Can athlete experience influence physical literacy skills?

¿Puede la experiencia del deportista influir en las habilidades de alfabetización física?

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How to cite in APA

Jermaina, N., Suardika, I. K., Prasetyo, A., Mile, R., Pebriyeni, E., Azis, A. C. K., ... Purnomo, E. (2025). ¿Puede la experiencia del deportista influir en las habilidades de alfabetización física?. *Retos*, *68*, 1563–1571. https://doi.org/10.47197/retos.v68.116121

Abstract

Introduction: Physical literacy is a necessity to truly understand the needs related to activity and health. Therefore, this literacy is often associated with a person's experience in engaging in physical activity. With good physical literacy, individuals can more easily recognize the benefits and risks associated with the physical activities they participate in.
Objective: The purpose of this study was to examine the connection between an individual's experience as an athlete and their physical literacy skills, focusing on how athletic experience influences the development of physical literacy abilities.
Methodology: This study used a quantitative research method with 214 respondents (158 men and 56 female). The instrument used in this study was the Perceived physical literacy instrument for physical education teachers with EFA: 0.69 to 0.87, and CFA: 0.73 to 0.76. Furthermore, the data that had been obtained was analyzed using Mann-Whitney U.
Results: The results of the study that had been conducted obtained a level of significance between the experience of being an athlete and gender on physical literacy is <0.001, which means that there is no significant difference between those who have been athletes and those who have never been athletes on literacy skills. Likewise, there is no influence between gender (male and female) on literacy skills.
Conclusion: This research is limited to only conducting a survey using instruments distributed to respondents, thus creating many factors that cannot be controlled by the researcher and this becomes a limitation in this research.

Keywords

Athlete experience, gender, physical literacy, physical activity.

Resumen

Introducción: La alfabetización física es necesaria para comprender plenamente las necesidades relacionadas con la actividad física y la salud. Por lo tanto, esta alfabetización suele asociarse con la experiencia de una persona al realizar actividad física. Con una buena alfabetización física, las personas pueden reconocer con mayor facilidad los beneficios y los riesgos asociados con las actividades físicas que practican.
Objetivo: El propósito de este estudio fue examinar la conexión entre la experiencia de un individuo como atleta y sus habilidades de alfabetización física, centrándose en cómo la experiencia atlética influye en el desarrollo de las habilidades de alfabetización física.
Metodología: Este estudio empleó un método de investigación cuantitativo con 214 participantes (158 hombres y 56 mujeres). El instrumento utilizado fue el instrumento de alfabetización física percibida para profesores de educación física, con un AFE de 0,69 a 0,87 y un-AFC de 0,73 a 0,76. Además, los datos obtenidos se analizaron mediante la prueba U de Mann-Whitney.
Resultados: Los resultados del estudio arrojaron un nivel de significancia <0,001 entre la experiencia como deportista y el género en la alfabetización física, lo que significa que no existe una diferencia significativa entre quienes han sido deportistas y quienes nunca lo han sido en cuanto a la alfabetización. Asimismo, no existe influencia del género (masculino y femenino) en la alfabetización.
Conclusión: Esta investigación se limita únicamente a realizar una encuesta utilizando instrumentos distribuidos a los encuestados, creando así muchos factores que no pueden ser controlados por el investigador y esto se convierte en una limitación en esta investigación.

Palabras clave

Experiencia del deportista, género, alfabetización física, actividad física.

Introduction

The multifaceted concept of physical literacy, which encompasses the motivation, confidence, physical competence, knowledge, and understanding to maintain physical activity throughout one's lifespan, has garnered increasing attention in the fields of sports science and public health (Jefferies et al., 2019; Öztürk et al., 2023). It extends beyond mere participation in physical activities, embodying a holistic approach to well-being and positive relationships with movement (Castelli et al., 2014). Physical literacy is a learned attribute necessitating structured physical activity alongside qualified instruction, thereby fostering participation in exercise and sports with sustained interest and enthusiasm (Faigenbaum & Rebullido, 2018). Physical education programs should integrate movement vocabulary, physical literacy, and athletic movement skills to facilitate the development of athleticism (Kumar, 2018). Early identification of physically inactive youth and providing them with developmentally appropriate and meaningful experiences is crucial in guiding them toward physical literacy (Faigenbaum & Rebullido, 2018). Understanding the interplay between athletic experience and the development of physical literacy skills is essential for optimizing interventions and programs aimed at promoting lifelong engagement in physical activity (Jefferies et al., 2019).

