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THE RELATIONSHIP BETWEEN PHYSICAL FITNESS AND ACADEMIC LEARNING GRADES FOR SPORT SCHOOL STUDENT-ATHLETE: A CASE STUDY

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Abstract:
This study is to determine the relationship between physical fitness and academic learning grades for sports school students in athletics. The samples are students athlete from sport schools in Thailand (n=540). The survey collected data using the questionnaire method. The findings of the survey show that there is a relationship between physical fitness and academic learning grades for sport school students. The academic learning grade is in three levels of grade (GPA) which are; <20, 50, and 75> (percentile). The results show that there is a positive relationship between physical fitness and academic learning grades for sports school students-Athlete. The findings justify three levels of correlations. Level one is the student group with the smallest GPA (<25, percentile sport experience, and non-sickness student =20.4 %), level two is the student group of a middle GPA (<50> percentile are high physical fitness and good grade as well = 37.1%), and level three is a student group of high GPA (>75, percentile, with very good standing of academic learning =78.4%). The research concludes that sports school students-athlete gained GPA based on personal health, high physical fitness and sports skills.

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1. Introduction

It is important to note that many factors influence academic performance, and sport skill among student-athlete who is younger is one of them. As many school classes for teaching student-athlete aims to develop the body and academic achievement. Physical fitness is important to support athletic students and to have good academic learning grades (GPA). It was noticed that students who perform well in physical fitness also have higher academic learning grades. Fourestier (1962) noted that schoolchildren who spent mornings in the classroom and afternoons doing physical activities were reported to have better academic achievement. Accordingly, Francois & Roy (2008) a positive association between PA (Physical Activity) and cognitive health is also suspected in younger learners but is not as well documented in this age group. Nevertheless, any positive influence of PA on the cognitive functions of children is important. Findings show that schools with smart sports training program tend to promote high academic achievement. These two concepts of physical activities and academic subjects have a positive relationship. The relationship can involve the combination of students' experiences and sport skill in an athlete that leads to high academic performance. Stanca (2006) stated that most parents like to see their students-athlete looks smart and compete successfully in academic learning and sport. However, both academic achievement and sports training were considered as a background for building psychological traits, knowledge, attitudes beliefs, intentions and intrinsic factors of a person. Tenenbaum & Eklund (2007) stated that academic performance was found to improve as PE (Physical Education) class time was increased. "*Given that the brain is responsible for both mental processes and physical actions of the human body, brain health is important across the life span. In adults, brain health, representing the absence of disease and optimal structure and function, is measured in terms of quality of life and effective functioning in activities of daily living. In children, brain health can be measured in terms of successful development of attention, on-task behavior, memory, and academic performance in an educational setting*" (Harold & Heather, 2013). The findings explained that the achievement involves a teacher's experiences and style of coaching sport. Pam Grossman, Susanna Loeb, Julia Cohen, Karen Moore Hammerness, James Wyckoff, Donald Boyd, Hamilton Lankford (2010) stated that Even as research documents that teachers matter, there is less certainty about the attributes of teachers that make the most difference in raising student achievement. Many studies have estimated the relationship between teachers' characteristics (i.e., experience and academic performance) and their value added to student achievement. Few have explored whether instructional practices predict student test score gains. Kirsti, Roe, Marte, Blikstad-Balas, Klette, & Tengberg (2021) reported that after investigating possible correlations between scores and achievement it had gained, for all students this might support students differentially. Its reasonable importance indicated that teachers investigate the classroom.

Many athletes' successes in sports competitions depend on their own muscle strength and their abilities, which assist athletes to improve on academic learning. In addition, athletes with a high level of physical fitness, also possess various muscle strengths in their bodies. Nelson & Gordon-Larsen, (2006) reported that adolescents who were active in school were more likely to have high grades. This is because they were in the same group of sport talent and excellence academic grades. They also have high psychological performance which include; self-confidence, imagery, and motivation. For example, Self-confidence is defined as "courage"; however, the concept of self-confidence also includes the firm belief in one's own abilities. It is a concept with a physical side as well as a state of mind (Malik & Yadav, 2015). According to Robazz & Hanin (2004), some athletes have better skill performance than others. Takes into account athletes' optimal and poor performances to identify the idiosyncratic content and intensity of emotional experiences associated with success and failure. Individualized criteria are thus derived to anticipate and predict the functional effects of emotions on performance. They might also have optimally involved in several of none motion modalities. According to Jose & Maria (2018), having adequate knowledge and skills in sports can improve athletic performance and effectively improve physical and mental health**.** Hardy (1997) added that schools always foster task-involving criteria that may be satisfying to all individuals in sports experience, especially elite athletes. Therefore, coaches always focus on individual athlete elite who have good physical fitness. They believed that elite athletes can sustain hard training.

