



Research Article

## Malaysian students' involvement in physical activity and the impact on academic achievement

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### Abstract

Nowadays, students are not doing enough physical activity that is needed for a healthy body and they are so engrossed in their academic work. The issue of staying healthy in today's hectic society is an environmental challenge that needs to be overcome. Physical activity is an important aspect of the Philosophy of Malaysian Education. The Malaysian government hopes to produce students who are not only academically intelligent, but also intelligent in health as well. Producing future communities who are physically active and cognitively intelligent is very important for a better future. Studies also show that there is relevance between active participation in physical activity and students' academic achievement. It has been said that active participation in physical activity among university students can enhance their academic achievement. However, Tremblay, Inman, and Willms (2000) found that the relationship between physical activity and academic achievement was weak but that participation in physical activity was positively related to higher levels of self-esteem. Therefore, it is crucial to do a study on this topic again to get a richer result. This study focuses on students' involvement in physical activity and its impact on academic achievement. It is aimed to identify the students' participation in physical activity and factors that affect academic achievement. The samples of this study are 150 Physical and Health Education students from a public university in Malaysia. A fitness test was done to measure the students' fitness level. Apart from that, questionnaires regarding the research objectives were distributed to the students to obtain data of the research. Results from the research conducted revealed that students who are active in physical activity have higher academic performance than those who are not active. The findings of the study are very useful for students to stay healthy for a better and healthier future.

**Keywords:** Environmental challenges, Physical Activities, Academic Achievement

### INTRODUCTION

Today we live in an age of advance and demanding in education. Education Philosophy in Malaysia is described that to produce students in five important components consists of intellectual, physical, emotional, spiritual and social. When adolescents participate in at least 60 minutes of physical activity every day, multiple health benefits accrue. Regular physical activity builds healthy bones and muscles, improves muscular strength and endurance, reduces the risk for developing chronic disease risk factors, improves self-esteem, and reduces stress and anxiety. Beyond these known health effects, physical activity may also have beneficial influences on academic performance. Academic success is an outcome most parents and schools prioritize and strive to attain for their children. Recent evidence suggests increasing the time children and adolescents spend in sport or physical activity is a potential strategy for optimizing children's and adolescent's learning. A physiological explanation for ways in which

increased physical activity may enhance cognitive function is also presented.

Learning can be examined from multiple contexts and is often measured via cognitive and academic testing. A multitude of learning outcomes have been compared with physical activity or assessed following physical activity interventions. This varied approach in learning measuring outcomes has led to difficulty in determining the strength of the relationship between physical activity and cognitive functioning, motivation, physical education, self-esteem, learning behaviour, classroom attention and academic success, and in undertaking meta-analysis of data. However, the strategy of measuring multiple responses has aided with identifying potential pathways between physical activity, cognitive functioning, motivation, physical education, classroom attention, self-esteem, learning behaviour and academic success, according to Dr Karen Martin, PhD, School of Population Health the University of Western Australia, May 2010. This model, developed for this review, highlights the multitude of pathways through which sport and physical activity have the potential to impact upon learning, test scores and academic success.

## Literature Review

Since January 8, 2002, the day former President George W. Bush signed the *No Child Left Behind Act (NCLB)*, public education has been held accountable for academic achievement and standardized test scores. In fact, *NCLB* represents the most significant expansion of the federal government into education in the United States' history (Yell and Drasgow, 2005). This legislation has resulted in an increased effort to improve student achievement, which unfortunately means leaving programs like physical education behind. More studies have found an association between physical activity and academic achievement. It has been suggested that the benefits of physical education are related to academic achievement (Almond and McGeorge, 1998; Black, 1995), while some advocate that physical fitness is related to cognitive performance and academic achievement (Dustman, Emmerson, and Shearer, 1994). This belief has caused some schools to adopt the saying "healthy children learn better" (Symons, Cinelli, James and Groff, 1997).

Physical activity has also been linked to higher levels of self-esteem and lower levels of anxiety, which are associated with higher academic performance in the classroom (Ekeland, Heian, Hagen, Abbott, and Nordheim, 2004; Shephard, 1983; and Flook, Repetti, and Ullman, 2005). Other studies have shown a positive relationship between the amount of time in physical education class and classroom performance based on grades (Shephard, 1996). Additionally, several studies have found positive associations between physical fitness and academic performance (Kim, Frongillo, and Han, 2003; California Department of Education, 2005). An Illinois study found that student's fitness levels, as measured on the *Fitness Gram*, was positively correlated to academic achievement, and based on the Illinois State Achievement Test, especially in the content areas of mathematics and science (Castelli, Hillman, Buck, and Erwin, 2007).

