly for the majority of the day to receive academic instruction. A typical school day can best be described as sedentary,” (p.2).

Teacher Influence to Physical Activity

Adults are frequently the one to influence or deter the physical activity behaviors of children (Sherman, Tran, Alves, 2010). In schools this role falls upon the teacher, who has the power to dictate the amount of physical activity students receive while in their classroom throughout each day. The addition of another factor of learning, such as physical activity into the classroom, can be challenging when there are already several pressures in place for teachers. Parents, administrators, colleagues and students, can create pressures for teachers and their teaching practices (Cothran et al., 2010). Each of these entities causes teachers to look at how every moment of the day is being spent in the classroom and if ultimately the students are benefiting from their instruction. State and district-wide standards force teachers and administrators to make difficult decisions about how time in school should be spent (Castelli, Hillman, Buck & Erwin, 2007). The challenge to teachers then becomes: how can physical activity be included in the school day and in the classroom without taking time away from other learning experiences?

Since youth spend much of their time in a school environment, it can be viewed as an optimal opportunity to promote physical activity (Marhar, Murphy, Rowe, Golden, Shields & Raedeke, 2006). Depending upon the efforts of the classroom teacher, this physical activity can be as small as allowing students to stand and move while receiving instruction, or as large as an entire integrated unit which allows students to learn through movement. Implementing a change in the physical environment to the classroom can enable students to stand and move at workstations instead of using traditional classroom desks (Bonner, 2010). A modification such as this may seem minor in terms of physical

activity levels, but it is only the beginning of efforts that can be made to increase movement within the classroom without disrupting time devoted to academic success.

Learning Theories

There have been multiple theorists who have looked to specific student needs and sought out explanations as to why one child may learn in a different manner than another. Jean Piaget has become one of the most well known theorists who have looked to how students develop cognitively. He generated four major stages of development that a child endures from birth until the age of about fourteen. This forefront of theory paved the way for a connection between psychological development in children and its use in the world of educational curriculum and instruction (Piaget, 1953).

Building upon the foundation introduced by Piaget, Jerome Bruner (1961) also developed a theory which focused on a constructivist approach to education. It was his belief that students learn through discovery learning, which focuses on students cognitive abilities through active learning. Bruner's hypothesis states that learning is an active and social process in which students use to create ideas or concepts based upon the knowledge they are presented with. This approach to learning demonstrates one way in which students can intake information. Having a background in such a theory has the potential to be beneficial for both teacher and student.

In addition to psychological learning development theories, Gardner (1983) created a list of learning intelligences in which children participate throughout their educational experiences. He stated that there are several intelligences that a child could cater to, and that each student will take something different away from a learning experience based upon how they take in knowledge. These learning styles include:

Linguistic Intelligence, Musical Intelligence, Logical- Mathematical Intelligence, Spatial Intelligence, Bodily-Kinesthetic Intelligence and Personal Intelligence. With the basis of both psychological and educational theorists there has been a constant development and implementation of teaching techniques which aim to engage students and increase their success in education.

Physical Activity Curriculum Integration

It has been demonstrated through practices that it is possible to include physical activity into the curriculum given without disrupting the learning targets that are set within state and district standards (Oliver, Schofield & McEvoy, 2006). Curriculum integration allows subject areas to become intertwined to allow students to experience multiple areas within the same lesson. There have been multiple advances and efforts by teachers to combine subject areas within the classroom, but not many have gone to the extent of incorporating movement into their lessons.

A study conducted by Oliver et al. (2006) demonstrates the possibility of curriculum integration beyond academic subjects to include other life aspects such as physical activity. This research provided teachers with an integrated curriculum of multiple subject areas: English, Social Studies, Math, Statistics, and Physical Education. Teachers in this study were trained to teach this specific integrated unit that provides students with a “virtual walk” around their home country of New Zealand. This four-week long unit not only presented students with lessons that allowed them to make connections between the subjects that they learn regularly in the classroom, but also to their home environment of New Zealand. A key component to this research is that it also included physical activity. By linking academic objectives that are already in existence

to physical activity, teachers are able to include movement in classroom lessons while maintaining the necessary learning targets for students and enable the teaching of core concepts to students without decreasing time devoted to academic instruction (Gibson et al. 2008; Grieco, Jowers, Bartholomew, 2009).

Zhou & Kim (2010) researched the idea of curriculum integration and its relation to the perspectives of teachers. “Curriculum integration was proposed as an alternative to the conventional school subjects that were designed to parallel major academic disciplines of mathematics, science, arts, philosophy and humanities” (p. 124). Before the emphasis for curricular integration, the traditional teaching style for the education of students was through separate single-subjects that were specifically divided (Shriner et al. 2010). The idea of integrating multiple subject areas together allows students to make connections among the themes they are learning.

Zhou et al. (2010) also describes that integration of subject areas can bridge academics to the real world and a child’s community environment. The Sport, Play, and Active Recreation for Kids (SPARK) program makes a large attempt to do so through a curriculum that is designed to promote physical activity and fitness both in and out of the school setting (Sallis, McKenzie, Kolody, Lewis, Marshall & Rosengard, 1999).

Benefits of Physical Activity

Faucette, Nugent, Sallis & McKenzie (2002) included the SPARK program in a study that focused on teacher responses to the inclusion of physical activity into the classroom. Interviews showed that after they received training and experience in the use of SPARK teachers felt more positive about their abilities to include physical activity in their classrooms than in previous years. They also described their belief that students had

benefited overall and had increased their activity levels as a result of SPARK. Benefit in this manner is defined as factors that were advantageous to student learning. These include improvements among students in: physical fitness, psycho-motor skills, social and cognitive development, positive role models, time dedicated to physical activity, and the transfer of features learned from classroom to community (Sherman et al., 2010).

The research that has been done in the area of physical activity in the classroom and its effects on students' success has demonstrated multiple benefits for children. Perhaps the most obvious effect is the improvement on students' physical well-being. Castelli et al. (2007) determined that overall the use of physical activities has the potential to greatly impact individuals' physical fitness. This also relates to the findings of Kristjánsson, Sigfúsdóttir & Allegrante (2008) who also looked at the dietary habits of students and how they influenced their success in school. This study found that consuming what they defined to be "bad" foods was negatively correlated to students' academic achievement and that eating more "good" foods resulted in a significant connection. In terms of physical development, Ericsson (2008) also found students benefit from the inclusion of physical activity in the classroom in building crucial motor skills.

Research in this area has also focused on the effects of physical activity on students' academic achievements, which to educational administrators seems to be of the most interest. There have been several studies which use fitness or activity programs and standardized tests as a gauge for measuring the influence of activity on students' academic success. The overall conclusions of these studies have shown that generally components of physical fitness have positive associations with academic performance in

children (Castelli et al., 2007; Chomitz, Slinning, McGowan, Mitchell, Dawson, & Hacker, 2009; Kristjánsson et al., 2008; Sallis et al., 1999). Although each of these cases exemplifies a connection between physical activity and overall achievement on standardized test scores, they do not result in extremely conclusive evidence as to the extent to which these activities have an influence on academic success and how students respond specifically to the components of physical activity.

Time-on-Task

One of the distinct characteristics that researchers have actually delved into deeper in terms of physical activity and its connection to academics is in students' behavior as a result of movement. Increased self-esteem and confidence in students is one such behavioral result that has been discovered as a product of long-term use of physical activity in the classroom (Chomtiz et al., 2009; Kristjánsson et al., 2008; Yu, Chan, Cheng, Sung, Hau, 2006). Multiple researchers have also looked specifically at the behavior of students in terms of their time-on-task in the classroom environment. Time-on-task refers to the amount of time students' attention, concentration, and focus is on a specific task. Grieco et al. (2009) used observations as a measurement to view the effects of students' time-on-task after classroom-based physical activity lessons and noted if students were "on-task" or "off-task" before and after students participated in a lesson format that included physical activity. The results of these observations showed that student's time-on-task after a traditional direct instruction lesson significantly decreased. In contrast, after the physical activity lesson students on-task behavior slightly increased.

The format of categorizing students into "on-task" and "off-task" when measuring their time-on-task has been used in several studies. Mahar et al. (2006) observers used a

chart that had students placed into the categories of: on-task, off-task passive, off-task noise, and off-task motor. Delving deeper into more specific forms of “off-task” behavior in this research yielded additional variables to be used in drawing conclusions of the influence of physical activity in the classroom setting.

Even though there are multiple studies that focus on students’ behavior in terms of time-on-task in the classroom, they have resulted in less than conclusive outcomes. They provide a general positive connection of physical activity to an increase in students’ time-on-task, but they do not offer greater detail among the relationships of physical activity and students’ level of concentration. They also lack in considering the possible limitations of physical education classes and their influence on students success and the interference with the physical activities they are implementing and observing. Existing research in time-on-task due to physical activity also fails to make connections between classroom lesson activities and students experiences with them. Overall, it is necessary to focus more specifically on each individual classroom component to make more than a general consensus of the connection between physical activity and the outcomes of students’ experiences.

Therefore, it is the intent of this study to look deeper into students’ experiences with physical activity in the classroom through clear observational data and student interviews to gauge effects and their relation to student success. Although teachers are working towards engaging students through lesson formats that move away from traditional direct instruction, students are continually being faced with large amounts of time sitting in their seats throughout the school day. This is a problem that many classrooms throughout the world must begin to question, and it is the hope of this study

to provide supportive evidence that would demonstrate the outcomes of physical activities through specific observational data that may offer a possible solution to this issue.

Chapter 3: Applications and Evaluation Methods

It is the intent of this study to look deeper into students' experiences with physical activity in the classroom. First-hand observational data and student interviews were used to gauge effects of physical activity and their relations to student success. Although many teachers are working towards engaging students through lesson formats that move away from traditional direct instruction, many of these new methods still keep students in their seats throughout most of the school day. This is a problem that many classrooms throughout the world must begin to question. Specifically, this research will focus on students' behavior on a typical school day, a day which students receive physical education class, and a day which incorporates a physical activity lesson into the classroom and will note their relation to students' time-on-task.

Thus, two research questions were sought to be answered and supported:

1. To what extent does increased physical activity through movement in classroom lessons have on students' time-on-task, when combined with the usual amounts of physical education and outdoor recess they receive in school?
2. What are the positive and negative outcomes of student experiences with the integration of physical activity into the classroom environment?

Participants

Data for this research study was collected from three classrooms in a suburban school district in upstate New York. All classrooms were located in the same elementary school. One classroom consists of inclusive kindergarten, first and second grade, and the others are at the third and fourth grade level. My intentions for this research are relevant to elementary age students and those selected to participate fulfill the requirements necessary to successfully collect reliable and pertinent data. Parental and student consent for participation was received for all students involved, and therefore data collected from all students in each classroom are represented.

Table 1

Potential Participants v. Actual Participants by Classroom

Classroom	Grade Level(s)	Number of Students	
		In the Classroom	With Parental Consent
A	Inclusive K, 1 st , 2 nd	8	6
B	3 rd	23	23
C	4 th	19	19
Total:		50	48

Participants in this study were chosen as a convenience sample, based upon their teacher's and parents' willingness to be a part of this research. In two incidences classrooms were suggested to be contacted for participation from other teachers who did not wish to partake for various reasons, and therefore the convenience sample morphed

into a snowball sample of classrooms. This form of sampling could potentially lead to limitations as it was not completely random-based. However, the snowball effect allowed for the opportunity of other teachers to become involved that may not have previously been considered. It is challenging for this research to be completely random when the teachers must consent for their classroom to be involved at all. Therefore, although limitations could potentially limit the results drawn from the data collected, it was most appropriate way to select the classrooms who participated.

Students who took part in the post-physical activity interviews were selected at random, but were purposely stratified so that even numbers of male and female students were chosen to be representative of the sample population. This was done to assure a broad selection of students while maintaining a balance of sex to be related as a variable in conclusion data.

My intentions for this research are relevant to elementary age students and those selected to participate fulfill the requirements necessary to successfully collect reliable and pertinent data.

Procedures and Instruments

Data was collected for this research primarily through classroom observations. Each classroom was examined on three separate days, and each observation day had a clear focus. The focal point of these three days were: (A) a typical school day which included no additions of physical activity or physical education class, (B) a typical school day which students receive physical education class, and (C) a school day which includes the addition of a physical activity classroom-based lesson.

Observational data was compiled through the completion of a chart by the observer that was modified from an existing research format (Misakos, 1986) to meet the needs of this study (Appendix A). This chart designed specific notations of student behavior as on-task and off-task in a specified amount of time. Each student within the classroom was observed in a round-robin fashion for each designated minute on the observation chart. Once the entire participating class had been recorded for that minute, this was repeated until each student had been observed for a total of fifteen minutes. The researcher notated per the given observation code key the behavior of the students as: on-task, off-task motor, off-task passive or off-task verbal. The sex of the students being observed was also noted, as this was used in the analytical results. This method of observation was used with all students who consented and received parental permission in each of the participating classrooms.

