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Sports Participation on Multiple Intelligences: A Cross-Sectional Study of University Student-Athletes



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Abstract | Student-athletes are a unique group, facing numerous challenges in maintaining excellent academic performance while balancing their sports commitments. Participation in sports has significantly impacted their socialization, intellectual growth, and character building. It is essential to address the factors underlying these issues and devise effective strategies to help student-athletes successfully navigate their academic and athletic pursuits. Howard Gardner's theory of multiple intelligences (MI) provides a valuable framework for understanding the diverse cognitive strengths and weaknesses of individuals. This theory posits that intelligence is not a single entity but rather a combination of several distinct intelligences, including kinesthetic, intrapersonal, logical, interpersonal, and linguistic intelligences. By evaluating student-athletes through the lens of MI, we can gain insights into how their unique intelligence profiles influence both their athletic performance and personal growth. The objective of this study was to investigate the multiple intelligences of student-athletes and examine the differences in MI subdomains based on gender, type of sport, age group, and ethnicity. To achieve this objective, a cross-sectional survey research design was employed, utilizing a sample of 182 student-athletes representing the university. Overall, the multiple intelligences of the students were high. Among the five MI subdomains, kinesthetic intelligence scored the highest ($M = 21.51 \pm 2.99$), followed by intrapersonal ($M = 20.17 \pm 3.13$) and logical intelligences ($M = 18.78 \pm 2.83$). Interpersonal ($M = 17.80 \pm 3.11$) and linguistic intelligence ($M = 15.33 \pm 3.35$) received the lowest scores. Independent sample t-test results revealed significant differences in the kinesthetic, interpersonal, and intrapersonal intelligences between genders, while logical and interpersonal intelligences differed significantly by type of sports ($p < 0.05$). Logical intelligence was the only subdomain showing a significant difference between age groups, while none of the ethnicity groups showed significant differences in any of the subdomains ($p > 0.05$). Significant differences were found in several MI subdomains based on gender, type of sport, and age group. Specifically, kinesthetic, interpersonal, and intrapersonal intelligences differed between genders, while logical and interpersonal intelligences varied by type of sport. Additionally, logical intelligence showed differences across age groups. Overall, the results underscore the importance of a holistic approach in supporting student-athletes, leveraging their strengths in kinesthetic, intrapersonal, and logical intelligences while addressing areas like interpersonal and linguistic intelligences. Tailored strategies based on MI profiles can help balance their athletic success and personal development.

Keywords: Athletic performance, multiple intelligences, student-athletes, university students.

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I. INTRODUCTION

University student-athletes face the unique challenge of balancing rigorous academic requirements with the demands of their athletic commitments. This balancing act requires not just physical endurance and skill but also a diverse set of cognitive abilities. Traditional intelligence assessments, such as IQ tests, often fail to account for the wide range of intelligences that contribute to both academic and athletic success [1]. Howard Gardner's Theory of Multiple Intelligences (MI) [2] provides a more comprehensive framework, identifying distinct forms of intelligence such as kinesthetic, intrapersonal, logical, interpersonal, and linguistic intelligence. Despite the applicability of this theory to student-athletes, research exploring the MI profiles of this group remains limited. Thus, this study aims to investigate the multiple intelligence profiles of university student-athletes and examine how these profiles vary based on demographic factors such as gender, type of sport, age, and ethnicity.

II. METHODS

The study employed a cross-sectional design and was conducted among university athletes from UiTM Sarawak. A total of 182 active student-athletes participated, recruited through convenience sampling from a population of 230 athletes (source: Sports Unit, UiTM Sarawak). The data collection instrument was the Multiple Intelligence Questionnaire (MIQ) [3], which includes 25 items across five MI subdomains: linguistic, logical, kinesthetic, interpersonal, and intrapersonal intelligences. The MIQ uses a 5-point Likert scale ranging from "never" to "always." The Cronbach's alpha for the questionnaire was reported at 0.821, indicating good internal consistency. The data were analyzed using SPSS Version 27.0. Descriptive statistics were calculated for all subdomains, and inferential statistics were applied to test for significant differences in MI based on gender, type of sport, age, and ethnicity. Independent sample t-tests and one-way ANOVA were used, with a significance level set at $p < 0.05$.