Therefore, it seems appropriate for physical educators to develop new ways to more fully motivate their students participate in class in order to help students develop physically active lifestyle inside and outside of class. Some educators have found that by applying the material to the students, personal lives (Bycura and Darst, 2001), teaching with a variety of activities (Griffin and Maina, 2002), and allowing students to set and achieve personal goals (Bowyer, 1996), their students are more motivated to participate in the activity, and enjoy the activity more. Persistence at exercise is related to the motivational constructs described above and has research support. For example, young athletes cite "fun" as a primary reason for participating in sports (Gill, Gross, and Huddleston, 1983; Scanlan and Lewthwaite, 1986).

Physical activity has positive effect classroom behaviour according to (Strong et al., 2005; Trudeau and Shephard, 2008). According to several authors, young people undertaking additional physical activity during the school day generally demonstrate increased brain function, improved self-esteem and better behaviour (Cocke, 2002; Trembley et al. 2000; Shephard, 1997). Small, classroom based interventions can also have an effect on classroom behaviour. The 'class moves' initiative demonstrated that physical activities designed to promote relaxation increased not only class behaviour but concentration and focus (Lowden et al., 2001).

A positive relationship of physical activity and academic performance has been explored through several studies conducted in the USA by the California Department of Education; Dwyer, Sallis, Blizzard, Lazarus, and Dean (2001); Dwyer et al. (1983); Linder (1999); Linder (2002); Shephard (1997); Tremblay et al. (2000); and others. These studies support one another in suggesting that when a substantial amount of school time is dedicated to physical activity, academic performance meets and may even exceed that of students not receiving additional physical activity (Shephard, 1997).

Co-author, Debby Mitchell became interested in the link between physical activity and cognitive ability after attending two summer workshops with Phyllis Weikart, Professor Emeritus at the University of Michigan. Weikart's concern was that children are having fewer opportunities to be physically active and develop basic motor skills that will enhance

children academically. Due to Weikart's influence, Mitchell performed a research study, "The relationship between rhythmic competency and academic performance in first grade children" (1994). The findings supported a link between academic achievement and the motor skills of maintaining a steady beat. Also motivated by Phyllis Weikart are Kuhlman and Schweinhart, who report in their discussions that children's timing has been found to be positively related to children's overall school achievement, as well as mathematics and reading achievement (1999).

According to Coe DP, Pivarnik, JM, Warmack CJ, Reeve MJ, Marina R, (2006) 11 out of 14 published studies which was conducted between 1967 and 2006 studying the relationship of physical activity and academic performance proven the improvement in the academic performance. Another study found that "student who participate in activity program tend to have higher grade point averages, better attendance records, lower dropout rates and fewer and fewer discipline problems" by Vanessa Schley, (2002).

There are many authors have documented the acute effects of Physical Activity on cognitive function. Three recent reviews and/or meta-analyses examined these studies, Brisswalter J, (2002); Tomporowski PD, (2003). In a meta-analysis of 44 studies, Sibley and Etnier, (2003) concluded that Physical Activity was positively associated with better cognitive functioning in children.

## METHODOLOGY

The research was conducted at a local university in Malaysia. The samples chosen are the Bachelor of Education students specializing in Physical and Health Education. Data of this study was gathered through survey questionnaire, interviews and fitness test. Questionnaires were distributed to one hundred fifty students by random. The questionnaire was designed to meet the following objectives:

- to investigate students' involvement in physical activity.
- to investigate the relationship between physical activity and gender.
- to investigate the relationship between physical activity and academic achievement.
- to investigate the correlations between academic achievement and fitness test for all course.

The questionnaire contained four sections. The first section was the demographic data of the respondents. The second section contained questions about students' physical activity participation. The third section contained questions on the students' factors that influence physical activity impact on academic achievement. The questionnaire used Likert scales, rating on a 1 to 5 scales, as well as yes or no answers which allowed the respondents to indicate their responses. The fourth section contained student evaluate respondents perception and feelings towards academic attitudes concerning physical activity and to determine the specific reasons why respondent to participate or do not participate in classroom attention. The questionnaire used Likert scales, rating on a 1 to 5 scales. Apart from that, interviews were also conducted among the students.