Observations using the described chart occurred on each of the three designated focus days with each classroom involved. Day (A) consisted of one completed chart, as this serves as the control group of data to compare the addition of variables to. Day (B) and (C) both included pre and post observations before and after students went to physical education or participated in the physical activity classroom lesson.

The physical activity lesson that was used for this research study was intended to integrate movement into the classroom environment while maintaining academic objectives that would typically be in place within the schools curriculum. Each of the three teachers involved volunteered to teach this physical activity lesson and used the topic in which they were currently studying to remain consistent with learning targets. This lesson was altered from an existing activity to include increased amounts of

movement through the addition and practice of locomotor skills (Appendix B-D). The observations on focus “Day C” were based upon the pre and post behaviors of students who engaged in this physical activity lesson.

Brief interviews were also conducted with students from each of the three participating classrooms. These students were chosen in a gender-stratified random manner and were asked a few questions after the post-observational data was collected by the researcher (Appendix E). The questions asked were intended to gain the students’ perspective on the inclusion of physical activity into the classroom as well as to expand on students’ experiences in and out of the classroom environment. The interviews were conducted within the classroom setting and were done verbally with the researcher writing down students responses.

All observations and interviews were conducted by the same researcher in order to avoid any discrepancy in results and to allow a connection of familiarity among the researcher and the students and teachers involved. The researcher had no particular previous experiences in specifically addressing the topic of this study, but had only observed the possible differences in student behavior after physical activity through general teaching and classroom occurrences.

To maintain trustworthiness, a negative case analysis was performed in the concluding data gathered in this research. Patterns were noted that emerged from various variables and limitations and those areas were specifically looked at for additional conclusions when the objectives and expectations of this research were not met.

Chapter 4: Results

Data was analyzed for a total of 48 out of 50 elementary school students (parental consent was not obtained by two students). Overall data demonstrated that physical activity, be it during physical education classes or in the regular classroom, is positively related to students' time-on-task behavior (Figures 2, 3). This relationship was found in all three participating classes (A, B, C), which showed that the measured time-off-task decreased and therefore students' time-on-task behavior increased.

A control was measured to illustrate a typical school day lesson that students participated in to compare against the data collected pre and post physical activity. Figure 1 shows that most of the classes had relatively on-task behavior, but that Classes A and B were much closer in the distribution of on-task and off-task behavior among students than Classroom C.

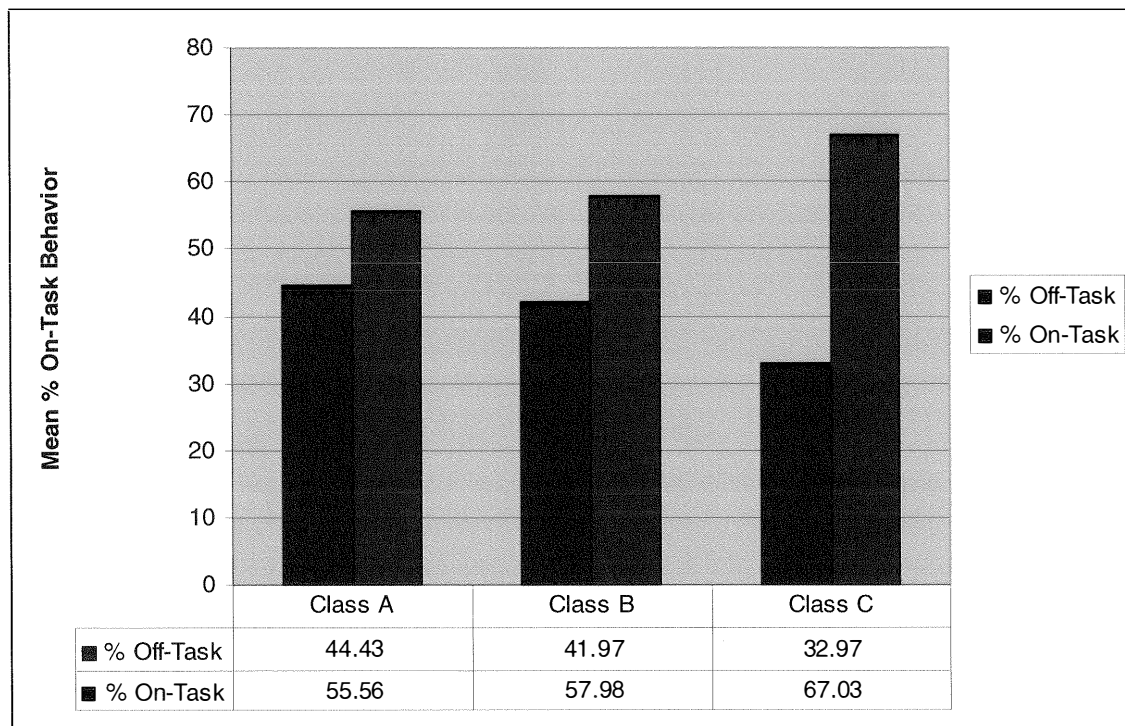


Figure 1. Mean percentage of task behavior for Day A.

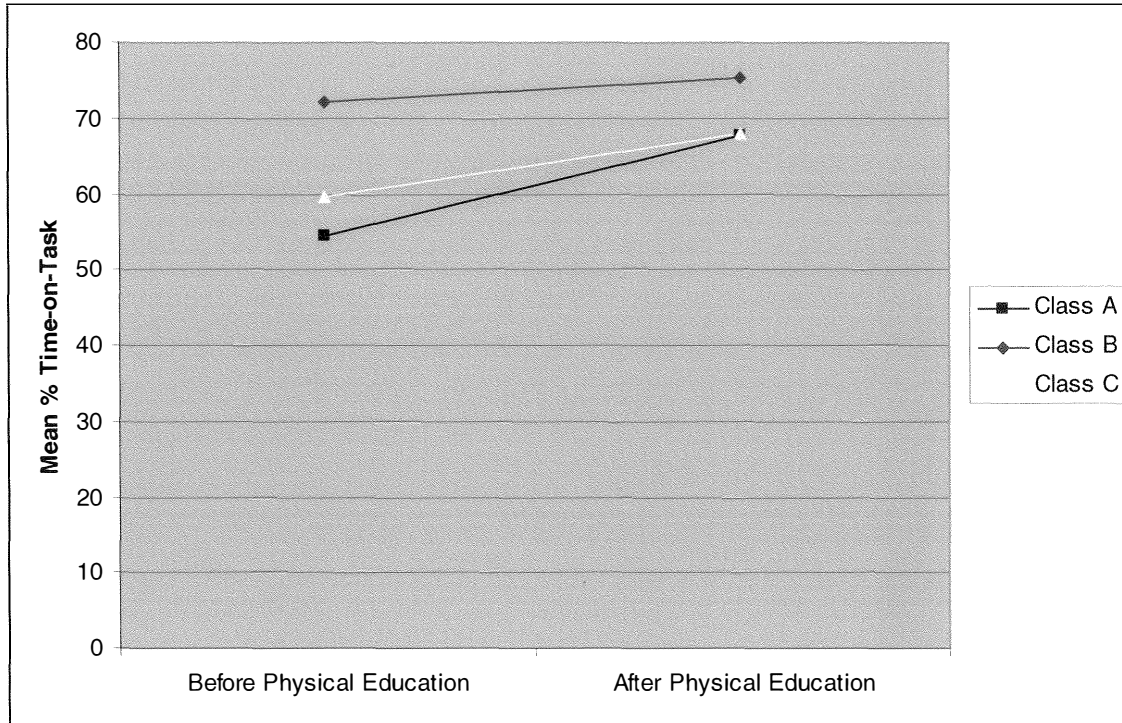


Figure 2. Mean percentage of task behavior for Day B.

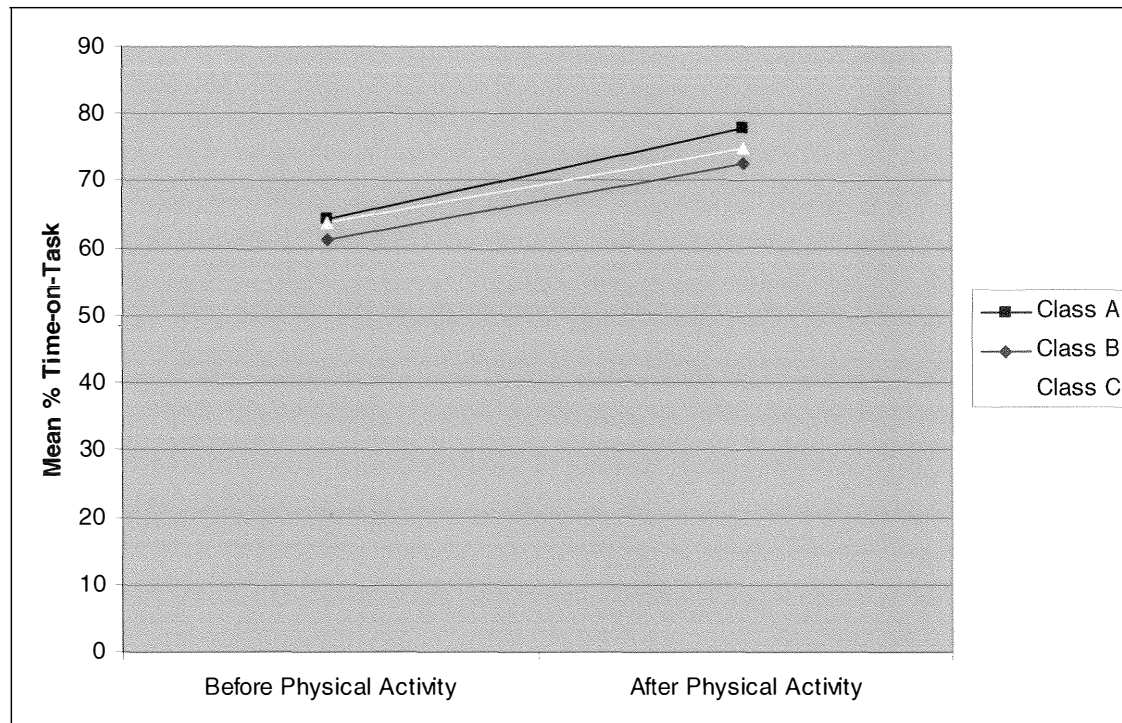


Figure 3. Mean percentage of task behavior for Day C.

The mean percentage was calculated for each of the three classes' time-off- and time-on-task. Table 2 shows the differences in the mean percentages of on-task behavior, where Class A had the greatest improvement in time-on-task after physical education class as well as the classroom-based physical activity lesson.

Table 2

Mean percentage differences in student's time-on-task - before and after

Classroom	Physical Education Class	Physical Activity Classroom Lesson
A	13.33	13.45
B	3.19	11.30
C	8.42	10.88

It can also be seen from Table 2 that overall the physical activity classroom lesson had a more significant impact on students' time-on-task behavior for Classrooms B and C. The effect on Class A did not vary by delivery method; it didn't matter whether their physical activity came in class or during physical education, the effect was the same. There is a large differentiation between physical activity received from the classroom lesson and from physical education class for Class B. There are several factors that can attribute to such a difference, which will be discussed in the limitations section of this study.

Classes A and C demonstrated that students' time-on-task increased from the typical day to after physical education class and then increased once again after the physical activity classroom lesson (Figure 4). Class A clearly has a larger difference among all three total observation days, as discussed above. Class C also developed a

similar pattern, but the differences between the days are not quite as significant. While Classes A and C saw a much greater effect from the physical activity lesson (in-class) than from the physical education class, Class B saw the same effect from both delivery methods. Also displayed in Figure 4 is a variation in the control “typical day” of on-task behavior for all three classes. In all cases, the “control days” provided the lowest percentages of on-task behavior of students. As demonstrated overall, Class A had the largest differentiation between the typical day and the days which included physical activity.

