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Achievement Motivation and Academic Success: A Study of Student-Athletes in a Malaysian Sports School

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Abstract

Despite excelling in competitive sports, student-athletes have consistently underperformed academically despite empirical evidence suggesting a positive impact of regular physical activities on learning and memory. Reports show that their exam performance is just above the passing marks and that they need help to look for jobs. Thus, this research investigates the relationships between achievement motivation and academic achievements in a Malaysian sports school context. This study was conducted on 282 secondary school-aged student-athletes. Participants were selected using stratified random sampling to ensure all age groups were covered. A series of Pearson's Correlation Coefficients were performed to determine the relationships between achievement motivation and academic achievements in four core subjects – Bahasa Melayu, English, Mathematics, and Science. Motivation seems to be a factor that has a significant relationship with academic achievement in all four core subjects. Based on the data, male student-athletes have higher amotivation levels. Intrinsic and extrinsic motivation have positive correlations with language subjects and negative correlations with amotivation. Intrinsic motivation *towards accomplishment* was an additional

significant predictor for the Science subject. In sum, the main findings of this study suggest that motivation plays a significant role in affecting student outcomes in the four core subjects, but especially in language subjects, shedding new light on issues about student-athletes' academic achievement. This study has demonstrated that motivation plays an integral part in improving student-athletes' academic achievement in the current sample; thus, schools should prioritize addressing the lack of this fundamental driving force that energizes and directs student behaviour toward achievement over other enrichment programs. Policyholders such as school boards should also focus more on motivational programs to help improve the students' overall performances.

Keywords: Achievement Motivation, Student-Athletes, Academic Performance, Academic Achievement, Malaysian Sports School

Introduction

Research Background

Participation in sports has always been linked to cognitive performance. Past research shows that sports participation during adolescence develops cognitive abilities, such as understanding and remembering strategies (Brown et al., 2017). Furthermore, the benefits of being active in sports, like developing cognitive flexibility and working memory, can also be seen from an early age (Bryant, 2020). The motivation and drive to excellence can help to achieve better academic performance (Garcia & Subia, 2019). Despite this, data shows that student-athletes in a Malaysian Sports School (MSS) have been underperforming academically. This can be seen when most student-athletes work in underpaid jobs, such as fishermen, bus or lorry drivers, and factory workers, despite giving everything during their youth to make the country proud in sports.

Furthermore, underperformance in academics can make it hard for them to further their study (Judan et al., 2022). This research studied the relationship between achievement motivation and the academic performance of student-athletes to see if motivation predicts the academic outcome. Two hundred eighty-four student-athletes from one of the Malaysian Sports School systems were chosen to participate in this study.

Problem Statement

Despite excelling in competitive sports, student-athletes have consistently underperformed academically. They cannot further their studies or have a stable career once they leave school, despite claims that sports may help with academic performance (Trudeau & Shephard, 2008). Several research results from the early 2000s suggest a positive impact of regular physical activity on learning and memory at all ages. Another study also found that by being active, student-athletes are more confident and mentally prepared to face challenges (Surat, et al., 2019). It is also generally accepted that cognitive functions and brain health in older adults are associated with such activity and, thus, should be promoted from a young age. Growing evidence also shows increased brain reserve is attributed to physical activity (Trudeau & Shephard, 2008). These imply that students entering the sports school system as student-athletes are physically healthy and more cognitively advantaged than less physically active peers.

However, the problem can be seen when students graduating from the system fail on many levels. The inability to pursue tertiary education, which leads to far from exemplary work and

life quality, has been attributed to poor academic performance while still in school. Exam results further support this, demonstrating the consistently poor performance of these student-athletes across the board. A study in 2017 found that 16-year-old student-athletes were physically and mentally tired; they found it hard to prioritize, lack of motivation, and could not focus in class, resulting in poor academic performance (Judan, et al., 2022). A news report shows that although eight local universities in Malaysia accept student-athletes to further their studies, the quota is only limited to 1000 students per year (Hashim, 2018). The lack of place in local universities also makes it hard for the student-athletes, who are produced from five Malaysian Sports Schools and 15 Malaysian States Sports Schools, to further their studies. This is also because the alumni of the sports school system admit that their academic performance in school could have been better because they were busy with training and competition (Mansor et al., 2018).