The findings by Lemyre, Roberts, Treasure, Stray-Gundersen, & Matt (2004) found that athletes have burnout at the end of the season with a high percentage of 67%, the perceived task involved 12%, and psychological variance of perfectionism in athletes 20%. This is meaningful because students benefit from physical training. According to sports, school curriculum base, teacher, coach and student were hardly working together. It's more than in other schools. Findings by Duda & White (1992) supported that the student-athlete, elite adult athlete, and young athlete believed that hard work and cooperation lead to success in sport. Because, children learn in a complex method, which challenges teachers' classroom management. On the other hand, task orientation has been linked important purpose of school education. It is enhancing learning and understanding of lessons that foster a commitment to society (Nichols, Patashnik & Nolen, 1985). Task orientation has been associated with sports and physical education which enhances and improves students' performance.

In line with the above research, reporting from (Pam Grossman et al. 2010; Kirsti et al. 2021; Duda & White, 1992) shows that there is a relationship between physical fitness and academic learning grades of sports students-athlete. This further shows a positive relationship between a higher level of physical fitness and academic learning GPA. Helping coaches and teachers in sports schools can be appropriate through educational assessment. Unfortunately, earlier studies did not report on the relationship between Physical Fitness and Academic learning grades for Sport School Students-Athlete, that study sports majors as in the case of Thailand sports schools.

2. Research objective

1) This study seeks to identify the relationship between physical fitness and academic outcomes of sports school student-athlete.
2) This study seeks to survey the data of an academic learning and physical activities on students'-athlete.

2.1 Research scope

Thailand sports schools is a government institution of education. The purpose of selecting the school is because it comprises athletes aged between 13-18 years who engage in sporting activities and academic learning. The school aims to provide athletic students with high education standards both in sports and academic subjects in the future. Students who study in this school reside in a boarding school. The students spend the morning and afternoon doing sports (5am - 8am, and 3pm - 6pm). Academic learning in the classroom takes place during the day (9am - 3pm) (Academic committee of sports school (2020). This school has good facilities for academic learning and physical education. This ensures that the school runs a program in both filed smoothly for students. Academic subjects were selected based on who passed the physical and specific sports skills test-athlete. All students will have enrolled scholarships to learn all subjects for 6 years continuous (Rattanakoses, 2013). Teachers and staff believed that; learning motor skills is a major role in learning curriculum for developing sports training. In addition, motor skills slightly use sports psychology connection senses. It is sports skills learning depending on the individual's level of readiness, i.e., physiological readiness. Psychological readiness is related to the learner's state of mind, which develops children in sports training. The development of physiological readiness in children is the necessary use of strength muscle, flexibility and endurance. It means the desire and willingness to learn a particular skill. Moreover, sports psychology also plays an important role in psychological readiness. Sports psychology is also helpful in the cognitive stage, the social-active stage among sports school students.

Training student-athlete to be excellent needs many sources. One of the research results has shown that high blood pressure is a problem because it decreases the student's physical fitness. It is more common for students between the ages of 8 to 17 years to suffer from obesity (Robert, 2004). The effects of obesity are; high blood pressure, stroke or heart attack, and poor physical fitness performance. But this problem can be protected by doing exercise in sports school. All athletes who train every day in sports school program gain a high level of sports ability, which improve physical fitness. The number of surveys carried out by teachers found that athletes with physical fitness, use stronger muscles to resist fatigue during sitting in the classroom. Since athletes also do a lot of exercises, they are very healthy. They also have a positive attitude toward physical fitness. Constant physical fitness activities can help fight or decrease the problem of obesity in students.