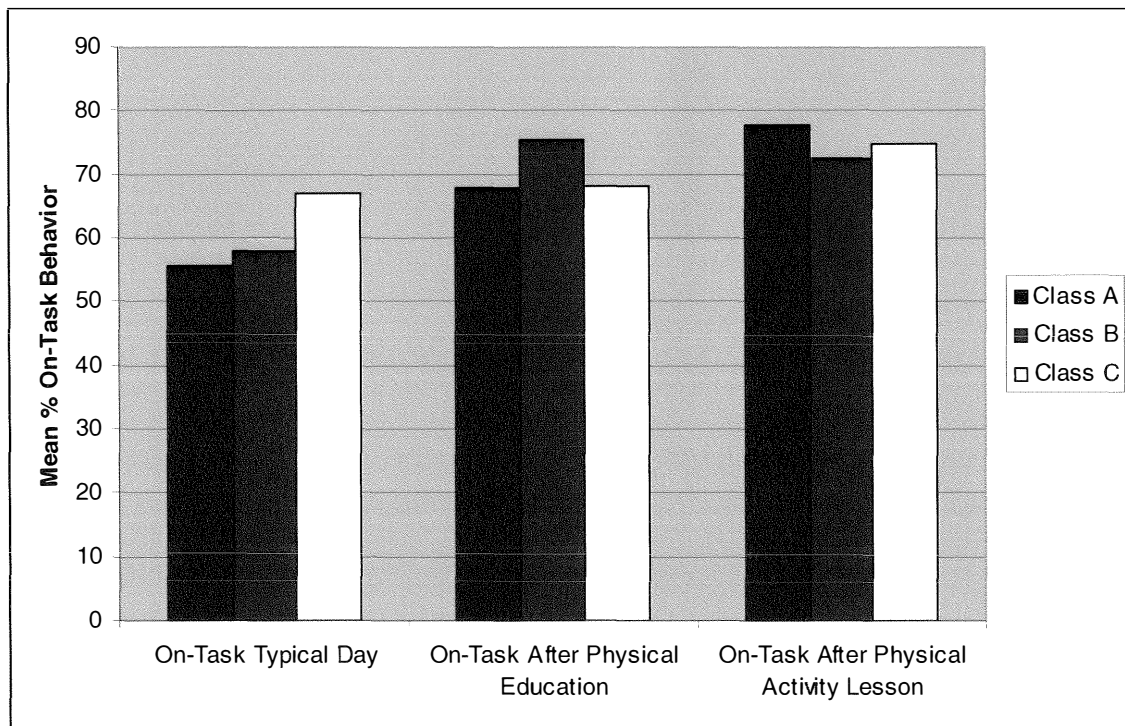


Figure 4. Mean percentage of on-task behavior for each measured day.

Gender Responses in Time-on-Task Behavior

This study also sought out to note the similarities and differences of responses in male versus female students’ on- and off-task behavior. To determine the discrepancy between male and female responses, the frequency of the specific off-task behavior that

was observed in each class was calculated for male and female students. The off-task behavior of each student was broken down into off-task motor, off-task verbal and off-task passive. In all classes (A, B, C) male students had a higher total of off-task behavior after physical education class (Figures 5-10), with the exception of Class C in Figure 10 where male and female off-task totals were equal. When looking specifically at each type of off-task behavior, there seems to be no specific pattern as to which off-task behavior had the highest frequency in relation to male or female students.

Looking at the total off-task behavior in relation to before and after physical education class, it can be noted once again that the totals after the physical activity yielded lower numbers of off-task behavior in both male and female students in all participating classes (Figures 5-10). Although some of the specific off-task behaviors (motor, verbal, passive) increased after the physical activity, it is clear through the totals that the physical activity had an effect on decreasing students' off-task behavior.

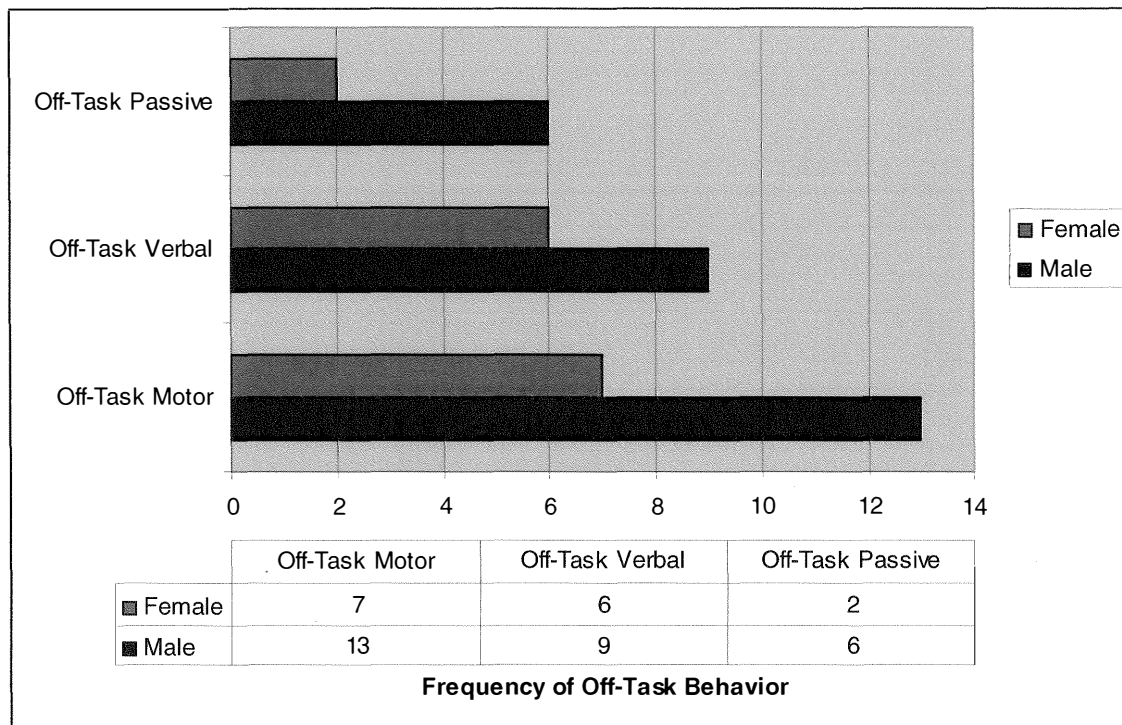


Figure 5. Frequency of time-on-task: Class A - before physical education class.

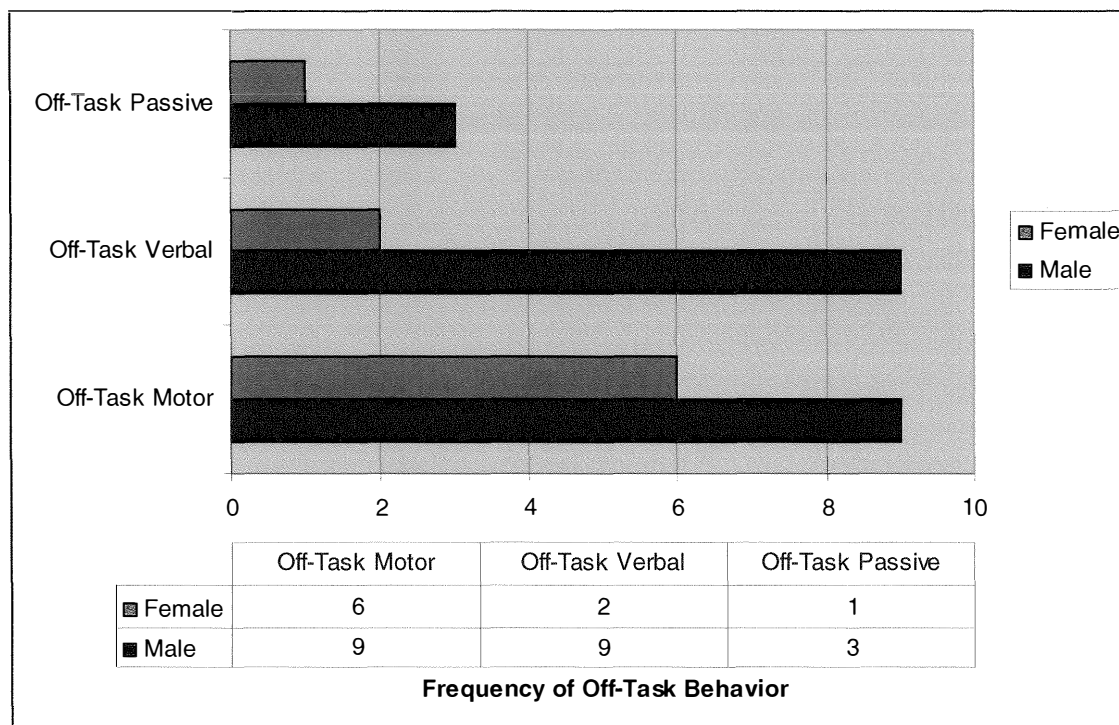


Figure 6. Frequency of time-on-task: Class A - after physical education class.

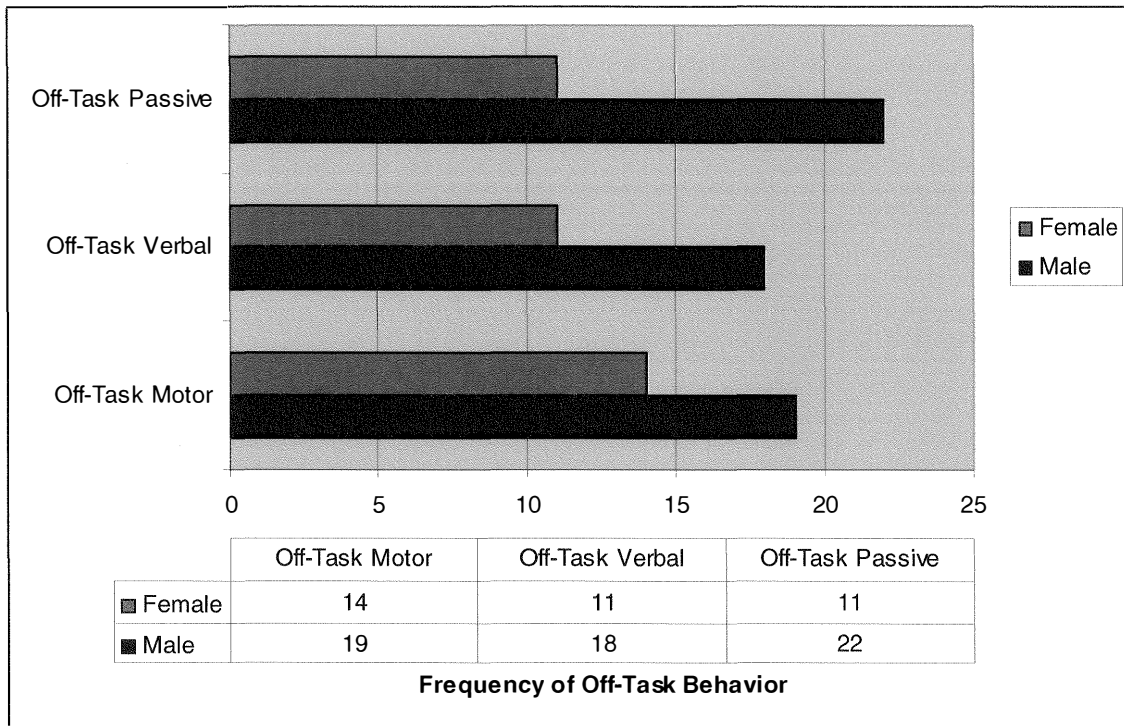


Figure 7. Frequency of time-on-task: Class B - before physical education class.

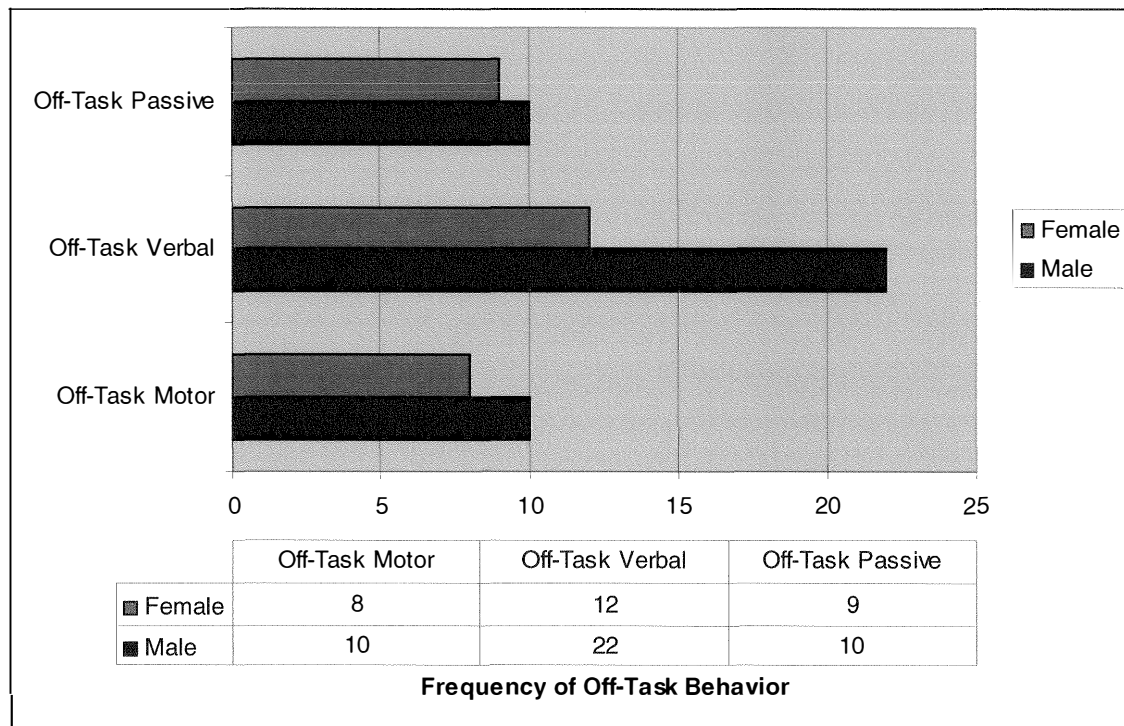


Figure 8. Frequency of time-on-task: Class B - after physical education class.