On the other hand, evidence-based school programs that could effectively improve the academic outcomes of these students still need to be explored, as the body of literature that empirically illustrates their struggles are limited. Studies on student-athletes and their academic achievement, especially in Malaysia at the secondary education level, are limited due to the school's protective, closed nature. One available study demonstrated links between motivation and attitude in a sports school in East Malaysia toward learning English (Isa, et al., 2018). Thus, a comprehensive study looking into predictors of overall academic achievement is yet to be established within the country. Therefore, there is a knowledge gap as far as student-athletes in Malaysian Sports School is concerned. Past research in other countries and on different student contexts has established the links between psychological and social factors in predicting academic outcomes. Another study in 2018 also showed that greater achievement motivation could lead to academic success (Ishihara, 2018). Therefore, it is deemed relevant to investigate the relationship between achievement motivation and academic performance of student-athletes to empirically ascertain and explain the persisting issue of student-athletes' academic underachievement in the country. Investigating how gender and age could potentially explain the academic outcomes would also be worthwhile. A wholesome understanding of how these constructs play out may better inform policies and curricula custom-tailored to student-athletes unique needs. As such opportunities are hard to come by, this preliminary study will focus on illustrating one of the five SSMs available in Malaysia to lay the groundwork for future, more comprehensive psychological studies addressing academic achievement issues of Malaysian student-athletes.

Research Objectives

To provide an empirical illustration of individual subjects, this research seeks to determine the relationships between achievement motivation and student-athletes' performance in four core subjects, i.e., Bahasa Melayu, English, Mathematics, and Science. Specifically, this study seeks to:

1. Determine the student-athletes' academic performance level in the four core subjects: Bahasa Melayu, English, Mathematics, and Science.
2. Determine the level of the student-athletes' achievement motivation level.
3. Determine the relationships between achievement motivation and the student-athlete's academic performance in the four core subjects: Bahasa Melayu, English, Mathematics, and Science.

Research Questions

The research questions and corresponding hypotheses are listed according to the objectives. The research questions are:

Research Objective 1
RQ1: What are the student-athletes' academic performance levels in the four core subjects?

Research Objective 2
RQ2: What are the levels of the student-athletes' achievement motivation?

Research Objective 3
RQ3: Is there a significant relationship between achievement motivation and the four core subjects: Bahasa Melayu, English, Mathematics, and Science?

The hypotheses for research question 3 are as follows

1. There is a significant relationship between achievement motivation and student-athletes academic performance in Bahasa Melayu
2. There is a significant relationship between achievement motivation and student-athletes academic performance in English.
3. There is a significant relationship between achievement motivation and student-athletes academic performance in Mathematics.
4. There is a significant relationship between achievement motivation and student-athletes academic performance in Science.

Literature Review

Malaysian Sports School

The Malaysian Sports School system is a system that houses five schools in Malaysia that focus on developing young sports talents in Malaysian schools. There are five sports schools in Malaysia: Bukit Jalil Sports School, Tunku Mahkota Ismail Sports School, Pahang Malaysian Sports School, Terengganu Malaysian Sports School, and Sabah Malaysian Sports School. Students enter the school as early as eleven and can reach nineteen years old, finishing at the Pre-University level (Ministry of Education, Malaysia, 2022). According to the Ministry of Education, Malaysia, there are 30 sports in the sports school system, including the state sports schools. To date, research involving Malaysian Sports Schools still needs to be improved; therefore, there is a gap in knowledge in the field. Research conducted in 2021 studied the effectiveness of the sports school system and found that overall, the performance of these schools is satisfactory. However, the research focused more on the school system's general performance (Seman et al., 2021).

