

**The Role of Traditional Games in Improving Students' Physical Literacy in the Modern Era: A Literature Review**

Dhiya Naufal Hafiyyan^{1*}, Sonia Lapesta Nababan², Yonatan Heri Dani Marbun³,
Derryl Novario Franaditya⁴, Marisa Noviyanti Fajrah Ilsa⁵

¹²³⁴⁵Department of Physical Education, Health and Recreation, Faculty of Sports and Health Education, Universitas Pendidikan Indonesia, Indonesia

Keywords

Traditional games;
Physical literacy;
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Abstract

The modern era, characterized by rapid advances in digital technology, has led to an increase in sedentary lifestyles among children and adolescents, which has resulted in a decline in physical literacy—a crucial foundation for students' affective, cognitive, and psychomotor development. This study aims to analyze the role of traditional games in improving students' physical literacy in the modern era through a literature review approach. The method used is a literature review employing descriptive analysis techniques on various relevant articles, journals, and scientific literature. The findings indicate that traditional games such as engklek, gobak sodor, and hide-and-seek have been proven to holistically enhance students' physical literacy, encompassing the physical, psychological, social, and cognitive domains. Furthermore, traditional games are effective in reducing sedentary time, improving motor skills, physical fitness, motivation, and students' self-confidence to actively engage in long-term physical activities. Traditional games also contribute to character building, the instillation of cooperative values, and the preservation of local culture. Thus, traditional games can serve as a contextual, relevant, and effective pedagogical approach in physical education at school to support the development of physical literacy among students growing up amidst the challenges of the modern era.

✉ Corresponding author :
E-mail: dhivanaufal5@student.upi.edu

INTRODUCTION

Traditional games have been an integral part of human culture and history since ancient times (Sari & Kurniawan, 2024). Ranging from simple games like hopscotch to complex team games like gobak sodor, traditional games are not only a source of enjoyable entertainment but also offer overall health benefits (Charles et al., 2017). In the rapidly evolving modern era, particularly with the advancement of digital technology, a sedentary lifestyle has become increasingly ingrained in the lives of children and adolescents. This situation has led to a decline in physical literacy, which is crucial for affective, cognitive, and psychomotor development (Gilic et al., 2022). According to Whitehead in (Edwards et al., 2017), physical literacy is defined as “the motivation, self-confidence, physical competence, knowledge, and understanding to value and take responsibility for lifelong engagement in physical activity.” The Indonesian Health Survey (2023) indicates that 48.7% of the Indonesian population engages in insufficient physical activity; this is attributed to several factors, one of which is a sedentary lifestyle that reduces active participation in physical activities. Meanwhile, physical activities found in traditional games, such as hopscotch, hide-and-seek, and gobak sodor, can improve cardiovascular fitness, muscle strength, and body flexibility (Ismoyo et al., 2024). However, modernization has led to the gradual displacement of traditional games, creating a gap between cultural heritage and an individual’s physical needs (Maryuni & Nasrulloh, 2022).

Modernization and technological advancements have exacerbated sedentary lifestyles (Singh et al., 2024). According to the World Health Organization (WHO), in some developing countries, rates of physical inactivity can reach as high as 70%, driven by changes in transportation patterns and reliance on advanced technology in both work and recreational activities. Increasingly easy internet access and the rise of digital entertainment encourage individuals to sit for hours on end (Bonnet & Barela, 2021). Remote work, social media use, movie streaming, and online gaming lead to a decrease in physical interaction, thereby increasing sedentary lifestyles (Grzelak, 2024).

Improving physical literacy through local cultural approaches, such as traditional games, can be a solution to health problems (Siregar & Ilham, 2019). Previous research has demonstrated that traditional games have a significant positive impact on various aspects of health, ranging from physical condition to mental health. A study by (Irawan et al., 2021) showed that traditional games offer a greater variety of movements compared to modern physical activities, thereby providing greater benefits in the development of physical fitness and body stability. This indicates that traditional games can serve as an alternative for increasing physical activity, as their diverse movements stimulate various physical aspects—such as strength, coordination, and balance—compared to modern physical activities, which tend to be more monotonous.