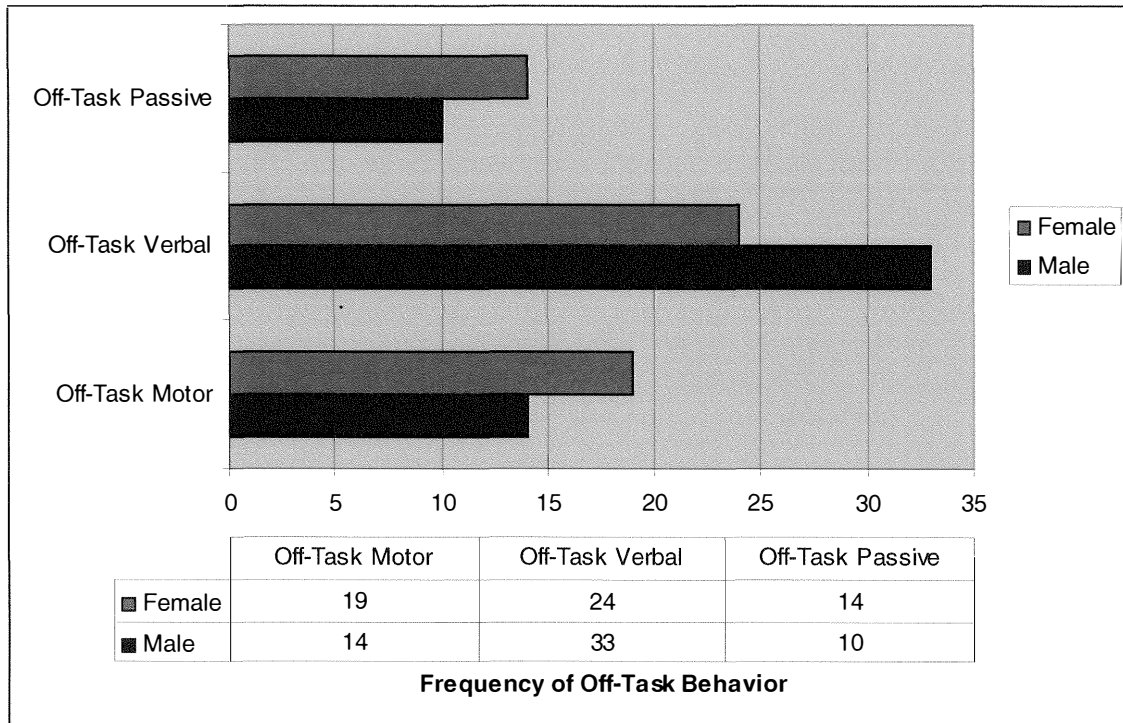


Figure 9. Frequency of time-on-task: Class C - before physical education class.

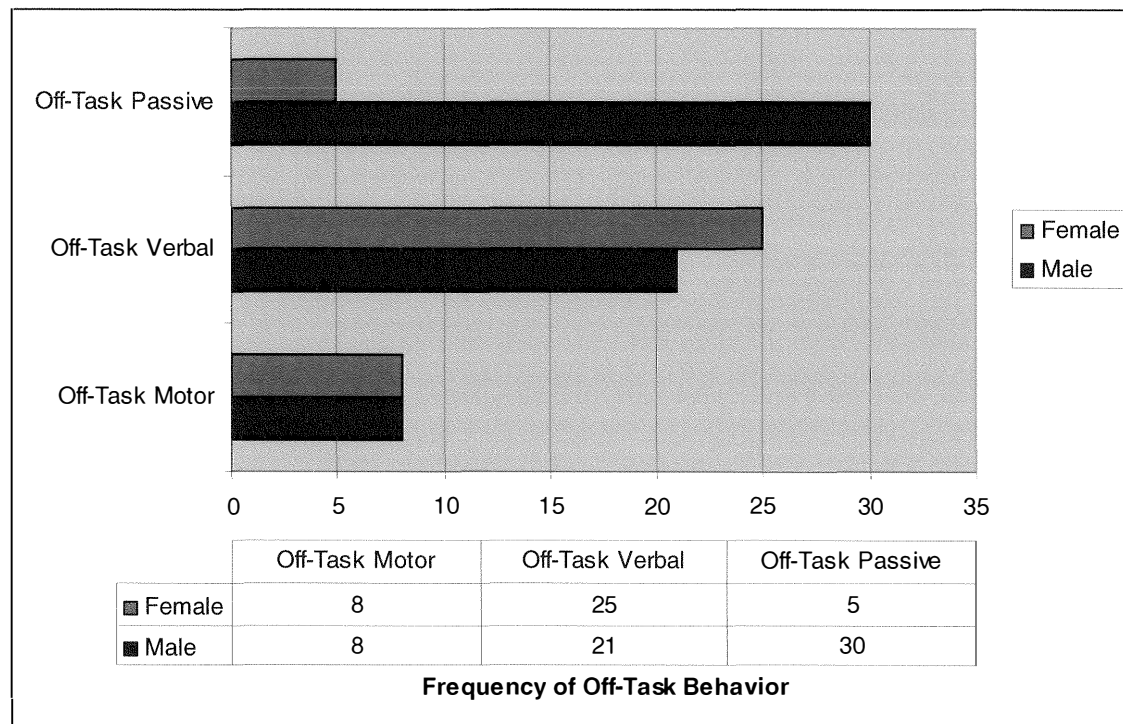


Figure 10. Frequency of time-on-task: Class C - after physical education class.

The data collected pre- and post- the physical activity classroom-based lesson also demonstrates a positive relationship between physical activity and the decreasing amounts of off-task behavior. In terms of the frequency of off-task behavior, once again it becomes apparent that males have a higher amount of total off-task behavior (Figures 11-16). There are a few exceptions where females had a slightly higher frequency of off-task behavior (Figures 12-16). In most of these cases females had a higher frequency in off-task verbal behavior, and in Figure 15 male and female had an equal frequency.

There is no specific pattern once again among the frequencies of each off-task behavior. There are some incidences where females have a higher frequency than males and cases where the reverse is true. There does not appear to be a clear relationship among sex and a specific off-task behavior. It is important to note the number of male and female students that participated in each class when comparing the frequencies of each individual class against one another (Table 3).

Table 3

Number of participating students - by sex

Classroom	Male	Female	Total
A	4	2	6
B	12	11	23
C	10	9	19
Total	26	22	48

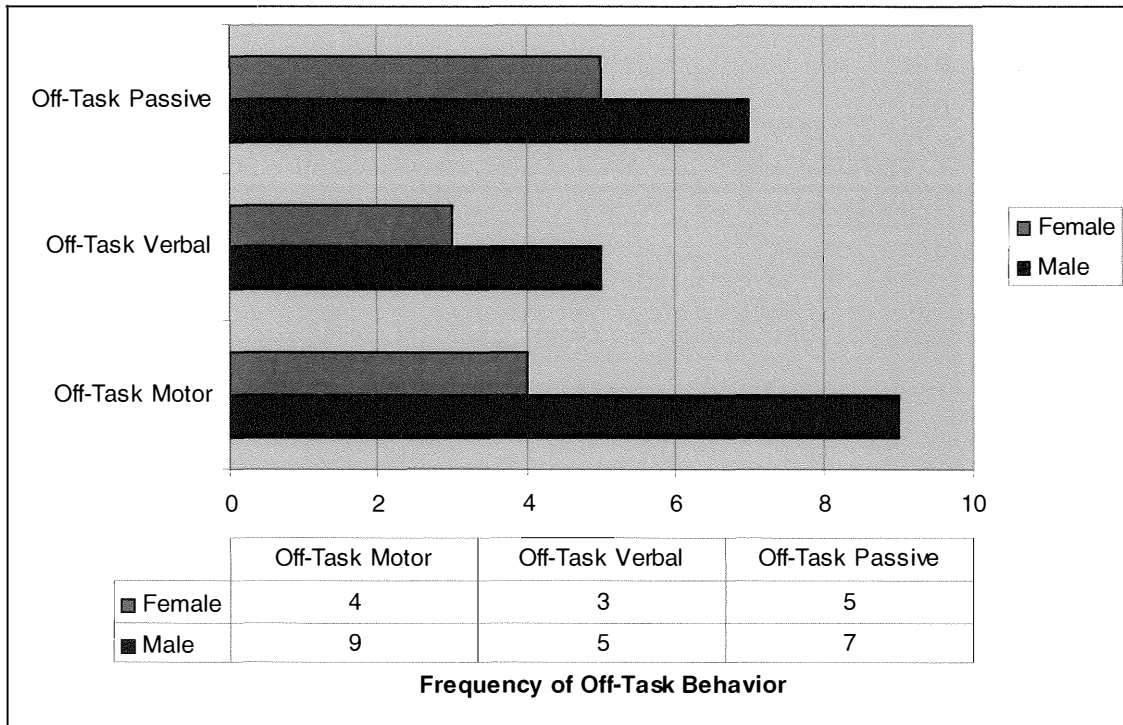


Figure 11. Frequency of time-on-task: Class A - before physical activity lesson.

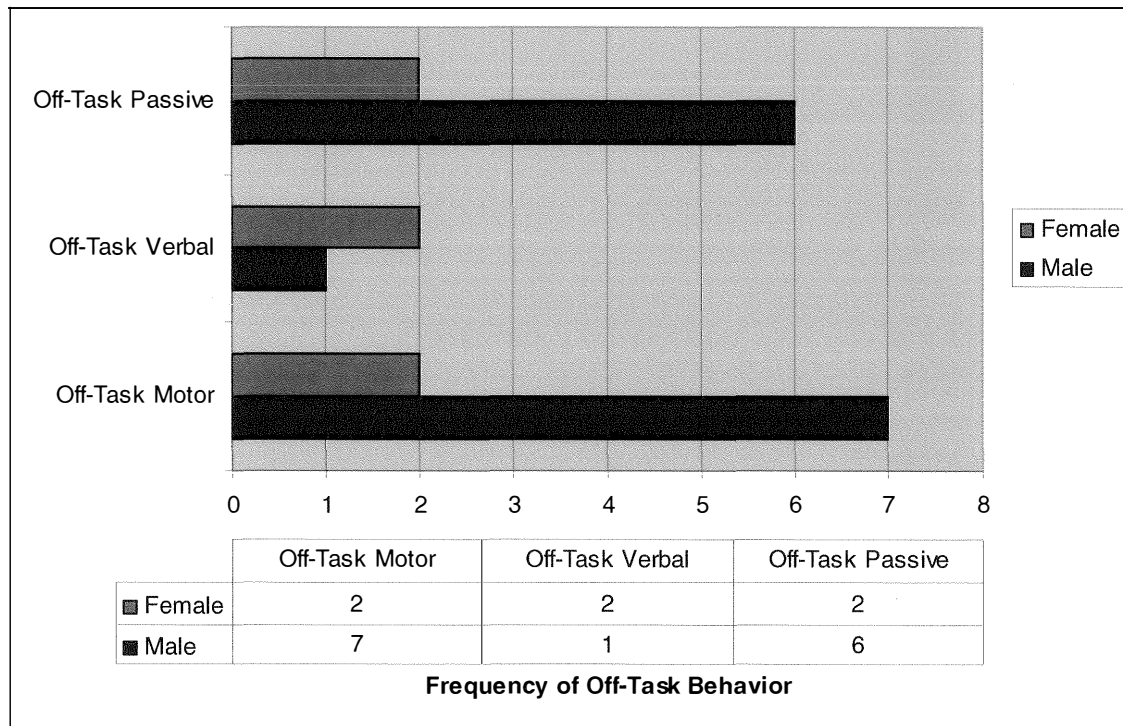


Figure 12. Frequency of time-on-task: Class A - after physical activity lesson.