The sports school system can be seen as the right school for students with potential in sports. Sulaiman (2022) argues that choosing the right school for students with potential in sports is vital as this can help them reach their full potential, as the syllabus and training plans for the student-athletes in the Malaysian sports school will benefit the students.

Student-Athletes

According to US Legal (2022), student-athletes are individuals actively participating in competitive sports or may be eligible for intercollegiate sports. Meanwhile, North College

defines student-athletes as full-time or part-time students participating in organized and competitive sports of an academic institution (North Central College, 2021). According to the Ministry of Education, Malaysia, student-athletes are athletes staying in the Malaysian Sports School system and going through training and academic lessons. Student-athletes also refers to the students from Malaysian Sports School and Malaysian State Sports School that participate in competitions under the Malaysian Schools Sports Council (MSSM), ASEAN School Sports Council, ASEAN School Sports Federation, Asian Schools Paragames, and Asian Youth Paragames (Ministry of Education, Malaysia, 2022).

Being a student-athlete benefited students, especially in terms of leadership, and thus led to better academic performance. Participation gives a higher level of commitment and self-confidence and improves the chances of academic success (Brecht & Burnett, 2019). This claim is supported by another research that found that student-athletes are more confident than non-student-athletes (Soulliard et al., 2019).

Balancing their academic duties and competing in sports can take a toll on the student-athletes and thus, affecting their academic performance. A study found that physical and mental lethargy, failure to prioritize appropriately, and lack of focus are among student-athletes' issues (Judan et al., 2022). Moreover, it was found that higher participation in sports is related to higher academic performance if student-athletes know how to prioritize and manage their tight schedules (Garcia & Subia, 2019). Research on undergraduate student-athletes also shows that good time management has a significant relationship with the academic performance of student-athletes (Rahmat & Zulkifli, 2022). This finding is supported by research that found academic performance is linked to class participation (Apaak & Yawson, 2022). Besides that, a supportive and non-intimidating environment can also help student-athletes thrive in academics and sports. This is supported by research that found that with the right environment, student-athletes can perform better academically (Diyaolu, 2021).

This current research study is on the performance of student-athletes academically in the context of secondary school age in a Malaysian sports school.

Achievement Motivation

Based on the work of McClelland, it was proposed that humans' motivation is based on the need for achievement, power, and affiliation (Moore, et al., 2010). This shows that if one of those needs is present, humans will likely be motivated to achieve the goal. Focusing on this current study, student-athletes are familiar with the need for achievement as they usually participate in competitive sports. Therefore, they are more likely to be motivated by the need for achievement. As explained by Moore (2010), the need for achievement is defined by McClelland, et al (1958) as achieving success with some standard of excellence in a competition (Moore, et al., 2010). In other words, achievement motivation can be seen as the energy that drives humans to perform tasks judged by success, such as competitive sports (Wigfield & Cambria, 2010).

Motivation has been shown to have a relationship with academic achievement, as seen in the research conducted by Rasha M. Abdelrahman in 2020, which studied how academic motivation impacted the academic achievement of university students at Ajman University. Academic motivation was found to be significantly correlated with academic achievement. By

using approaches and activities that support and improve the student's motivation, students can be more motivated to participate in class and help give them the confidence to face complex and multidimensional learning challenges, and in turn, help them to reach achievement (Abdelrahman, 2020). A study in 2020 that studied the predictive power of motivation on the achievement of reading and mathematics found that when students believe that they are competent enough in a task and they can perform well, they become more motivated, which in return, leads to better achievement (Habók et al., 2020). This argument is supported by another research that found the mediating role of motivation on achievement (Guay et al., 2010) and that it produces more extraordinary and improved individual performance (Werdhiastutie et al., 2020).

This current study focused on the achievement motivation of student-athletes. It was found that higher achievement motivation leads to higher academic achievement. A study conducted to see the difference between successful and unsuccessful student-athletes found that successful student-athletes have higher achievement motivation, leading to higher achievement improvement (Ozrudi & Matmask, 2019). This could be because student-athletes have higher grit and the ability to preserve over time, which is related to success (Albert, et al., 2022). Other than that, it was found that motivation is linked to the identity of being a student-athletes and affects academic performance (Love & Rufer, 2021).