To ensure items showed convergent, validity and have high internal consistency (Cronbach's Alpha), a pilot test was conducted before the data collection phase on a smaller sample of the Physical and Health Education students. The pilot test also examined whether the instrument items were worded in a non-ambiguous manner and whether each reflected the construct to which it was posited to be related. The scales exhibited high convergent, not discriminating and valid.

## RESULTS AND DISCUSSIONS

### Demographic Data

A total of 150 questionnaires were distributed to five courses and all collected from respondents. According to demographic data which provided in table 1, we can perceive that the majority respondents are from courses Physical and Health education with (n= 30, 20%), courses TESL education with (n= 30, 20%), courses Science education with (n=30, 20%), courses Mathematic education with (n= 30, 20%), and courses Art education with (n= 30, 20%). Furthermore, female students are in the higher percentage of 62.67% compared to male students 37.33%. The demographic analysis of the respondents is carried out by using the frequencies

### Relationship between Physical Activity and Gender

According to the findings most the respondents revealed that all the five factors of physical adolescent between physical

**Table 1.** Respondents' Demographic Data

Variable	Frequency (n= 150)	Percent (%)
Gender		
Male	56	37.3
Female	94	62.6
Age		
21-25 years old	136	90.6
26 – 30 years old	14	9.3
Course		
Physical & Health Education	30	20
TESL Education	30	20
Mathematics Education	30	20
Art Education	30	20
Science Education	30	20
<b>Total</b>	<b>150</b>	<b>100</b>

activity, gender and age for all courses are agree. According to the cognitive function and learning behaviour factors analyzed that this factors may influence physical activity adolescent and gender among respondents. The physical activity between genders is the male and female groups have a significant difference in physical activity and academic achievement between two groups, since the p-value (2.263) is higher than 0.05-0.01. This study suggests some noteworthy findings, particularly regarding gender. For example, in the current study, gender was positively correlated with academic achievement and physical activity. In other words, female athletes were more likely to be more academically achievement and have higher grade point averages than the male.

Results concerning gender and academic performance of college student from the current study are consistent with previous research. For example, female have been found to be more academically motivated than male by degree attainment (Ryan, 1989) and to have less difficulty managing both academic and athletic tasks than male (Simons et al., 1999). Without an understanding of the factors that can influence a student academic performance, athletic program administrators and student affairs professionals cannot effectively provide services to support and encourage student adequately in the area of academics. However, predicting future academic performance presents a challenge. Some studies have predicted the academic performance of student through cognitive means (Ervin et al., 1985; Hood et al., 1992), whereas other studies have examined non-cognitive predictors (Petrie and Stoeber, 1997; Sedlacek, 2004; Tracey and Sedlacek, 1985; Young and Sowa, 1992). (Figure 1)

### Relationship between Physical Activity and Academic Achievement

Based on bar chart, the result between physical activity and academic achievement, as measured by courses, had a significant positive relationship with Physical and Health Education the p-value (.404), TESL Education the p-value (.293), Science Education the p-value (.271), Mathematic the p-value (.122) and ART Education the p-value (.113). So that is relationship between physical and academic is positive. Physical activities could help enhance the brain activities and gives better performance in academic achievement. (Figure 2)