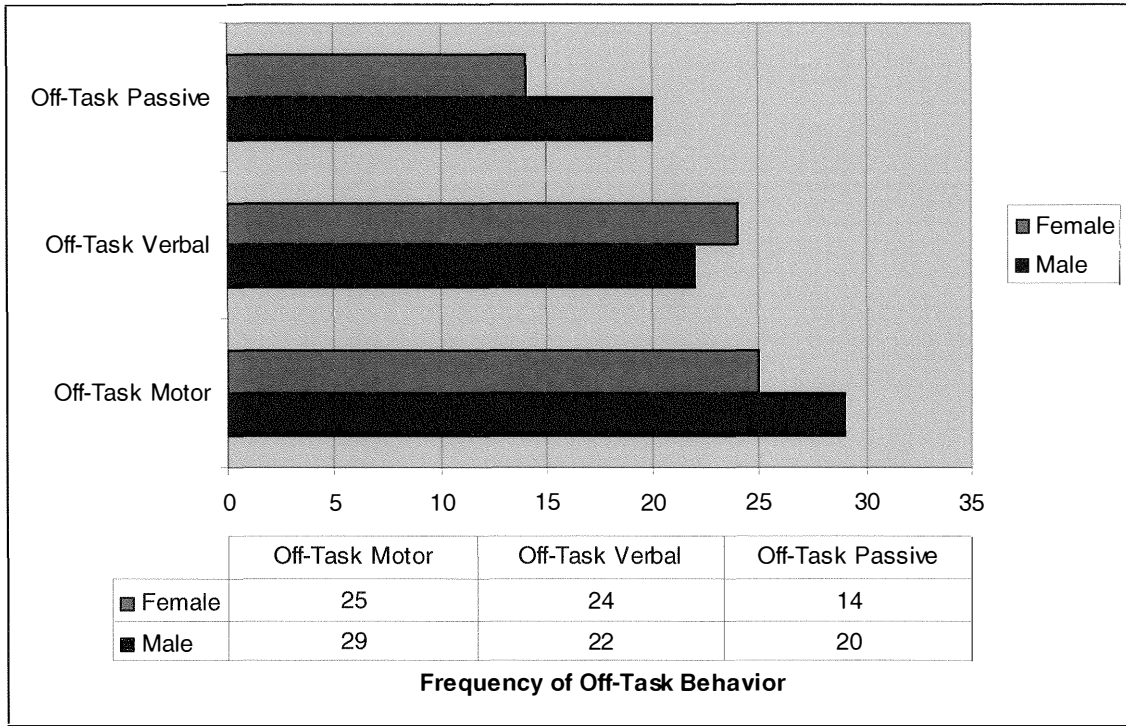


Figure 13. Frequency of time-on-task: Class B - before physical activity lesson.

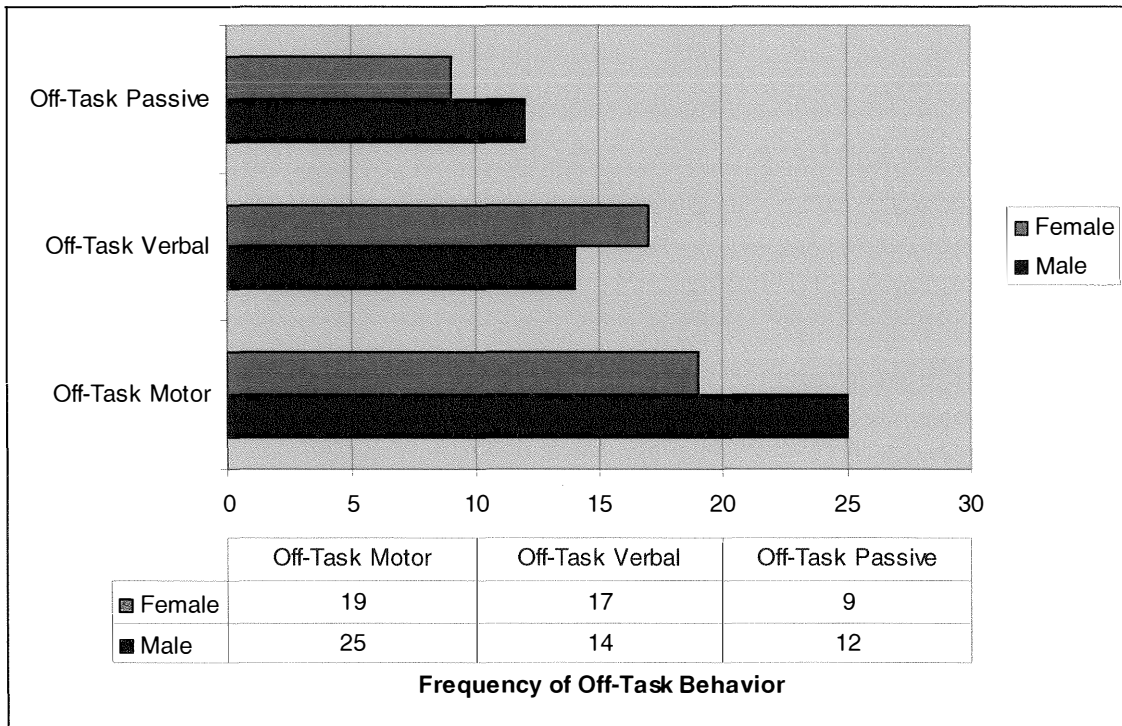


Figure 14. Frequency of time-on-task: Class B - after physical activity lesson.

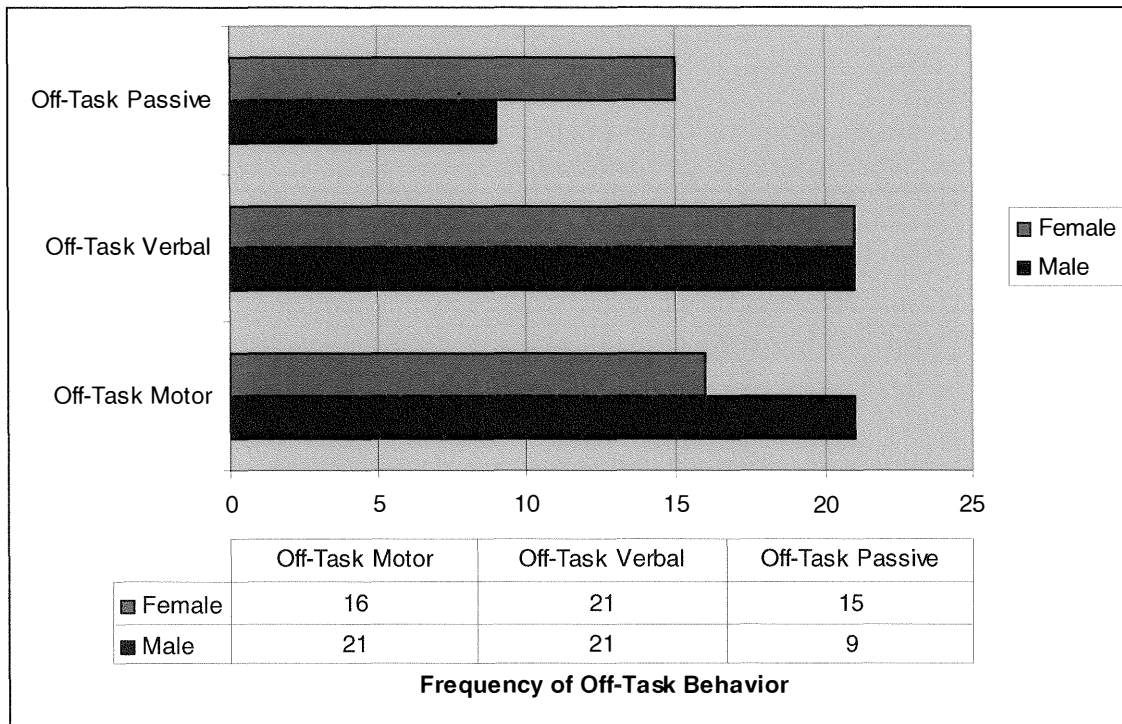


Figure 15. Frequency of time-on-task: Class C - before physical activity lesson.

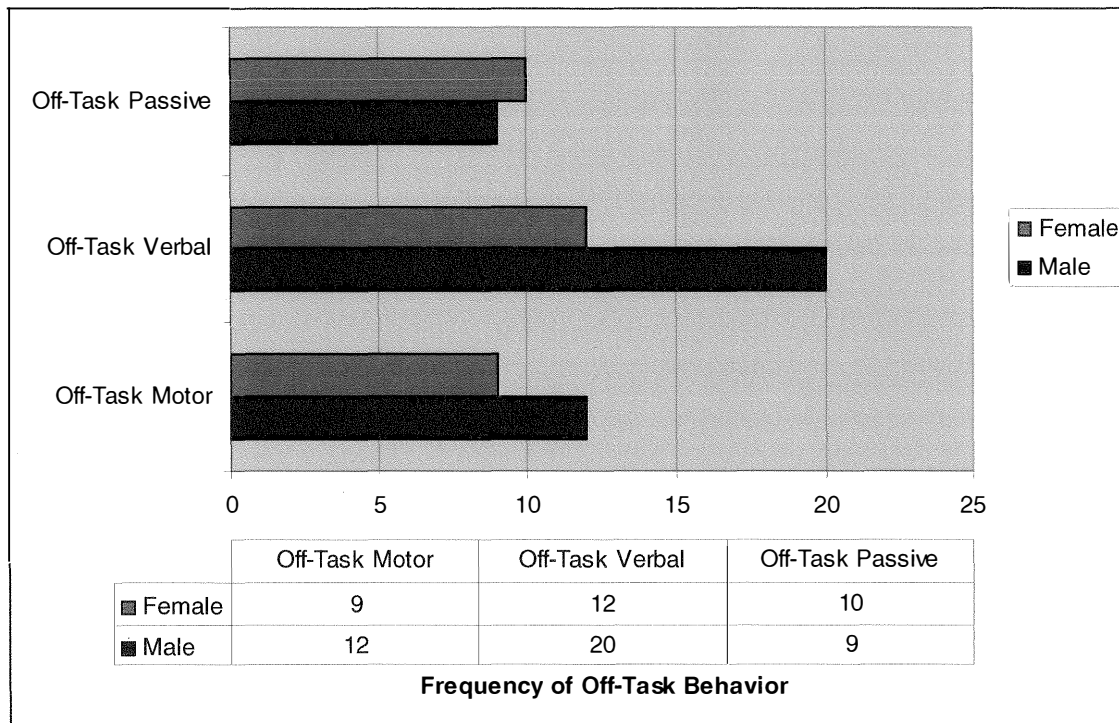


Figure 16. Frequency of time-on-task: Class C - after physical activity lesson.

The difference in frequencies calculated for both male and female students in all three participating classes were also noted. On the days in which students went to physical education, Classes A and B had a larger improvement in decreasing students' time-off-task in males and Class C in female students (Figure 17).

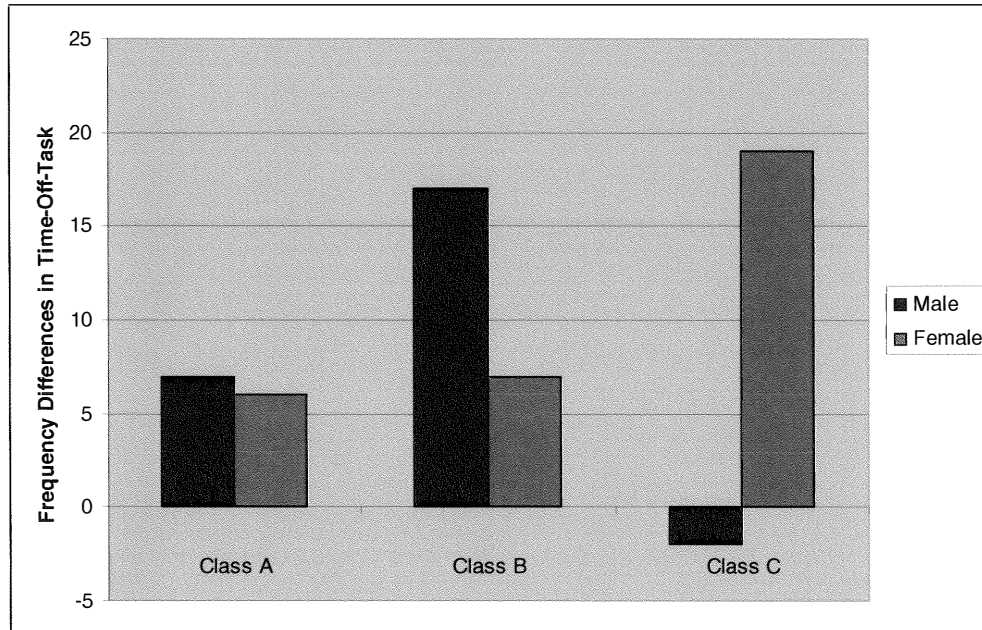


Figure 17. Sex differences in time-off-task behavior for Day B - physical education.