Academic Achievement

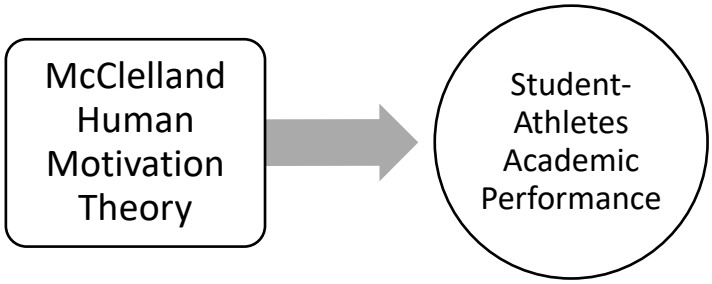
Academic achievement refers to an individual's performance outcomes that indicate whether the individual has completed the specific goals set by academic institutions such as schools, colleges, and universities. It is a multifaceted construct comprising different learning domains (Steinmayr et al., 2020). Academic achievement is also associated with an individual economic outcome, as well as physical and mental health, as stated by Byrnes in his book, Encyclopaedia of Adolescence (Byrnes, 2011). Moreover, academic achievement also predicts the development of cognitive abilities and is critical for a child's development (Peng & Kievit, 2020).

A study found that a positive school environment, such as motivating the students and proper delivery of instruction, can help improve students' academic achievement (Daily, et al., 2019). In the context of this current research, academic achievement is seen to be affected by the level of achievement motivation. This is supported by research that found motivation significantly correlates with academic achievement (Muhammad & Kutty, 2021). Another research found that motivation is one of the factors, other than teachers, schools, and family, that affect students' academic achievement (Chzin & Surat, 2021).

Theoretical Framework

This study works on McClelland's Human Motivation Theory to study the relationship between achievement motivation and student-athletes academic performance. It is believed that the higher the achievement motivation, the higher the academic performance. The McClelland Human Motivation Theory suggests that a human's drives for success are based on three factors which are achievement, affiliation, and power (Acquah et al., 2021). The need for achievement leads to mastering specific knowledge or talent, which leads to better performance. Furthermore, McClelland's theory was also found to be a driving factor for learning. A study found that the theory helps to boost learning and increase competencies

and capabilities (Werdhiastutie et al., 2020). Therefore, this study seeks to prove that achievement motivation can lead to better academic performance. Figure 1 shows the theoretical framework of the study.



Methodology

This study adopted a predictive correlational design to explore whether achievement motivation predicts the academic achievement of student-athletes in a Malaysian Sports School. A total of 282 student-athletes participated in the study by answering a questionnaire that was distributed to them. The study population is 600, but using all 600 was impossible as the student-athletes spend most of their time out of the school for competition and training. Hence, stratified random sampling was conducted to ensure all groups were represented in the study. The population was grouped based on their class, age, and sports. According to Morgan's Table, the smallest sampling size for a population of 600 is 282, with a margin error of 5.0% and confidence of 95%. The study was conducted at one of Malaysia's five Malaysian sports schools.

The questionnaire used was the Academic Motivation Scale for achievement motivation. To help the students understand the questionnaire, the instrument was translated into Bahasa Melayu. The instruments went through back-to-back translation, where it was first translated into Bahasa Melayu and then translated back to English so that the meaning stayed the same. The scale was chosen as it was adapted from the college version to suit high school students. The scale contains seven sub-scales assessing the intrinsic motivation towards knowledge, accomplishments, and stimulation and the external, introjected, and identified regulation and amotivation.