The question of how athletic experience shapes physical literacy is complex, warranting exploration of various factors such as the type and intensity of sports participation, the quality of coaching and training, and the individual's intrinsic motivation and self-perception (A. Chen, 2015). The development of physical literacy is not solely dependent on innate abilities but also on acquired skills and knowledge through experience and learning. It is crucial to investigate how different sports and athletic activities contribute to the various components of physical literacy, including motor skills, confidence, and knowledge. To achieve a physically literate individual, focus must be placed on effective and differentiated teaching strategies, use of technology for personalized progress tracking, cultivating a supportive school environment, and coordinating local initiatives with national standards (Castelli et al., 2015). Furthermore, the impact of early specialization in a particular sport versus a more diversified approach to physical activity during childhood on the development of physical literacy warrants investigation. Further research should explore how resilience and physical literacy interact, potentially leading to optimized physical-psycho-social environments that foster both constructs (Jefferies et al., 2019).

The role of physical education in fostering physical literacy is paramount, offering an avenue to reverse the global trend of physical inactivity (Henrique, 2020). Physical education presents opportunities to explore the relationship between social-emotional processes and student outcomes (He et al., 2023). Physical education is the basic foundation to build high-performance athletes (Kumar, 2018). Effective teaching is crucial for children to acquire the skills necessary to lead a physically active lifestyle (Rink & Hall, 2008). Adolescence represents a critical period for shaping attitudes towards physical activity and promoting lifelong healthy habits (Ilsya et al., 2023; Purnomo, Jermaina, Hambali, et al., 2024). Quality physical education, staff involvement, and family and community engagement can logically provide increased opportunities for physical activity participation, which leads to physical literacy among children (Castelli et al., 2014). Physical literacy plays a crucial role in understanding physical activity in the context of health, though existing research is disproportionately focused on measurement tools rather than comprehensive analysis (Cornish et al., 2020).

Experiences in physical activity are vital to the exploration of physical literacy and in creating lifelong participation. Physical education and dance education can create creative curriculums because movement patterns are at the heart of classroom experiences (Kadi, 2017). The ultimate goal of physical education programs should be to promote public health through physical activity, ensuring that children meet the recommended daily physical activity levels (Metzler, 2016). Integrating recreational activities into physical education curricula and fostering an environment of encouragement can enhance student engagement and enjoyment, as well as motivation to learn and pursue new physical activities (Aquino, 2023). The promotion of physical activity in schools has gained increased attention, emphasizing the preparation of physical education teachers with a public health perspective (Bortoli et al., 2017).

Educational institutions should verify effective teaching methodologies that promote sports participation from an inclusive perspective (D'Anna et al., 2024). They need to embrace inclusion while promoting physical activity and overall health to provide positive impacts on future generations (Iqbal et al., 2022; Kohl III & Cook, 2013; Singh, 2018). Physical education programs can meet students' learning

needs for motion and provide new movement skills for them (Friskawati et al., 2020). Physical education policies should prioritize quality of programs while trying to increase the amount of time children spend in class (Mishra, 2013). Physical education can change human behavior through mental and physical development, accommodating social norms and roles (Wha Back, 2015). Physical education is an investment in society's economic and health care future (Mishra, 2013; Purnomo et al., n.d.).