Classes B and C had the most considerable difference between male and female students. These classes had a more proportionate ratio of female to male students, which is important to note when comparing the differences to Class A. In addition, it is interesting to observe that not only did the females in Class C have much larger improvements in the differences in time-off-task, but that the males actually did not improve at all, and in fact worsened in their time-off-task between pre- and post- physical education class.

On the day in which students were observed before and after a physical activity classroom-based lesson, there were also significant frequency differences between male

and female students off-task behavior (Figure 18). In this case, Classes B and C showed a significant disparity in sex, where the female students had a larger difference than the males. For the males in Classes B and C, the frequency was equal, but for the females Class C had a slightly larger difference in frequency of off-task behavior. Class A demonstrated a minor improvement in frequency in the males in the classroom in comparison to the female students.

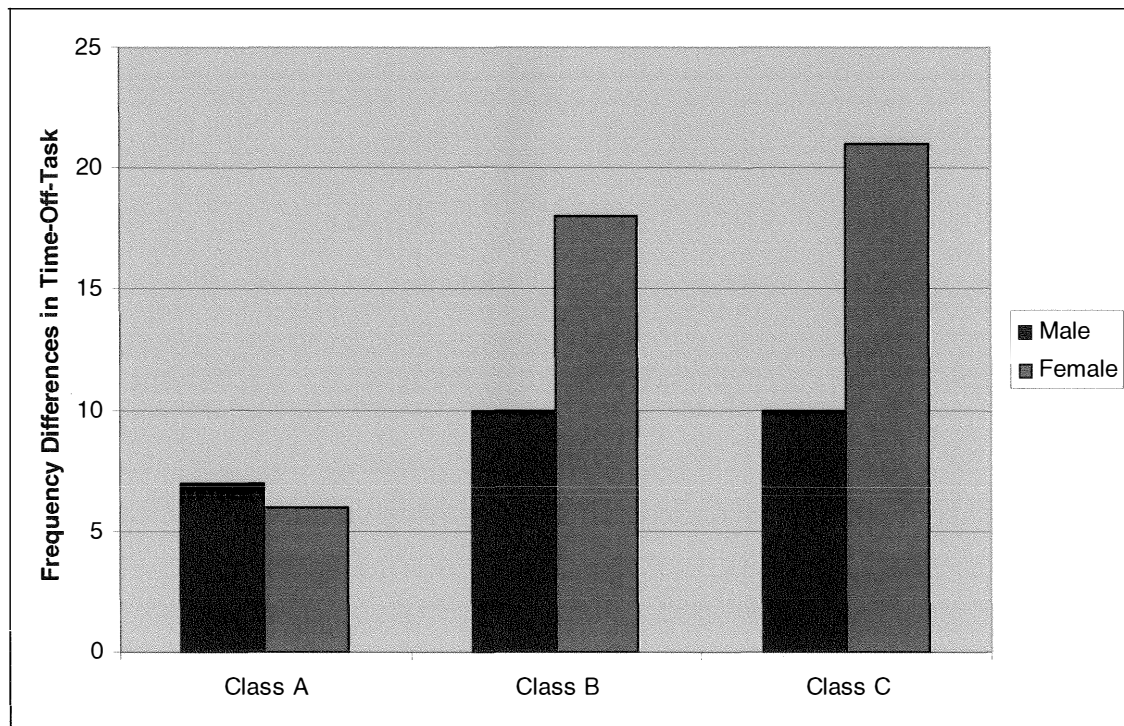


Figure 18. Sex differences in time-off-task behavior for Day C - physical activity lesson.

Overall it is difficult to determine whether physical education class or the physical activity lesson had a greater impact on students' frequency of off-task behaviors. It can be seen that for the majority of students observed in the three participating classes, males tended to improve off-task behavior through increased focus on a given academic task after physical education class whereas female students did so after the physical activity lesson. This is not true in all cases for all of the classes, but it seems to be a general

trend. It is apparent that both sexes benefited from such physical activity, but the results from each of the three classes do not allow for specific conclusions of which activity was more beneficial.

Individual Student Interviews

In addition to observations of students' behavior, six students were randomly selected from each of the three participating classes (A, B, C) for individual interviews. Students were selected at random by number, but the selections were stratified to yield an approximate equal number of males and females were chosen. Class A consisted of two female (as only a total of two females received parental consent) interviews and four male student interviews. Classes B and C had an even number of three male and three female students interviewed.

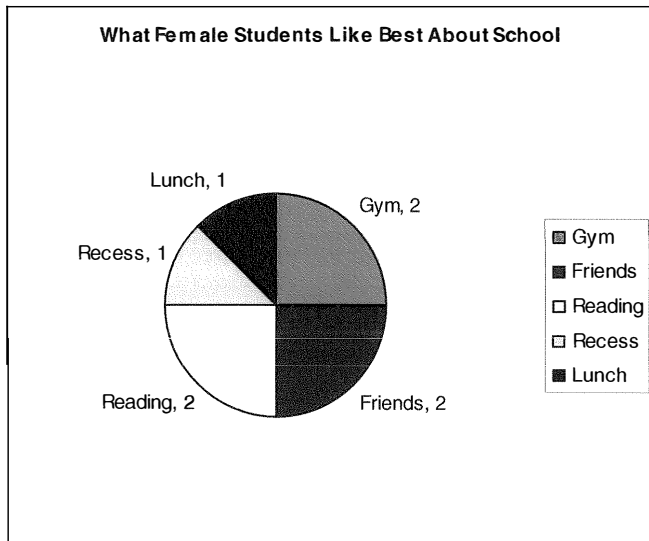


Figure 19. What female students like best about school.

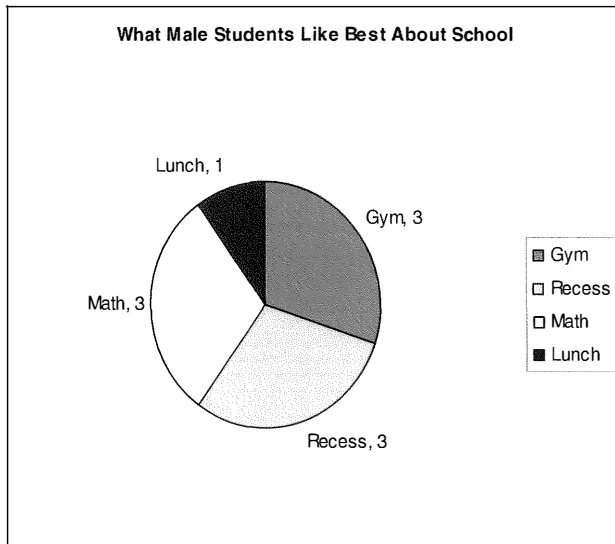


Figure 20. What male students like best about school.

When students were asked what they liked best about school, academic subjects as well as social activities were mentioned (Figures 19, 20). Female students mentioned spending time with friends as one of the best, whereas male students did not.

There was a fairly even number among sexes that chose recess, lunch and gym as their favorite. Both sexes mentioned gym and recess in what they liked best about school, which require students to be up and moving around.

Students were also asked their thoughts on the physical activity lesson that was used in the classroom to collect data pre- and post-activity. Seven females and six males had a completely positive response in their enjoyment of various aspects of the physical activity lesson. One female and four males had indifferent responses where they did not show a clear distinction of either liking or disliking the activity. Only one female and one male showed a clear dislike of the activity overall (Appendix F-K). Primarily it can be determined from these student interviews that there is a general enjoyment of activities such as this which allow students to be active in the classroom.

When questioned if students participate in activities like this on a normal basis in the classroom, most related the activity back to games that they have played. Whether these games serve an academic purpose or are only for entertainment is unknown without consulting the classroom teacher. Although this lesson activity is not necessarily a game, as it directly corresponds with learning targets and standards, and was being used with the intention to review student knowledge, students made the connection to what they are familiar with based upon past classroom experiences. Four total students responded that they do not usually participate in activities such as this. When asked what they did instead of such activities, students responded that they either worked in groups or at their desks. Therefore from solely the student responses, it is difficult to determine if the “games” they are referring to are actually integrated lessons or if they are in fact games that do not serve academic purposes.

All students were asked approximately how long they played outside for after school and on the weekends. Four total students stated that they play outside frequently, eleven responded that they do sometimes and three students replied that they do very little or not at all (Figure 21). It is apparent that the majority of the student sample spends at least some time outside playing after school or on the weekends. The interviews determined that female students tend to spend more time outside than male students.

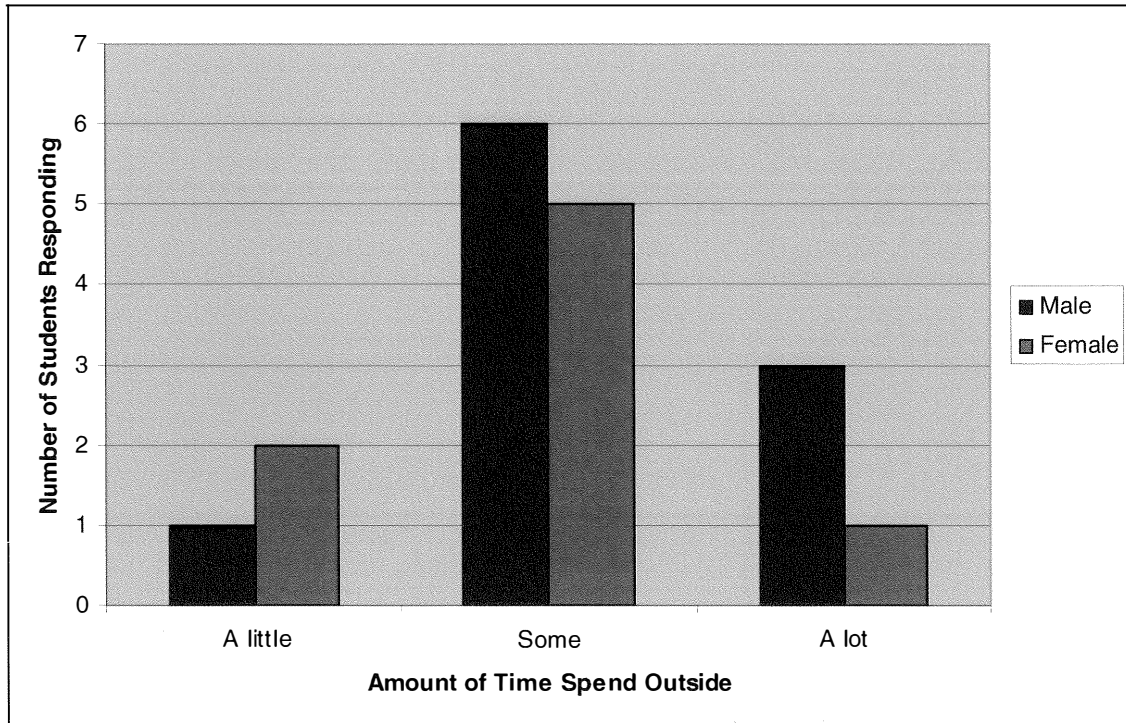


Figure 21. Amount of time student's play outside.

In addition to questioning students about time spent outside afterschool and on weekends, each student was asked if they participate on a sports team.

Table 4

Students participating on a sports team

Gender	Yes	No
Male	5	5
Female	3	5
Total	8	10

Table 4 shows that there is approximately an even number of male and female students that do and do not play on sports teams. Although Figure 21 demonstrates that more female students play outside than male students, it does not seem to have a direct effect

on students' participation in sports teams. Therefore, students do not always need to be outdoors to be active. There are some incidences, such as the case in Table 4, where a student interviewed stated that he is on a hockey team which means he would be physically active in an indoor setting.

To estimate the amount of time students spend indoors doing sedentary activities students were questioned about their TV and video game habits.