Instrumentation

This study used the Achievement Motivation Scale – High School edition adapted and translated to Bahasa Melayu. The AMS-HS assesses high school students' motivation and comprises 28 items on a 7-point scale (Vallerand, et al., 1993). The scale's internal consistency was reported for all seven sub-scales (average Cronbach's Alpha = 0.81, min 0.62, max = 0.91). Furthermore, the scale's validity can be seen from two studies performed by the developer that support the existence of the sub-scales. Its evidence of validity was obtained through the confirmatory factor analysis and through an examination to see the relationships between the sub-scales (RAND Education and Labor, 2018).

The instrument looks at seven subcategories of motivation: Intrinsic Motivation – To Know, Intrinsic Motivation – Towards Accomplishment, Intrinsic Motivation – To experience, Extrinsic Motivation – To Be Identified, Extrinsic Motivation – Introjected, Extrinsic Motivation – External Regulation, and Amotivation. Participants are asked to rank what they feel motivates them based on the statements on a seven-Likert scale. The score is totalled, and the mean is used to see the level for each subcategory. The higher the mean score, the higher the level for each subscale.

Research Location

This study was conducted in one of the Sports Schools in the Malaysian Sports School system. The school was chosen as it is one of the oldest sports schools in the system and has the more significant number of students. Other than that, the protective nature of the school made it hard for researchers to enter the school and conduct the study. Approval from the Ministry of Education was obtained to conduct research in the sports school.

Population and Sampling

The school has a population of 600 students, and according to Morgan's Table for sample size, with a population of 600, the sample needs to be 579. Unfortunately, obtaining that number of participants was impossible because the school is a national sports school, as student-athletes mostly attend training and sports competitions throughout the school year. Thus, the smallest sample size for the population of 600, 282, was used. This gives a margin error of 5.0% with a confidence of 95% (KrejcIie & Morgan, 1970). This is also supported by Shafian (2022), that said there are factors such as compatibility and suitability that help determine the sample size (Shafian et al., 2022).

The sample was also determined using stratified random sampling. The strata were age and sports to ensure that all groups were covered in this research. The strata were decided based on the students' data obtained from the school. This is supported by Bhardwaj, who claimed this sampling method would cover the issue of less homogeneity of the population and make an accurate representative sample (Bhardwaj, 2019).

Findings

Descriptive Analysis for Four Core Subjects

The data collected was analyzed in SPSS using descriptive statistics. A total of 282 participants participated in the study, with 63.5% being male student-athletes and the other 36.5% female student-athletes. The mean percentage for all age groups was 20%, meaning that all the age groups were equally represented in the study. Based on the sports categories, the highest participant was from hockey, and the least was from field bowling and swimming. The descriptive statistics for the core subjects' scores based on gender, age, and sports are shown in Table 1.

Table 1
Descriptive Statistics for Four Core Subjects Based on Gender

Gender	*Male*		*Female*	
Subject	*Mean*	*SD*	*Mean*	*SD*
Bahasa Melayu	*48.20*	*1.52*	*59.17*	*2.05*
English	*39.41*	*1.52*	*49.05*	*1.98*
Mathematics	*41.60*	*1.38*	*53.33*	*1.89*
Science	*42.98*	*1.25*	*49.46*	*1.77*

Based on Table 1, for all four core subjects, female student-athletes outperform male student-athletes. For Bahasa Melayu, female student-athletes performed better with (M = 59.17, SD = 2.05) compared to their male counterparts who scored (M = 48.20, SD 1.52). Similarly, for English, the female student-athletes scored (M = 49.05, SD = 1.98) while their male counterparts scored below the passing mark (M = 39.41, SD 1.52). The same pattern can be seen in the STEM subjects, with female student-athletes scoring (M = 53.33, SD = 1.89) and (M = 49.46, SD = 1.77) for Mathematics and Science, respectively. The male student-athletes, however, barely scored above the passing marks with (M = 41.60, SD 1.38) and (M = 42.98, SD = 1.25). Overall, the result shows that student-athletes generally only sometimes pass all four core subjects.