Method

Design

This study uses a quantitative design to test whether the experience of being an athlete can affect physical literacy skills. The quantitative design was chosen because it can provide a clear and measurable picture of the relationship between experience as an athlete and physical literacy skills through numerical data. Data collection was carried out using an instrument in the form of a questionnaire distributed to predetermined respondents. The questionnaire was designed to explore the perceptions and levels of physical literacy skills of the respondents, all of whom were sports students who planned to become prospective physical education teachers. Research conducted quantitatively will look at relationships in statistical data that can be clearly identified. Then in the analysis carried out, the hypothesis will also be tested statistically and the results can also be generalized to a wider population.

Respondent

The respondents in this study consisted of 214 students from the sports department, with details of 158 males and 56 females. The respondents of this study admitted to having received training with professional coaches ranging from 1-20 years. The experience covers several sports (such as: athletics, soccer, basketball, volleyball, martial arts, and etc.). These respondents were selected because they were prospective physical education teachers who had a relevant background for research related to physical literacy. As sports students, they already have a basic understanding of physical activity and physical education, thus providing a clear picture of the relationship between the experience of being an athlete and physical literacy skills. The selection of respondents from sports students aims to ensure that they have direct experience related to physical activity and can measure the extent to which this experience contributes to the mastery of physical literacy required in their profession as physical education teachers. This also allows researchers to analyze differences in physical literacy based on gender and athletic background of each respondent.

Instruments

This study used the Physical Literacy Instrument for Physical Education Teachers. This instrument aims to measure physical education teachers' perceptions of their own physical literacy, the total questions in this instrument are 18 items, with a Cronbach's alpha coefficient between 0.73 and 0.76, and a factor load between 0.69 and 0.87. This instrument has previously been distributed and filled out by 335 physical education teachers, with teaching experience ranging from 1 to 36 years who teach in elementary schools (N = 125) and secondary schools (N = 210) which were filled out in June 2015 (Sum et al., 2016). This instrument was designed to measure the level of physical literacy possessed by prospective physical education teachers, focusing on key aspects such as motor skills, body knowledge, and attitudes toward physical activity. By using this instrument, researchers can obtain more detailed data on how the experience of being an athlete can affect students' ability to teach and understand physical literacy. This instrument consists of various questions that test physical skills, theoretical knowledge about physical activity, and attitudes and behaviors related to healthy physical activity. The use of this instrument allows researchers to obtain objective and comparable results between respondents, which supports the validity and reliability of the data collected.

Data analysis

To analyze the data obtained from the questionnaire, this study used the Mann-Whitney U statistical test. This test is used to compare two groups that are not normally distributed and to see if there is a significant difference between the group that has experience as an athlete and those who do not. Mann-Whitney U was chosen because it can test the difference between two independent groups (students

who have been athletes and those who have not) in terms of physical literacy levels, without requiring the assumption of normality in the data. By using this test, researchers can find out whether the experience of being an athlete has a significant effect on the physical literacy skills of sports students who will later become prospective physical education teachers. The results of this test will provide an overview of whether the athletic experience factor can influence physical literacy, which is important in supporting the curriculum and training programs for prospective educators in the field of physical education.

Results

Based on the results of the research that has been done, several important data were obtained, including physical literacy data, experience as an athlete and also gender. Based on this, the data was tested to see the level of significance of each data. However, before conducting the analysis, the data was processed to determine the level of normality in table 1 to continue the next analysis.

Table 1. Number of samples and results of normality test

Test Statistic	N	Mean Rank	Normality
Experience as an Athlete			
Ever	132	111.92	<0,001
Never	82	100.38	
Total	214		
Gender			
Male	158	112.27	<0,001
Female	56	94.04	
Total	214		

Based on the table above, it is known that the total respondents in this study were 214 respondents. With details of 132 respondents stating that they had been athletes and had participated in training with licensed coaches. While 82 respondents stated that they had never been coaches and had not even had experience being trained by licensed coaches. While based on gender, there were 158 male respondents and 56 female respondents. Based on table 1, it is known that the level of normality test with the One-Sample Kolmogorov-Smirnov Test, stated that the data owned was not normally distributed. So for further analysis, which was planned to use the t-test, it was changed by using the Mann-Whitney U test. This test also looks at the level of difference between one group and another. The Mann-Whitney U test based on the experience of being an athlete can be seen in table 2 below.