Firstly, muscle strength is vital to perform the basic movements for all types of sports. Training in most activities is to build more muscle. Therefore, the athlete's

muscles consist of leg muscle strength, arm muscles, shoulder muscles, abdominal muscle and chest muscle. These groups of muscles are very important for sports training. Other training for muscle, such as training with equipment in the gymnasium and outside the gymnasium (e.g., jumping, ground pushing, fast running training all used outdoor track, usually using sport equipment or station exercise (Brian & Steven, 2007). The effect is to decrease the body weight of students through aerobic exercise.

Secondly, frequent training, by each period in separate time of training, which equal to 3 times / a week (Monday, Wednesday, and Friday). Duration for each time 15-20 exercise with 70-80 percent of optimal exercise. Duration of improving performance will take at least 2-3 months to increase muscle strength. According to research findings, the development of physical fitness improves in at least 8 weeks (Hale & Raglin, 2002). The effect of after-training helps students by providing power between speed and agility combination to gain more massive muscle strength. It becomes the ability of movement of muscle to generate relatively high forces against large resistances (strength) and to produce a high work rate (power) for various sports. As such, resistance training has become an integral component of the physical preparation for the enhancement of sports performance, so the training of muscles is an important sports training.

Thirdly, the sports school students stay in a boarding school. They are close friends in terms of a shared residence and a familiar atmosphere. They have an opportunity to share knowledge in the same class. These situations are demonstrated in everyday individuals operating in terms of gaining knowledge. Then students become the same team of coordination among them. The outcome is to facilitate each team member's task and teamwork (Hutchins, 1991).

Furthermore, the team cohesion among students is matching groups of students who have sport skill. Coaches will divide them based on their ages and learning classrooms. For this reason, very complex methods versus difficult tasks become challenging to students. It can change any bad behavioral group of students to become a good cooperation habit group. In the same way of this reason, we pointed out that learning difficult tasks can lead to a very serious problem for nonprofessional athletes such as students in a sport school. It is the variable to emphasize their students to fit relationship on academic and sports categories.

Academic evaluation of learning is the process of determining the outcome of sport school curriculum. There are many learning processes such as evaluating grades after the classroom. Doing this, teachers consider certain important aspects to select a subject for students. The purpose of the evaluation is to decide to give the grade to the student. They are certain that they have the knowledge to go on the right way of the syllabus. Following, the curriculum detail sports school consisted of 8 subjects all parts agreed upon by the senate and committee school. For example, quality of life is the first subject, which has to emphasize into the classroom (9am - 3pm). Then, adapted to the teacher's planning before teaching students. It aims to be sure either future living smoothly, or smart sports athletes. Students also have to know about particular social works, like knowledge careers, agriculture, art, the music and basics of using the

computer. In addition, academic terms had to learn continuously around 1-6 years. Thus, academic learning is a compulsory subject as a first knowledge enhancement for students. The evaluation had taken an examination at the end of every semester. Results of measurement show personality talent shown in grade point average GPA. This can be defiled as a primary concept of the positive impact on other sports talent and academic excellence (Baucom & Lantz, 2000). However, it was not supposed to be across academic subjects and the physical body gap.

3. Physical fitness impacts academic learning

Therefore, athlete prefers to pay more attention to sport training than academic learning. Subsequently, they must benefit better from physical fitness. Most of the time training the athlete pays attention to practicing the body muscle. For example, muscle strength. During muscle training, the coach prefers to use weight lifting. If they do well in weight lifting, it helps to perform sports skills for more muscle fiber improvement. The more muscle mass gains more power. Such as, short running, which is muscle strength and speed. It is a building the strength muscle method in physical fitness. In addition, deep training of muscle effect is to change muscle functions. By giving an overload for stimulation to changes in the muscle fiber. It also stimulates the production of new proteins to help future exercise demands (Brian & Steven, 2007). Moreover, lactic acid uses often in a contraction to produce movement power. This is because it helps to clear muscle and blood within an hour of cessation of exercise.