Although these benefits have been empirically documented through observation, more structured and comprehensive research is needed to empirically test and validate these findings. Using a systematic review method, this study aims to compile and analyze the available evidence regarding the contribution of traditional games to physical literacy. With this approach, the study not only enriches our understanding of the relationship between traditional games and physical literacy but also provides a solid scientific foundation for designing future traditional game-based physical literacy intervention programs.

This study presents a new perspective through a literature review that thoroughly examines pedagogical research on traditional games in enhancing students’ physical literacy in the modern era. Previous studies have generally focused only on the effectiveness of traditional games on motor skills or physical activity from both theoretical and practical perspectives. Meanwhile, this study not only analyzes the contribution of traditional games to physical literacy but also examines various findings from relevant literature regarding the study of traditional games in the context of modern education globally.

METHODS

This study employs a literature review method to analyze the role of traditional games in enhancing physical literacy in the modern era. The literature review method serves as the primary approach in this article for collecting and analyzing information from various relevant sources. A literature review is essentially a systematic effort to gather important data related to a specific topic or issue (Febrianto et al., 2024).

The data collection technique used in this study involves a literature review, which is a method for gathering data or sources related to the research topic from various media, such as articles, books, journals, and other reference materials.

Meanwhile, data analysis was conducted on the various data that had been collected using descriptive analysis methods. This approach involves a detailed presentation of the facts, followed by analysis, description, and sufficient explanation to provide a clear understanding.

RESULTS AND DISCUSSION

Traditional games play a vital role in supporting students' physical literacy development, particularly at the elementary and middle school levels. In physical education, traditional games serve not only as recreational activities but also as learning tools capable of enhancing motor skills, game comprehension, and student engagement in the learning process (Zulnadila et al., 2025). This is evident from research conducted by (Gustian, 2020), who incorporated modified traditional games—such as can toss, blowgun, bakiak, and engklek—into physical education instruction. The findings indicate that traditional games can improve elementary students' physical literacy, particularly in terms of motor skills, game comprehension, and students' enjoyment during lessons.

Table 1. Result The Role of Traditional Games in Improving Students' Physical Literacy in the Modern Era

Title	Author	Type of Traditional Game	Research Method	Results
Traditional Games: An Approach to Developing Physical Literacy Among Elementary School Students	Uray Gustian (2020)	Can toss, turtle egg toss, blowgun (Session 1); balloon race, marble relay, clogs, hopscotch (Session 2)	The study employed a one-shot case study design with 50 first-grade elementary school students as participants. Seven modified traditional games were implemented in two trial sessions. Data were collected through observation using a 1–4 Likert-scale rubric to assess understanding, motor skills, and enjoyment, and were then analyzed using descriptive quantitative methods.	All aspects showed improvement from the first trial to the second trial. Comprehension increased from 2.44 to 2.96 (an increase of 0.52), motor skills from 2.58 to 2.94 (an increase of 0.38), and enjoyment from 3.18 to 3.68 (an increase of 0.50). Cumulatively, students' physical literacy scores increased from 2.78 to 3.20 (an increase of 0.42), indicating that modified traditional games are effective in developing physical literacy among elementary school students.
The Effect of Traditional Games on	Resi Mustika Rasnita, Andika Triansyah,	This study utilized four traditional games: galah	This study employed an experimental	The results of the t-test showed that the calculated t-