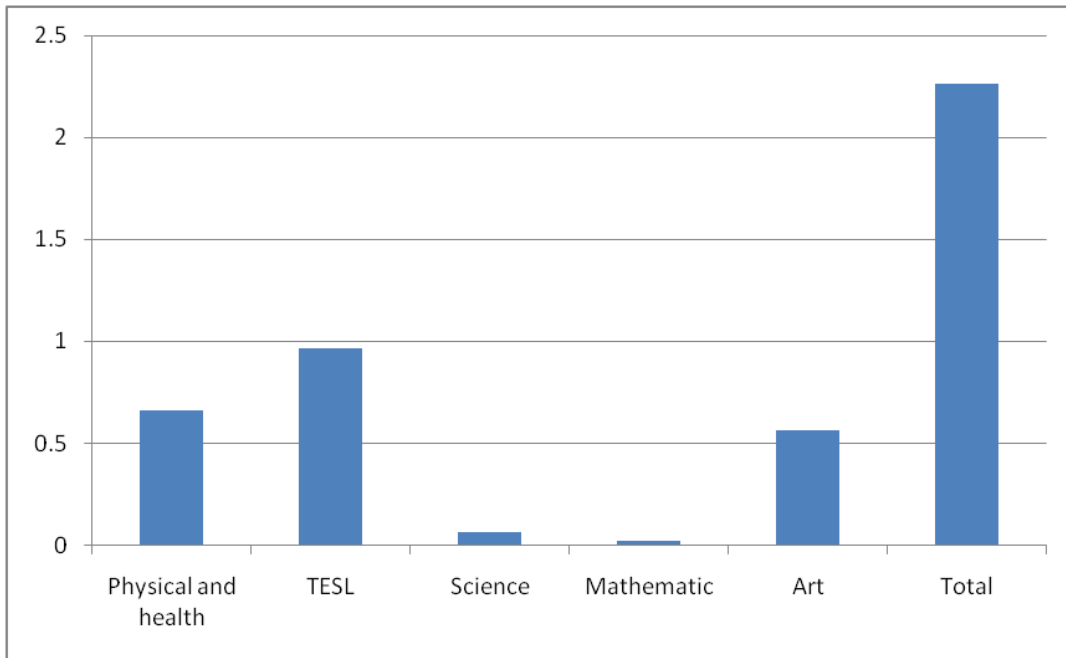


Figure 1. Relationship between Physical Activity And Gender

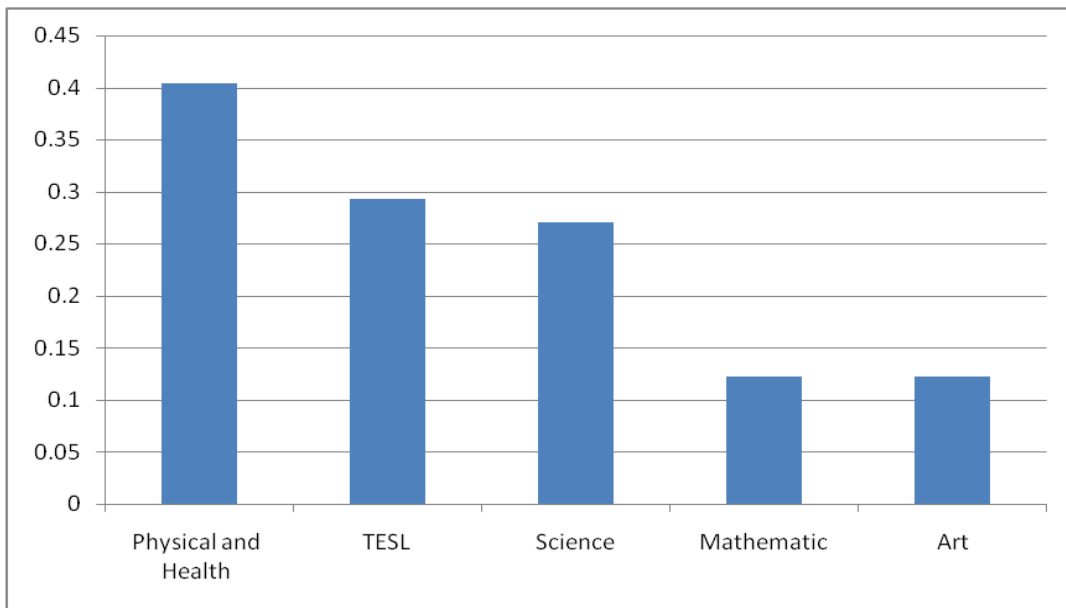


Figure 2. Relationship between Physical Activity And Academic Achievement

**Correlations between Academic Achievement and Fitness Test for All Course**

Correlations between academic achievement and fitness test for all courses. Actual academic achievement, as measured by courses, had a significant positive relationship with Physical and Health Education the p-value (.404), TESL Education the p-value (.293), Science Education the p-value (.271), Mathematic the p-value (.122) and ART

Education the p-value (113).

Correlations between fitness and academic achievement test for all courses. Actual academic achievement, as measured by courses, had a significant positive relationship with Physical and Health Education, TESL Education, Science Education, Mathematic and ART Education. Between academic achievement and fitness test has a positive relationship to the students to improve your cognitive function and learning behaviour. Other strategies to increase student's physical activity opportunities, such as the provision of environment that increase physical activity participation are warranted.

Even though it cannot be inferred from correlation data that physical fitness causes academic achievement to improve, correlation and/or naturalistic designs may be the best models for preliminary studies. First, these models offer the best opportunity to build theory about phenomena by better understanding the constructs, what they consist of, and how they relate to other constructs. Second, the difficulty of raising achievement may limit the ability of experimental designs to find a causal relationship even when one exists. This is not an argument against using experimental designs. It is simply an argument that experimental designs may be premature until the relationship between physical fitness and academic achievement is better understood.