When students do so much muscle training, it causes fatigue situation because some muscle work hard loses more power, and have low energy. This forces the students to take some time to cool down or rest. According, to children 6-10-year-old and youth 11-14 years old need sleep 9-10 hours per day (Sharkey, 1986). This may take some time for them to recover. If they do not rest, it may disturb academic homework [Table 1: below]. Sibley & Etnier (2003) reported that academic performance was found to improve a physical education class. Accordingly, we found a positive relationship between academic achievement and physical fitness (Francois & Roy, 2008). We can say that the higher performance of athletes has improved their academic ability. It positively influences sport school students every semester.

Table 1: Comparison activity between sports schools and local school in one 1-day time

Day-time (Monday-Friday)	**Night-time (Monday-Friday)**
Sport school field training activity 60 %*, classroom learning 40 %*	Sport relaxation and rest 20 %*, home works 20 %* (sleeping 8-10 hour)
Local school classroom 60 %* (No sport training 40 %*)	No sport relaxation, home works 40 %* (sleeping 8-10 hour)

*estimated percentage of diary school activity

4. Research methodology

4.1 Sample sampling

The student in sport school of Thailand were chosen as a sample of study. Researchers uses a random sampling technique to select students. It was athlete's from (9) sports schools. The samples were male and female athlete-students (n=540) who had a difference in their own sports. All sample were sports such as football, swimming, boxing, seprak-tra-krow, track and field, cycling, judo, weight lifting, archery, baseball and Thai-boxing.

4.2 Equipment and data collection

This study uses questionnaires to collect data. The questionnaires were sent via post mail to school directors of the 9 schools. 60 questionnaires were sent to each school (60 x 9 =540). The questions were administered based on school levels (levels 1 to 6). Each level responded to 10 questionnaires. All questionnaires were responded to and returned.

4.3 Data analysis

The analysis uses statistics to run percentile of calculation, then present results in percentages. The analysis is done by comparing physical fitness and academic grade GPA of the final semester. The questionnaire demonstrates an age, gender, sport experiences, physical fitness level, and grade point average [GPA]. Below is the data category referring to grade level. We defined "grade point average in low level" as a student score <25th percentile, middle level <50 percentile, and high level >75 percentile. Good performance in physical fitness, grade point average was defined as percentile >75th.

Table 2: The variables: Grade Point Average [GPA] and Physical Fitness Level

Levels	**(V1) Grade Point Averages**	**(V2) Physical Fitness Levels**	**(V3) Sport Experience (competition)**	**(V4) Non-Sickness (recorded 1 year)**
(Low level) Grade (GPA) <=1.50-2.49	20.40% (low)	5.30% (low)	15.01% (low)	11.50% (low)
(Middle level) Grade (GPA) 2.50-2.99	37.10% (moderate)	61.10% (moderate) (Not good no bad)	38.93% (moderate) (Not good no bad)	10.00% (moderate)
(High level) Grade (GPA) >=3.00	42.50% (high)	32.60% (high)	46.06% (high)	78.50% (high)

4.4 Result finding

The research found a fourth variable, a variable one consisting of (V1) grade point average [GPA] of academic achievement. Variable two consists of (V2) physical fitness level which, the athlete is training every day such as running, jumping, kicking, and

weight lifting. A variable consists of (V3) athlete competitions-experiences 1 to 7 years. And variable fourth consist of (V4) non-sickness.