III. RESULTS AND DISCUSSION

The results revealed significant differences in certain MI subdomains based on gender and type of sport. Male athletes scored significantly higher than female athletes in kinesthetic, interpersonal, and intrapersonal intelligences. This suggests that male athletes may have better physical coordination, a greater ability to understand and manage their own emotions, and a better understanding of others' moods and intentions [4].

When comparing team sports to individual sports, team sport athletes scored higher in interpersonal intelligence, reflecting their enhanced ability to navigate social dynamics and understand others' perspectives [5]. No significant differences were found between individual and team sports in other MI subdomains ($p > 0.05$).

Regarding age, older athletes (over 24 years) exhibited higher logical intelligence ($p < 0.05$), likely due to greater cognitive and emotional maturity, which allows for more systematic problem-solving and decision-making under pressure.

Interestingly, no significant differences in MI were found across different ethnicities ($p > 0.05$). This finding may reflect the unified athletic culture and shared experiences that university sports teams

promote, which could lead to similar cognitive and emotional development among athletes regardless of their ethnic background.

TABLE I
DIFFERENCES IN MULTIPLE INTELLIGENCE AMONG UNIVERSITY ATHLETES BY DEMOGRAPHICS (N = 182)

Variable	Linguistic Int.	Logical Int.	Kinesthetic Int.	Interpersonal Int.	Intrapersonal Int.
Gender <i>M</i> ± <i>SD</i>					
Male (n = 91)	15.25 ± 3.90	19.13 ± 2.94	22.41 ± 2.52*	18.28 ± 3.23*	20.83 ± 2.91*
Female (n = 91)	15.42 ± 2.85	18.43 ± 2.69	20.60 ± 3.15*	17.31 ± 2.87*	19.50 ± 3.21*
Types of sports					
Ind (n = 53)	15.11 ± 3.32	19.13 ± 2.99	21.26 ± 3.54	16.62 ± 3.12*	20.11 ± 3.64
Team (n = 129)	15.42 ± 3.41	18.63 ± 2.76	21.61 ± 2.74	18.28 ± 2.99*	20.19 ± 2.91
Age groups (years)					
18-20 (n = 35)	14.11 ± 3.49	19.34 ± 3.35*	21.97 ± 2.39	17.54 ± 3.53	20.97 ± 2.89
21-23 (n = 141)	15.59 ± 3.28	18.55 ± 2.24*	21.35 ± 3.11	17.84 ± 3.01	19.91 ± 3.18
> 24 (n = 6)	16.4 ± 3.13	24.00 ± 2.90*	22.00 ± 3.16	18.60 ± 3.85	21.00 ± 1.87
Ethnicities					
Malay (n = 36)	15.94 ± 3.35	18.83 ± 2.75	21.64 ± 2.76	17.83 ± 3.25	20.83 ± 3.25
B. Sarawak (n = 91)	14.67 ± 3.18	19.00 ± 2.64	21.74 ± 2.84	17.89 ± 3.15	20.35 ± 2.96
B. Sabah (n = 55)	16.06 ± 3.50	18.41 ± 3.19	20.98 ± 3.34	17.76 ± 2.88	19.46 ± 3.27

IV. CONCLUSIONS

This study underscores the importance of recognizing the diverse cognitive strengths of university student-athletes, as outlined by Gardner's Theory of Multiple Intelligences. The significant variations in MI profiles based on gender, type of sport, and age highlight the need for tailored educational and coaching strategies that leverage these unique strengths. The lack of differences across ethnicities suggests that the university sports environment may play a unifying role in cognitive development. Future research should explore how these findings can be applied in educational settings to better support the academic and athletic success of student-athletes.

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