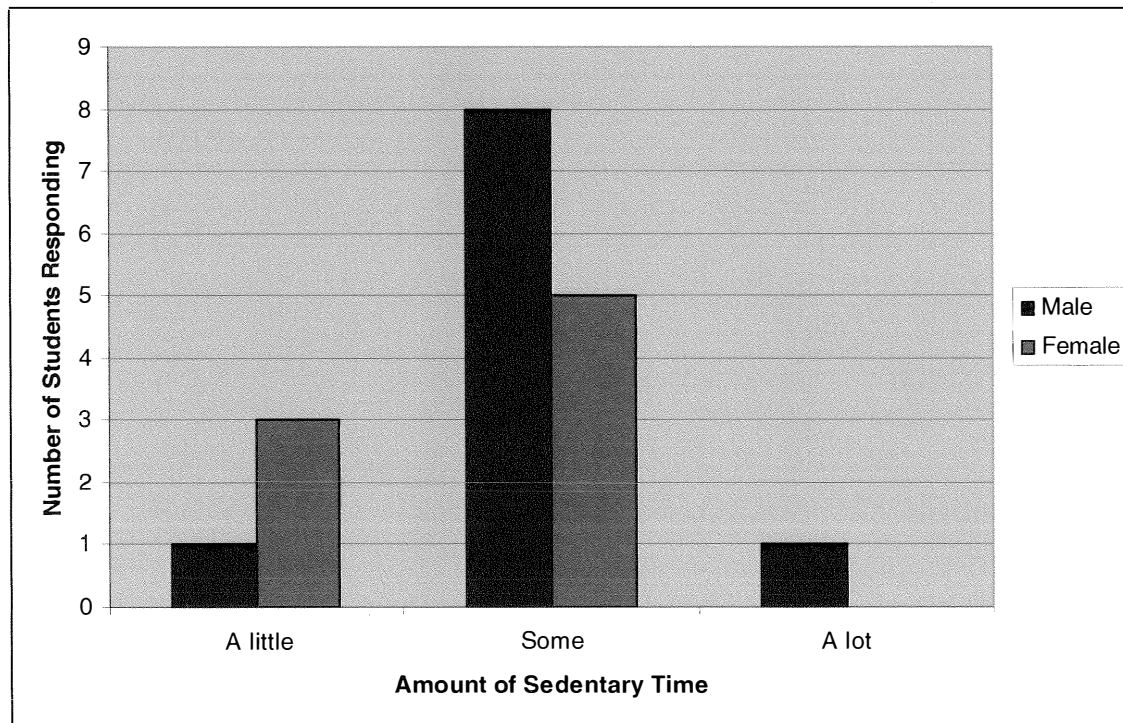


Figure 22. Amount of time students spend watching TV/playing video games.

Figure 22 illustrates that most male and female students spend some of their time watching TV and/or playing video games. A total of four students stated that they did so very little or not at all, which is interesting to compare to only one student who says that he watches TV and/or plays video games very frequently. It is important to note that what students determine to be “a little” or “a lot” may vary from an adult’s perception of

these amounts of time. There were also three students who mentioned without prompt that their parents restrict the amount of time they are spending with these activities. Although this is an increasingly popular topic, it appears from the data collected that even though students are spending some time in a sedentary state that they are also moving about through physical activity in sports teams and play.

Limitations

There are several limitations that must be taken into consideration when analyzing data collected through the observations and interviews conducted in this research study. One of the most evident concerns about measuring the effects of physical education class is that lessons are conducted by an outside teacher and therefore difficult to determine the level of activity that students are receiving. In the cases for this data, all students were engaging in the same activity, flag football, but it cannot be guaranteed that all students received the same amounts of physical activity from their physical education class.

Another factor that may have an effect on students' on- and off-task behavior is the time of the day in which students were observed. Students may demonstrate different levels of on-task behavior in the morning than they would in the afternoon. Prior to or after lunch time may also influence students as they may be excited to go to lunch or are energized from socializing.

The specific task in which students are working on could also affect their off-task behavior. While observing it was apparent that those students who were individually completing the same worksheet would engage with one another in on-task discussions, but these conversations sometimes led to additional non-academic conversations. In

contrast, those students who were reading independently stayed on-task for much longer than students who were completing other tasks.

As always when working with human subjects, it is nearly impossible to determine what personal distractions students may be facing. For example, a student could be having family issues such as parents going through a divorce or could have had a personal confrontation with a friend which distracts them from putting their mind completely on the task at hand. Such personal situations can cause an interruption to students' concentration on any given day, which may affect them on another day.

Finally, recess was not factored into the data collection of this study, as two of the classrooms used in data collection frequently have indoor recess during this time of year due to the weather. Therefore, it would be difficult to determine if recess has an effect on students' time-on-task, as indoor recess is much less active than outdoor recess would be.

Chapter 5: Conclusions and Recommendations

It was the intent of this research study to provide evidence that would demonstrate outcomes of the addition of physical activities into the classroom environment and its relationship to students' time-on-task through explicit observational data and interviews. As discussed in the literature review, curriculum integration is one possible method to include such physical activity into the classroom. Oliver et al. (2006) determined that learning targets and standards could be included in a lesson that reaches into multiple subject areas. This study provided an opportunity to use such an idea and included physical activity into an English Language Arts lesson for three classrooms.

Gibson et al. (2008) also discussed the possibility that concepts could be taught using various teaching styles without disrupting academic instruction. The lesson used in this research included students participation in physical activity while maintaining the learning targets that would have been appropriated to a direct instruction lesson. Thus, students were reviewing vocabulary words while also moving out of their seats and using locomotor skills to increase activity levels.

Grieco et al. (2009) also made strides in linking physical activity to students increased time-on-task. This research provided an additional analysis of this topic and concluded that physical activity classroom-based lessons have a positive effect on students' time-on-task behavior. Taking the theoretical framework established by these previous studies, this study has been able to combine their ideals, build upon them and confirm their results.

This research study has taken into consideration physical education classes, which were not specifically factored into previous research on this topic. Physical education

classes were included not only to avoid further limitations, but also to compare the levels of physical activity received in comparison to the classroom lesson. Days in which students received physical education class were observed on separate days than those in which they participated in the physical activity lesson. This was done to avoid the possible influence of one set of physical activity upon the observational data of another.

Data collected in this research also connected students' individual experiences with physical activity in and outside of the classroom through interviews. Individual student interviews were given as an additional support to the numerical evidence provided in the observations noted. It is important to connect specific students' experience to the actual outcomes of the data collected. Interviews also provided a glimpse into the lives of students outside of the classroom, which may ultimately have an impact upon the information gathered.

Suggestions for Future Research

Although this research study provided evidence through observational data and interviews to support the posed research questions, it was not able to account for all possibilities and influences. Therefore, further research should be taken into consideration as a supplement to the results concluded in this study.

One factor that should be accounted for is the outdoor recess students receive. This study was unable to include this variable in the data collected as the weather did not consistently permit students to participate in recess in an outdoor setting. Recess inside the classroom would not yield an active enough situation to make accurate determinations about the relationship between the physical activity sustained during recess and students time-on-task behavior. If a similar study was to be conducted at a time of the year or at a

specific location where outside factors such as weather did not have an influence, additional analytical conclusions could be made.

Another feature that should be taken into consideration is the lack of variety of classrooms used in this research study. Due to location restraints, all three classrooms used in this research were from the same suburban school district. If additional schools were used from a variety of socio-economic backgrounds a broader cross-section could be selected and analyzed. This could ultimately lead to different results or further confirm those that are present within this research. Socio-economic status can be a very influential factor, and conducting this study in multiple school districts would yield more accurate and conclusive results with more variables accounted for.

Summary

This research study combined multiple ideas from previous research to form a new question in determining the relationship between physical activity classroom-based lessons and students time-on-task behavior. The basic framework from the observational tool designed by Misakos (1986) was used and modified to include the specific elements of Mahar et al. (2006) and their research on explicit off-task behaviors of students. During observations students' on- and off-task behavior was noted for a total of three days: a typical school day, a physical education day and a day that included a physical activity classroom-based lesson. This data was then analyzed and relations between the physical activity students received and their level of concentration were concluded. Individual student interviews were also conducted in order to gain the students perspective of physical activity inside and outside the classroom. Ultimately, the data

provided from this research study demonstrates a positive relationship between physical activity classroom-based lessons and students time-on-task behavior.

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Appendix A: Sample Observation Coding Sheet

Classroom: _____
Date: _____
Observation Day: _____
Time of Observation: _____
Observation Interval: _____

Observation Code Key:

On-Task Behavior – O

Student – 1 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 2 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 3 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 4 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 5 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 6 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 7 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 8 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 9 M / F

Minute:

1- 9-

2- 10-

3- 11-

Student – 10 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 11 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 12 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 13 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 14 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 15 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 16 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 17 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 18 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 19 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 20 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 21 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 22 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 23 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 24 M / F

Minute:

1- 9-
2- 10-
3- 11-

Student – 25 M / F

Minute:

1- 9-
2- 10-
3- 11-

Appendix B: Physical Activity Lesson Plan: Classroom A

Title: Swat That Word

Length of Lesson: Approximately 40 minutes

Curricular Areas: ELA, Physical Education

Grade Level: K-2

1. Learning Objectives:

- Students will be able to identify a review term based upon its given description
- Students will be able to demonstrate a set of locomotor skills
- Students will be able to work together as a team to participate in an activity

2. Assessment:

(a) Learning outcomes of previous lesson related to this topic:

Students will have had several previous lesson and classroom experiences based upon the topic of this unit that is being reviewed.

(b) Focus of assessment in this lesson

Students understanding of this lesson activity will be assessed in their ability to accurately match the review term and its description.

(c) Method of assessment used in this lesson

Assessment will specifically gauged in students ability to accurately “swat” a review term on the board that appropriately matches its description called out by the teacher.

3. New York State Learning Standards:

ELA

Standard 4: Language for Social Interaction -

Students will listen, speak, read, and write for social interaction. Students will use oral and written language that follows the accepted conventions of the English language for effective social communication with a wide variety of people. As readers and listeners, they will use the social communications of others to enrich their understanding of people and their views.

Standard 1: Personal Health and Fitness –

Students will have the necessary knowledge and skills to establish and maintain physical fitness, participate in physical activity, and maintain personal health.

Standard 2: A Safe and Healthy Environment -

Students will acquire the knowledge and ability necessary to create and maintain a safe and healthy environment.

4. Materials:

- Chalkboard/Whiteboard with chalk/marker
- Poster paper with list of locomotor skills
- 2 plastic fly swatters
- Masking tape
- List of review terms and descriptions

5. Lesson Process:

(a) Introduction (8 minutes)

Teacher will begin by introducing locomotor skills to students. Ask: What is a locomotor skill? Have a brief discussion with students about the definition of locomotor skills. Introduce a poster that contains a list of several locomotor skills. Teacher will share this list with the class and demonstrate or select students to demonstrate each. Students may then practice for a few minutes directly behind their seats.

(b) Learning procedures (30 minutes)

After discussing locomotor skills, the teacher will explain the review lesson activity that they will be participating in today which includes the use of these skills. Students will be divided into two teams, and will line up in a row, facing the board. The teacher will have already written several review words on the board, in an unorganized fashion. This will be covered up before the activity begins. Each team must stay in line behind a piece of masking tape on the classroom floor which marks the beginning of the line, and each team will be given a fly swatter.

The activity begins when the teacher reads aloud a description of one of the review words that is located somewhere on the board. Students may not move until the teacher finishes and says the word “go!” Once the teacher does, students must use a locomotor skill from the poster to move to the board, and then once they locate the word they must “swat” it with the fly swatter. The first team to accurately “swat” the word gets one point. Students must then use a locomotor skill to move back to the line and pass the fly swatter on to their team member and move to the end of the line. Students may choose to use whichever locomotor skill they want to. This will continue until all the words have been used or each student has had at least one turn. Be sure to remind students not to push or shove each other when they are up at the board searching for the word. If two students both hit the word, whichever fly swatter is under the other or hits the word first receives the point for their team.

(c) *Conclusion (2 minutes)*

At the end of the activity students may return to their seats. Teacher will go over any review terms that students may have had difficulty with and make sure to answer any remaining questions.

6. If time/extensions:

If time remains, the activity can continue and students can have multiple turns and terms can be used as many times as needed to fill allotted time.

6. Resources:

Educational Materials Center. (2006, May 17). *Brain Breaks*. Retrieved from:

<http://www.emc.cmich.edu/BrainBreaks/default.html>

Appendix C: Physical Activity Lesson Plan: Classroom B

Title: Swat That Word

Length of Lesson: Approximately 40 minutes

Curricular Areas: ELA, Physical Education

Grade Level: 3

7. Learning Objectives:

- Students will be able to identify a review term based upon its given description
- Students will be able to demonstrate a set of locomotor skills
- Students will be able to work together as a team to participate in an activity

8. Assessment:

(d) Learning outcomes of previous lesson related to this topic:

Students will have had several previous lesson and classroom experiences based upon the topic of this unit that is being reviewed.

(e) Focus of assessment in this lesson

Students understanding of this lesson activity will be assessed in their ability to accurately match the review term and its description.