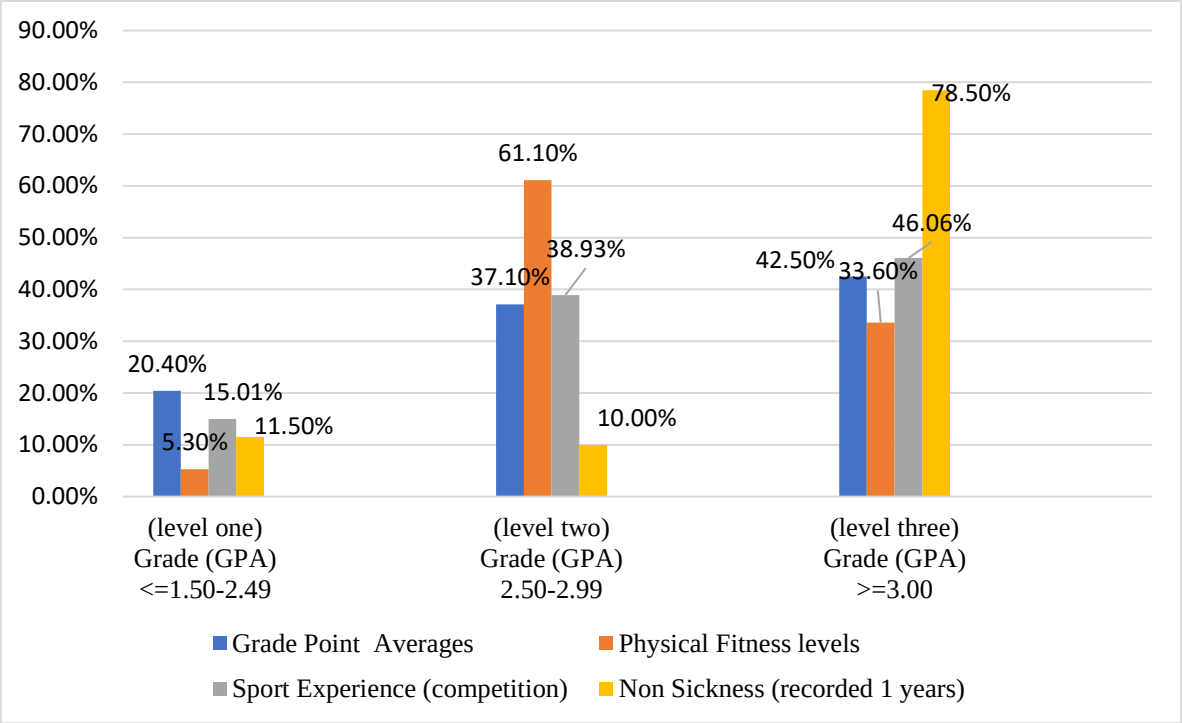

Figure 1: Percentage Levels of 3 Groups of [GPA] on Physical Fitness Student-Athlete

5. Discussion

The details above, justify that from the three categories; level one is very low grade GPA of sample [Graph one], level two is middle group, and level three is a very high. All numbers shown percentage grade point averages (GPA) to explain the positive correlation among four column variables. And found that the small number of percentage in level one. Meaning to that, the student-athlete might lack of experience about a classroom and sport training, which they have taken in the part 1-3 years. As hypothesis research already accepted small ages were the lack of smart athlete, which include physical fitness, sport experience, and non-sickness student (11.50%-20.40 %)

Following, the result in graph level two [Graph two] explored the student's steps toward a higher level of physical fitness and grade (10%-37.10%). This level records the highest numbers of students than other levels. Because they have many sports playing as the sports school provided in the curriculum.

Lastly, graph [Graph three], shows a higher level of a very good standing academic learning than others (42.5%-78.50%). The results justify explaining that there is a positive correlation between academic learning and physical fitness ability. It means three dimensions see better higher physical fitness recognised with the academic learning grade. See graph above demonstrated small to middle and bigger numbers, 20% grade and lower physical fitness, 60%, and 80%. Refers to the graph above [Picture 1] give

meaning that, athletes student do hard tasks of training. Because they need progressive strong muscles to support sports skills. Since they spend many times in the morning and afternoon for the training. At the same time student go to a classroom for academic learning, which both benefits gained knowledge.

6. Conclusions

The program staff of the sports school could agree to provide the intensity of activity, such as training duration, and mind concept students for clearly selecting a subject. The school curriculum made schedule of balancing a period of physical fitness and academy class. It the more effective, if coaches work together with the academy-teacher to look for a good school process. Sports school students can carry out the optimal tasks received from their teachers and coaches more than in local schools. Thus, high schools need to develop a more ecological model of student behavior in order to perform physical fitness, which involves academic learning.

6.1 Suggestions

Future research should take an examination by the end of the second semester. The score grade average will be more accurate than in another semester. Muscle training in sports schools should concern the athlete's ages, and experiences appropriate for them.

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Conflict of interest statement

The authors declare no conflicts of interest.

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