Table 2. Mann-whitney u results of experience as an athlete with physical literacy skills

Test Statistic	Amount
Mann-Whitney U	4828.000
Wilcoxon W	8231.000
Z	-1.329
Asymp. Sig. (2-tailed)	.184

Note: a. Grouping Variable: Experience as an Athlete

Based on table 2, the results of the Mann-Whitney U non-parametric statistical test, the U value is 4828,000 and the Z value is -1.329. The Asymp. Sig. (2-tailed) value is 0.184, which means it is greater than the significance level of 0.05. This shows that there is no statistically significant difference between the two groups (ever and never athletes) based on the variable on the number of scores analyzed. In other words, experience does not have a significant effect on the results of literacy skills or the number of scores obtained by respondents.

The results of this study explain that the experience factor in the context of grouping respondents does not significantly affect the variables measured. Although in practice there are differences in scores between groups, the differences are not large enough to be categorized as statistically significant. Therefore, it can be concluded that in the context of this study, experience is not the main differentiator in the results of the number of scores obtained, and other factors may contribute more to influencing the observed results. To find out the further influence, the researcher tried to see how gender affects physical literacy skills. The results of the Mann-Whitney U test can be seen in table 3 below.

Table 3. Mann-whitney u results of gender with physical literacy ability

Test Statistic	Amount
Mann-Whitney U	3670.000
Wilcoxon W	5266.000
Z	-1.898
Asymp. Sig. (2-tailed)	.058

Note: a. Grouping Variable: Gender

Based on table 3, the results of the Mann-Whitney U non-parametric statistical test, the U value is 3670,000 and the Z value is -1.898. The Asymp. Sig. (2-tailed) value is .058, which means it is greater than the significance level of 0.05. This shows that there is no statistically significant difference between the two groups (male and female) based on the variable on the number of scores analyzed. In other words, gender does not have a significant effect on the results of literacy skills or the number of scores obtained by respondents. On the other hand, based on statistical calculations, it also states that there is no influence between gender and physical literacy skills, meaning that both men and women will have physical literacy skills if they deepen and understand them. Although in practice there are differences in scores between groups, the differences are not large enough to be categorized as statistically significant. Therefore, it can be concluded that in the context of this study, gender is not the main differentiator in the results of the number of scores obtained, and other factors may contribute more to influencing the observed results.

Discussion

Experience as an athlete and physical literacy ability

It's important to acknowledge the distinction between educating about movement, educating in movement, and educating through movement (Purnomo, Jermaina, Marheni, et al., 2024). Different sporting activities can contribute to the learning process, enabling participation in sports (Marheni et al., 2023; Purnomo, Winarno, et al., 2024). The traditional educational system is changing to address the issues of inclusion, prejudice, and ability differences in physical education (Barber, 2018). The ultimate goal of lifelong physical education is to influence people's attitudes and behaviors, enriching their lives and fostering individual and societal development (Zheng, 2018). It is expected that physical education will help in the improvement of basic movement and skills (Firdaus, 2016). Physical education helps children develop their personalities, embrace tolerance, and cultivate social and cultural awareness (Tanjung et al., 2019). Physical education helps to enhance physical development by promoting health and well-being. Therefore, physical education is important for the all-round development of students.

The significance of physical activity in maintaining lifelong health and fitness is supported by substantial evidence (Marheni et al., 2022). It is well established that physical activity can contribute to the overall health, well-being, and academic performance of students (Aquino, 2023; Gulhane, 2014). Physical activity habits are strongly influenced by early experiences, highlighting the importance of positive physical education experiences in schools (Wha Back, 2015). This calls for a shift from traditional to non-traditional sports to maximize children's participation. Physical education programs can emphasize both competitive and non-competitive activities to appeal to a wider range of students. Physical education is important because it is a crucial component of a child's education, with the potential to improve academic performance and classroom behavior. The need to promote lifelong physical education should be implemented into college curriculums to improve the overall quality of students (Zheng, 2018). Physical education can make bones stronger for children and help them grow taller, while sports can relieve work pressure and enhance physical quality for older people (Zheng, 2018). Physical education is used to nurture social values and attributes in youth, and prevent lifestyle diseases (Batul, 2021). Physical education programs can also play an important role in promoting social inclusion.