(f) Method of assessment used in this lesson

Assessment will specifically gauged in students ability to accurately “swat” a review term on the board that appropriately matches its description called out by the teacher.

9. New York State Learning Standards:

ELA

Standard 4: Language for Social Interaction -

Students will listen, speak, read, and write for social interaction. Students will use oral and written language that follows the accepted conventions of the English language for effective social communication with a wide variety of people. As readers and listeners, they will use the social communications of others to enrich their understanding of people and their views.

Health, Physical Education, and Family and Consumer Sciences

Standard 1: Personal Health and Fitness –

Students will have the necessary knowledge and skills to establish and maintain physical fitness, participate in physical activity, and maintain personal health.

Standard 2: A Safe and Healthy Environment -

Students will acquire the knowledge and ability necessary to create and maintain a safe and healthy environment.

10. Materials:

- Chalkboard/Whiteboard with chalk/marker
- Poster paper with list of locomotor skills
- 2 plastic fly swatters
- Masking tape
- List of review terms and descriptions

11. Lesson Process:*(d) Introduction (8 minutes)*

Teacher will begin by introducing locomotor skills to students. Ask: What is a locomotor skill? Have a brief discussion with students about the definition of locomotor skills. Introduce a poster that contains a list of several locomotor skills. Teacher will share this list with the class and demonstrate or select students to demonstrate each. Students may then practice for a few minutes directly behind their seats.

(e) Learning procedures (30 minutes)

After discussing locomotor skills, the teacher will explain the review lesson activity that they will be participating in today which includes the use of these skills. Students will be divided into two teams, and will line up in a row, facing the board. The teacher will have already written several review words on the board, in an unorganized fashion. This will be covered up before the activity begins. Each team must stay in line behind a piece of masking tape on the classroom floor which marks the beginning of the line, and each team will be given a fly swatter.

The activity begins when the teacher reads aloud a description of one of the review words that is located somewhere on the board. Students may not move until the teacher finishes and says the word “go!” Once the teacher does, students

must use a locomotor skill from the poster to move to the board, and then once they locate the word they must “swat” it with the fly swatter. The first team to accurately “swat” the word gets one point. Students must then use a locomotor skill to move back to the line and pass the fly swatter on to their team member and move to the end of the line. Students may choose to use whichever locomotor skill they want to. This will continue until all the words have been used or each student has had at least one turn. Be sure to remind students not to push or shove each other when they are up at the board searching for the word. If two students both hit the word, whichever fly swatter is under the other or hits the word first receives the point for their team.

(f) Conclusion (2 minutes)

At the end of the activity students may return to their seats. Teacher will go over any review terms that students may have had difficulty with and make sure to answer any remaining questions.

6. If time/extensions:

If time remains, the activity can continue and students can have multiple turns and terms can be used as many times as needed to fill allotted time.

12. Resources:

Educational Materials Center. (2006, May 17). *Brain Breaks*. Retrieved from:

<http://www.emc.cmich.edu/BrainBreaks/default.html>

Appendix D: Physical Activity Lesson Plan: Classroom C

Title: Swat That Word

Length of Lesson: Approximately 40 minutes

Curricular Areas: ELA, Physical Education

Grade Level: 4

13. Learning Objectives:

- Students will be able to identify a review term based upon its given description
- Students will be able to demonstrate a set of locomotor skills
- Students will be able to work together as a team to participate in an activity

14. Assessment:

(g) Learning outcomes of previous lesson related to this topic:

Students will have had several previous lesson and classroom experiences based upon the topic of this unit that is being reviewed.

(h) Focus of assessment in this lesson

Students understanding of this lesson activity will be assessed in their ability to accurately match the review term and its description.

(i) Method of assessment used in this lesson

Assessment will specifically gauged in students ability to accurately “swat” a review term on the board that appropriately matches its description called out by the teacher.

15. New York State Learning Standards:

ELA

Standard 4: Language for Social Interaction -

Students will listen, speak, read, and write for social interaction. Students will use oral and written language that follows the accepted conventions of the English language for effective social communication with a wide variety of people. As readers and listeners, they will use the social communications of others to enrich their understanding of people and their views.

Health, Physical Education, and Family and Consumer Sciences

Standard 1: Personal Health and Fitness –

Students will have the necessary knowledge and skills to establish and maintain physical fitness, participate in physical activity, and maintain personal health.

Standard 2: A Safe and Healthy Environment -

Students will acquire the knowledge and ability necessary to create and maintain a safe and healthy environment.

16. Materials:

- Chalkboard/Whiteboard with chalk/marker
- Poster paper with list of locomotor skills
- 2 plastic fly swatters
- Masking tape
- List of review terms and descriptions

17. Lesson Process:

(g) Introduction (8 minutes)

Teacher will begin by introducing locomotor skills to students. Ask: What is a locomotor skill? Have a brief discussion with students about the definition of locomotor skills. Introduce a poster that contains a list of several locomotor skills. Teacher will share this list with the class and demonstrate or select students to demonstrate each. Students may then practice for a few minutes directly behind their seats.

(h) Learning procedures (30 minutes)

After discussing locomotor skills, the teacher will explain the review lesson activity that they will be participating in today which includes the use of these skills. Students will be divided into two teams, and will line up in a row, facing the board. The teacher will have already written several review words on the board, in an unorganized fashion. This will be covered up before the activity begins. Each team must stay in line behind a piece of masking tape on the classroom floor which marks the beginning of the line, and each team will be given a fly swatter.

The activity begins when the teacher reads aloud a description of one of the review words that is located somewhere on the board. Students may not move until the teacher finishes and says the word “go!” Once the teacher does, students must use a locomotor skill from the poster to move to the board, and then once they locate the word they must “swat” it with the fly swatter. The first team to

accurately “swat” the word gets one point. Students must then use a locomotor skill to move back to the line and pass the fly swatter on to their team member and move to the end of the line. Students may choose to use whichever locomotor skill they want to. This will continue until all the words have been used or each student has had at least one turn. Be sure to remind students not to push or shove each other when they are up at the board searching for the word. If two students both hit the word, whichever fly swatter is under the other or hits the word first receives the point for their team.

(i) *Conclusion (2 minutes)*

At the end of the activity students may return to their seats. Teacher will go over any review terms that students may have had difficulty with and make sure to answer any remaining questions.

6. If time/extensions:

If time remains, the activity can continue and students can have multiple turns and terms can be used as many times as needed to fill allotted time.

18. Resources:

Educational Materials Center. (2006, May 17). *Brain Breaks*. Retrieved from:

<http://www.emc.cmich.edu/BrainBreaks/default.html>

Appendix E: Post Activity Interview Protocol

Post Activity Interview:

Classroom #: _____

Date: _____

Student #: _____ M / F

1. What do you like best about school? What do you wish you could change?
2. Tell me how you felt about the activity you did in class today:
3. What did you like/dislike about it?
4. Do you do activities like this a lot in school? If not, what do you do?
5. How much time do you spend outside playing after school or on the weekends?
On any sports teams outside school?
6. How much time do you spend watching TV when you're at home?

Appendix F: Individual Student Interview Responses – Class A

Student #	3	6	2
Sex	Female	Female	Male
Likes best about school:	Gym	Seeing Friends	Recess
Thoughts about physical activity lesson:	"I liked it. Jumping around was fun"	"It was fun to look for the words on the board."	"I liked hitting the words with the fly swatter."
Do you do activities like this frequently in class?	"Yes. Games sometimes."	"We do games where we have to find words."	"No."
If not, what do you do?			"We do centers."
How much time spent outside playing after school/weekends?	"As much as my Mom will let me."	"I don't know, sometimes I play outside."	"I go outside sometimes after school with my brother."
On a sports team?	"No."	Student shakes head to indicate no.	"I play baseball."
How much time spent watching TV/playing video games at home?	"I'm not sure." When asked if she watches TV – "Yes."	"A little."	"I like to play my video games. Sometimes my Dad tells me I can't play anymore."

Appendix G: Individual Student Interview Responses – Class A

Student #	1	4	5
Sex	Male	Male	Male
Likes best about school:	Recess	Math	Gym
Thoughts about physical activity lesson:	“Fun!” When asked why – “because we got to hit things.”	“It was OK.”	“I couldn’t find some of the words. But it was fun.”
Do you do activities like this frequently in class?	“Yes we do.”	Student shakes head to indicate no.	“Yes, we play games sometimes.”
If not, what do you do?		“Not for ELA centers. We always have groups for centers.”	
How much time spent outside playing after school/weekends?	“I’m not sure.” When asked if he plays outside at all- “Yes.”	“I go outside afterschool and when I wait for the bus in the morning.”	“I don’t like to play outside.”
On a sports team?	“Yes.” When asked which sport – “football.”	Student shakes head to indicate no.	“No.”
How much time spent watching TV/playing video games at home?	“I like to play video games a lot.”	“I watch TV at night.”	“I play video games with my brother and sisters.”

Appendix H: Individual Student Interview Responses – Class B

Student #	3	8	17
Sex	Female	Female	Female
Likes best about school:	Spending time with Friends	Reading	Recess
Thoughts about physical activity lesson:	“I liked it.” When asked why- “We were able to do the locomotor skills.”	“It was pretty fun.”	“I liked that we were on teams.”
Do you do activities like this frequently in class?	“Yes, but not with fly swatters.”	“Yeah we sometimes play games.”	“Yes.”
If not, what do you do?			
How much time spent outside playing after school/weekends?	“I usually go outside right after school for awhile.”	“I have piano and gymnastics after school, so I only play outside some on the weekends.”	“Sometimes I do. If it’s too cold out I don’t.”
On a sports team?	Student shakes head to indicate no.	“I am in gymnastics.”	“No but I play some sports with my friends.”
How much time spent watching TV/playing video games at home?	“Sometimes at night.”	“If I am done with my homework I’m allowed to watch TV.”	“I watch my shows sometimes after school or at night.”

Appendix I: Individual Student Interview Responses – Class B

Student #	2	14	19
Sex	Male	Male	Male
Likes best about school:	Gym	Recess	Math
Thoughts about physical activity lesson:	"I liked hitting the words on the board with the fly swatter."	"It was fun, I liked going up against the other team."	"It was pretty fun I guess."
Do you do activities like this frequently in class?	"Not like this, but we do some things."	Student shakes head to indicate yes.	"Yes, sometimes we do things like be on different teams."
If not, what do you do?	"We play some games, but not that is with our vocab words."		
How much time spent outside playing after school/weekends?	"As much as I can."	Student shrugs shoulders to indicate unsure. When asked if he does at all – "Yes."	"I go outside after I finish up my homework."
On a sports team?	"No."	"I play with my friends."	"In the summer I play soccer."
How much time spent watching TV/playing video games at home?	"I like to play video games. I usually play them on the weekends."	"Not a lot."	"I watch TV at night with my Dad."

Appendix J: Individual Student Interview Responses – Class C

Student #	3	7	11
Sex	Female	Female	Female
Likes best about school:	Gym	Reading	Lunch
Thoughts about physical activity lesson:	"It was fun!"	"I liked using the fly swatters."	"It was a lot of fun. I really liked it"
Do you do activities like this frequently in class?	"Sometimes we play games."	"No, not really."	"Yes, we do things like this to review sometimes."
If not, what do you do?		"We work in groups a lot."	
How much time spent outside playing after school/weekends?	"A couple hours."	"I don't have too much time to play outside; I go to dance after school."	"Just for a little time before I do my homework."
On a sports team?	"No."	"I am in dance, if that counts as a sports team."	"I play soccer in the summer time."
How much time spent watching TV/playing video games at home?	"A couple hours."	"Only a little if I have a show on that I like to watch."	"I am only allowed to watch one hour of TV a night."

Appendix K: Individual Student Interview Responses – Class C

Student #	8	17	19
Sex	Male	Male	Male
Likes best about school:	Math	Lunch	Gym
Thoughts about physical activity lesson:	"It was alright, kind of boring."	"It was pretty fun, I liked that my friends were on my team."	"I liked jumping and hopping to the board."
Do you do activities like this frequently in class?	"Not really, no."	"Sometimes, yeah."	"Not with the jumping and stuff, but we play games."
If not, what do you do?	"We usually are at our desks doing something."		
How much time spent outside playing after school/weekends?	"An hour or two every day."	"I'm not sure, but I do play outside I think every day."	"I do afterschool usually."
On a sports team?	"I play baseball."	Student shakes head to indicate no.	"Yes, I am on a hockey team."
How much time spent watching TV/playing video games at home?	"I'm not sure how long but I watch TV and play video games sometimes."	"I do watch TV." When asked how often – "every night, usually."	"I play my Xbox sometimes, usually when its cold outside."