Table 2
Descriptive Statistics for Four Core Subjects Based on Age

Age	*13*		*14*		*15*		*16*		*17*	
Subject	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Bahasa Melayu	73.00	2.08	42.19	2.31	52.18	1.85	63.20	3.03	37.74	1.76
English	61.80	1.89	35.46	2.50	35.51	2.18	54.50	2.80	32.81	1.96
Mathematics	62.40	2.13	38.64	2.28	47.49	2.74	48.10	2.49	37.53	2.03
Science	65.40	1.89	36.97	1.98	42.63	1.89	46.10	2.24	40.11	1.64

Thirteen years old student-athletes have the highest scores compared to other age groups in all core subjects, as illustrated in Table 2. From Table 2, it can also be seen that the older the age of the student-athletes, the lower the mean scores get. The table also indicates that 16 years senior student-athletes score second highest in all the subjects. This shows that their academic performance drops as they grow older and the longer they are in the sports school system. Figure 1 below shows the performance of four core subjects across the age.

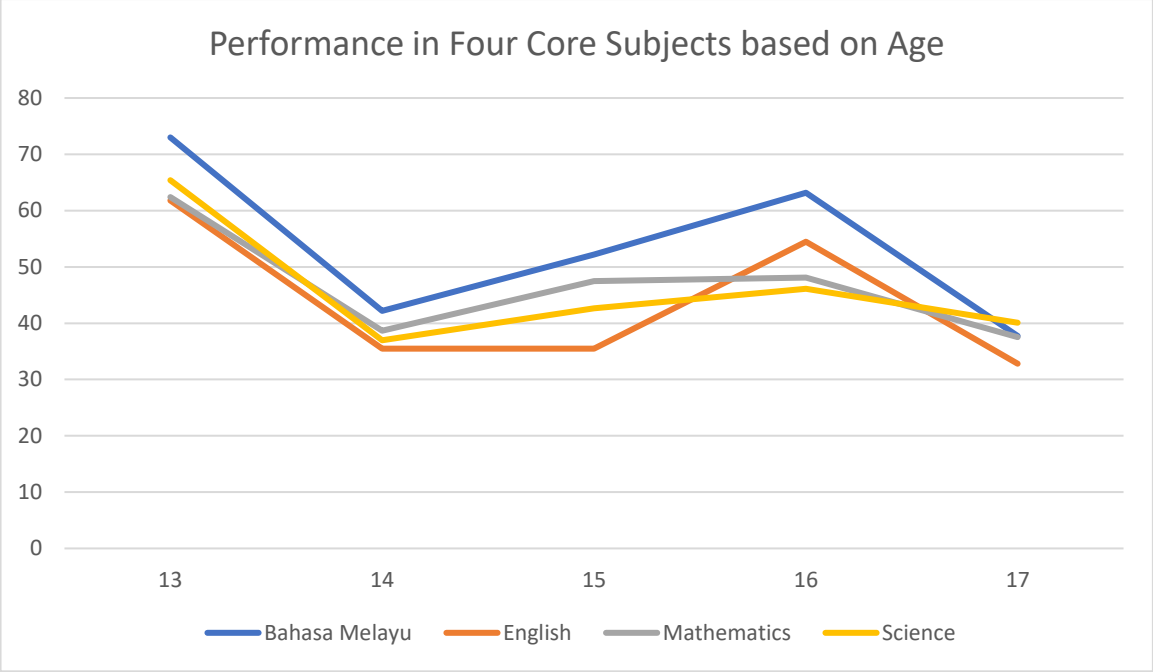


Figure 1.

Descriptive Analysis for Achievement Motivation

Table 3

Descriptive Statistics for Achievement Motivation Based on Gender

Gender	Male		*Female*	
Achievement Motivation	Mean	*SD*	Mean	SD
- (IM) To Know	5.73	.06	5.75	.08
- (IM) Towards Accomplishment	5.45	.07	5.53	.09
- (IM) To Experience	5.08	.07	5.11	.09
- (EM) Identified	6.01	.06	6.09	.07
- (EM) Introjected	5.50	.07	5.48	.08
- (EM) External Regulation	6.13	.06	6.19	.07
- Amotivation	3.10	.10	2.74	.13

The finding shows that the student-athletes overall have high motivation in six subcategories for both internal and external motivation. For amotivation, they scored low with (M = 3.10, SD = .10) for male student-athletes and (M = 2.74, SD = .13) for female student-athletes. Based on the AMS-HS, this data shows that student-athletes are highly motivated.