## CONCLUSION

From this study, it was found that physical activity has an impact on academic achievement for students and communities to overcome the environmental challenge of staying healthy for a better and healthier future. Majority of the Physical and Health Education students agreed that doing physical activity is important and beneficial for their lifestyle. Nowadays, the certain University in Malaysia are not taking concern about the implementation of physical activity, Physical Education and sports participation in university. Physical activity has been substantially reduced and in some cases completely eliminated PE class in response to budget concerns and pressures to improve academic test score and university academic achievement. Yet, the available evidence shows that students who are physically active and fit tend to perform better in the classroom, and that daily physical education class does not adversely give negative effect towards academic performance. Furthermore, the students that are physically active are tend to perform better academically in university. But this is also depends on a lecture support for students to get better academic performances. Though, the students themselves have to give a full commitment as a students and belief in whatever they do. They also need to sacrifice themselves to get excellent grades in academic. However, university can provide outstanding learning environment while improving student's health through physical education.

Hence, many researches proved that adolescents who are physically active tend to perform better in the classroom, and that PE classes do not give negative effect towards academic performance. Furthermore, the students that are physically active tend to perform better academically in school. A lot of research has proven that playing (whether outdoor or indoor) is essential to the adolescents' development because it contributes to the cognitive, physical, social and emotional well-being. Of course, being physically active is not the only factor to achieve excellent academic performance. This also depends on the parents, teachers and peer's support for the students to get better academic performances. Apart from that, the students themselves have to study smart and work hard to get good academic grades. Even so, participation in physical activity can help students drive towards a academic excellence.

Research proved that by being active in physical activity, the students' academic performance will improve. In addition, physical activity has the benefits of reducing stress, increasing attention to academic tasks, and better classroom behaviour. Most importantly, physical activity will help individuals become intellectually, emotionally, physically and socially balanced, which is in line with the Malaysian's National Philosophy of Education.

Traditionally as we know that playing is essential to development because it contributes to the cognitive, physical, social and emotional well-being of students. A comprehensive review of the research on the benefits of play and the repercussions of reduced play are included. Play also offers an ideal opportunity for lecture to engage fully with their students. Despite the benefits derived from play for students and lecture, time for free play has been markedly reduced for some students. This report addresses a variety of factors that have reduced play, including a busy lifestyle, changes in family structure, and increased attention to academics and enrichment activities at the expense of recess or free adolescent-centre play. Meanings the word of play also can be categorized as physical activity because it is involve with motor learning, psychomotor domain, body movement, and cognitive function as well.

Even in classroom, students can still get in some of their recommended daily activity. There are many programs classroom lectures can use to incorporate physical activity into their lessons. There are lessons available for math, science, TESL, Art and reading, just to name a few. Classroom teachers can provide opportunities for activity during the day, especially if the school does not have required physical education classes, in order to help to improve students'

academic achievement. Short bursts of activity throughout the day may help to decrease the pent-up energy kids have. This may result in increased attention spans and better behaviour, which may help students to perform better in university.

The university students also need to get involve in physical activity that university provide to ensure they are physically active and are active in sports as well. It is also highly recess because it is an essential component of education and elementary students must have the opportunity to participate in regular periods of active, free play with peers. Research is reviewed that supports positive connections between physical activity and academic improvement, stress reduction, attention to academic tasks, classroom behaviour, physical, social, emotional, and cognitive development. The statement makes recommendations to support policies that require recess to be part of the university and elementary curriculum, support further research on the effects of recess on the development domains physical, social, emotional ad cognitive, develop policies and resources to support an awareness of the importance of recess and active free play, support research on the benefits of recess for adolescent with attention disorders, and support research and professional development for educators in the observation and assessment of development growth through the playing process.

- Five studies consistently show that more time in physical education and other school-based physical activity programs does not adversely affect academic performance.
  - In some cases, more time in physical education leads to improved grades and standardized test scores.
  - Physically active and fit children tend to have better academic achievement.
  - There are several possible mechanisms by which physical education and regular physical activity could improve academic achievement, including enhanced concentration skills and classroom behavior.
  - Additional research is needed to determine the impact of physical activity on academic performance among those who are at highest risk for obesity in the Malaysian, as well as children living in lower-income communities.
- Fitness was strongly and significantly related to academic performance. Cardiovascular fitness showed a dose-response association with academic performance independent of other socio-demographic and fitness variables. The association appears to peak in late middle to early high school. We recommend that policymakers consider physical education (PE) mandates in university consider increasing PE time, and PE practitioners emphasize cardiovascular fitness.

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