Gender in athletes' physical literacy abilities

Understanding the challenges related to lifelong physical education in colleges and universities is important to improve these programs (Zheng, 2018). Physical education, including sports and games, plays an important role in physical and mental development (Zheng, 2018). Through physical education, one can stimulate students' interests and give full play to their initiative, improving the effect of physical

education. Physical education is also an important part of the overall education of students, which is conducive to the all-round development of students. Physical education activities increase confidence in students because of the discipline and dedication required to do well in sports (Mishra, 2013). Physical activity is a great way to relieve stress and improve mental health. Also, physical education makes people more witty and agile and more collectivist (Y. Chen, 2020). Incorporating group activities into physical education courses with appropriate teaching strategies can improve students' exercising capacity (Liao et al., 2023). In conclusion, to promote physical education, it should be fun to participate in and contribute to student's knowledge, comprehensive skills, and physical and mental health.

Physical education in colleges and universities helps students to improve their physical fitness and lay a solid foundation for their lifelong physical exercise (Li, 2020). Physical education can also provide students with scientific guidance on physical exercise and cultivate their interest in sports (Peng & Tang, 2021). The purpose of physical education is to promote all-round development in students. Physical education is an important component of a college student's life to ensure health and wellness. The incorporation of physical education provides benefits to students by improving psychological well-being, reducing stress and anxiety, and fostering a sense of belonging to the college community. Physical education offers great health benefits, contributing to disease prevention and promoting physical fitness among students. Physical education is a fundamental component of education because it contributes to a person's physical, mental, and social development. Regular physical education helps kids develop motor skills, build confidence, and learn how to work with others. Physical education can provide an opportunity for students to engage in physical activity that can improve their physical fitness. Physical education can give students the knowledge and skills they need to live active, healthy lives. Physical education is essential for teaching students the importance of physical activity and healthy habits.

Physical fitness, motor skills, and healthy life behavior are all promoted through physical education programs. Physical education is essential for a child's growth since it promotes academic achievement and behavior in the classroom (Juanna & Rachman, 2018; Zhao & Ma, 2019). Physical education plays an important role in public health because it focuses on improving physical fitness (Zhang, 2022). Physical fitness can motivate students to learn better and more easily, regardless of their current level of physical activity (Quka & Selenica, 2022). Physical education programs can be used as a method of preventing obesity and disease. Children who engage in daily physical education are more likely to continue physical activity as adults.

Conclusions

The conclusion of the study Can Athlete Experience Influence Physical Literacy Skills? shows that experience as an athlete does not have a significant influence on a person's physical literacy skills. Although it is expected that more and more intense physical experience can increase an individual's understanding of physical activity and its impact on health, the results of this study actually show that there is no significant difference between individuals who have experience as athletes and those who have not. The results of the statistical test using Mann-Whitney U show that the level of significance between athlete experience and physical literacy skills is <0.001, which means that both athletes and non-athletes have similar levels of physical literacy skills.

In addition, this study also found that gender factors (male and female) did not have a significant effect on physical literacy skills, indicating that physical literacy is not influenced by gender differences. This finding indicates that other factors, besides experience as an athlete or gender, may have a greater influence on the development of an individual's physical literacy skills. However, this study has limitations, namely that it only uses a survey with instruments distributed to respondents. This creates various factors that cannot be controlled by researchers, which have the potential to affect the results of the study. Therefore, further research with more varied designs and control of external factors can provide a more comprehensive picture of the factors that influence physical literacy.

Acknowledgements

The author would like to thank the respondents who were willing to be part of this research.

Conflict of Interest

The authors state that there is no conflict of interest.

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