Relationships between Achievement Motivation and Student-athletes Academic Achievement in Four Core Subjects

Using the Pearson Product-Moment Correlation, the relationship between achievement motivation and academic achievement in four core subjects was identified. The data indicates a positive correlation between intrinsic motivation (to experience) with Bahasa Melayu (r =

.144**). A negative and negligible correlation exists between amotivation and Bahasa Melayu (r = .151*). In the English subject, albeit weak, there are positive correlations with all intrinsic motivation subcategories and extrinsic motivation (identified). In addition, there is a negative and low correlation between the English subject with amotivation (r = -.204**).

For Mathematics subjects, the relationships with intrinsic motivation (toward accomplishment) (r = .127*), intrinsic motivation (to experience) (r = .131*), and extrinsic motivation (identified) (r = .128*) are positive correlations. The table also shows a negative and negligible relationship between amotivation with the Mathematics subject (r = -.146*). On the contrary, the Science subject only has a positive and negligible relationship with intrinsic motivation (toward accomplishment) (r = .144*).

The result shows that all four study hypotheses were accepted.

Table 4

Pearson Correlation between Achievement Motivation and the Four Core Subjects

	1	2	3	4	5	6	7	8	9	10	11
1. IM To Know	1										
2. IM Towards Accomplishment	.739**	1									
3. IM To Experience	.606**	.604**	1								
4. EM Identified	.670**	.644**	.511**	1							
5. EM Introjected	.607**	.661**	.491**	.614**	1						
6. EM Externa Regulation	.570**	.568**	.376**	.698**	.641**	1					
7. Amotivation	-.375**	-.385**	-.372**	-.439**	-.394**	-.371**	1				
8. Bahasa Melayu	.100	.110	.144**	.107	.068	.043	-.151*	1			
9. English	.136*	.151*	.149*	.158**	.102	.110	-.204**	.780**	1		
10. Mathematics	.098	.127*	.131*	.128*	.062	.037	-.146*	.713**	.701**	1	
11. Science	.075	.144*	.056	.081	.051	.033	-.105	.712**	.668**	.732**	1

Conclusion and Discussion

The research found that motivation relates to academic achievement in the four core subjects. This is supported by considerable research that found significant relationships between achievement motivation and academic achievement. Previous research has also found the motivation to have relationships with academic achievement, specifically in physical education and sports students.t. It was found that intrinsic motivation to know and experience stimulation has a significant relationship with students' academic performance (Sivrikaya, 2019). Abdelrahman also found that motivation has a highly significant relationship with

academic achievement, specifically intrinsic and extrinsic motivation (Abdelrahman, 2020). Thus, it can be said that motivation is an essential factor in students' academic achievement.

Moreover, it was found that achievement motivation is significantly related to language subjects. This is also supported by previous research that found students' motivation and learning achievement in second language acquisition is significant, although in gaming (Boudadi & Gutierres-Colon, 2020). It was also found that intrinsic motivation positively influences students' willingness to use mobile devices to learn a language (Sun & Gao, 2020). Another literature that supports this finding is by Zhang 2020, who found that students' motivation influences their language proficiency, specifically foreign language (Zhang, et al., 2020).

Theoretically, this study supports the theory of human achievement motivation, suggesting how motivation has a significant relationship with academic achievement, especially in language subjects. This can help future researchers and policymakers make necessary programs and interventions related to motivation to help future student-athletes further. The findings of this study show that improving students' motivation, and student-athletes, explicitly in this study can contribute to the improvement of academic achievement in the four core subjects.

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