Physical Literacy Among Junior High School Students	Fitriana Puspa Hidasari (2021)	hadang, bentengan, using beunang, and kambing-kambingan. These games were selected because they are suited to the students' characteristics and environmental conditions, and because they encourage physical activity in a fun and collaborative way.	method with a one-group pretest-posttest design. The research subjects were 30 seventh-grade students at SMPN 21 Pontianak. Data were collected through a questionnaire covering aspects of motivation, knowledge and understanding, self-confidence, and physical ability using a 1–4 Likert scale. Data analysis was conducted using a normality test (Kolmogorov-Smirnov), a homogeneity test (Levene), and a hypothesis test using the t-test.	value of 3.702 was greater than the critical t-value of 1.699 ($p < 0.05$), indicating that traditional games have a significant effect on students' physical literacy. The average score increased from 54.00 (pretest) to 62.00 (posttest), representing a 14.81% increase. These results demonstrate that learning through traditional games is effective in improving junior high school students' motivation, self-confidence, understanding, and physical competence.
The Effectiveness of Traditional Lombok Games in Improving Physical Literacy Among Elementary School Students	Raden Sudarwo, Edi Kurniawan, Johan Irmansyah, Mujriah, Balkis Ratu N L Esser (2023)	This study utilized traditional games unique to Lombok, including Ketik Jaran, Begelompongan, Kideng, Begatrik, and Panji, for a total of 15 validated traditional Lombok game themes. The games were selected because they involve fundamental movements such as running, jumping, throwing, kicking, and balancing, which are appropriate for the developmental level of fourth-grade elementary school students.	The study used a pretest-posttest quasi-experimental design with a control group, involving 66 fourth-grade students from three elementary schools on Lombok Island, West Nusa Tenggara. The intervention group ($n = 33$) participated in a 12-week program of traditional Lombok games (2 sessions per week, 60 minutes each), while the control group ($n = 33$) participated in conventional	The experimental group showed an average increase in physical literacy skills from 45.58 (pretest, "emerging" category) to 56.03 (posttest, "competent" category), while the control group increased only from 42.79 to 45.52 (remaining in the "emerging" category). The results of the independent samples t-test showed a significant difference between the two groups (2-tailed Sig. = $0.000 < 0.05$),

			instruction. Physical literacy was assessed using the PLAYbasic (Physical Literacy Assessment for Youth) instrument, which included tests of running, jumping, throwing, kicking, and balance. Data analysis utilized normality tests (Kolmogorov-Smirnov and Shapiro-Wilk), homogeneity tests (Levene), paired t-tests, and independent t-tests.	proving that traditional Lombok games are more effective at improving students' physical literacy than conventional methods.
The Effect of Traditional Games on Physical Literacy in School-Age Children	Meliha Çınar dan Fahimeh Hassani (2026)	This study used eight traditional Turkish games, namely Castle Dodgeball (Kaleli Yakan Top), Handkerchief Grab (Mendil Kapmaca), Nine Stones (Dokuztaş), Hopscotch (Sek Sek), Sack Race (Çuval Yarışı), Tug of War (Halat Çekme), Tangle Game (Arapsacı), and Corner Tag (Köşe Kapmaca).	The study used a pre-test-post-test quasi-experimental design with a control group, involving 60 students aged 11–12 from two schools in Trabzon, Turkey. The experimental group participated in a traditional games program for 8 weeks, while the control group participated in regular physical education classes. Data were collected using the Physical Literacy Scale, which covers four dimensions: physical, psychological, social, and cognitive. The data were	The results of the study showed a significant increase ($p < 0.001$) in all dimensions of physical literacy in the experimental group after the intervention, including the physical dimension ($Z = -4.19$), psychological dimension ($Z = -4.30$), social dimension ($Z = -4.53$), cognitive dimension ($Z = -4.22$), and overall physical literacy ($Z = -4.60$). Meanwhile, the control group also showed improvement, but the magnitude of the improvement was lower than that of the experimental

			analyzed using the Mann-Whitney U test and the Wilcoxon Signed-Rank test.	group. This indicates that the 8-week traditional games program is more effective in improving students' physical literacy than conventional physical education instruction.
Development and Validation of a Quantum Learning Model Based on Traditional Games to Improve Physics Literacy Among Elementary School Students	Prayogi Nurfauzan, Aris Guntur, Fajar Pambudi, Ade Gusti Ningsih, Apriliana Nurulita Nur Fauzi, Andika Triansyah, Fatma Atik Mulyani, St. Nur Almaidah RS., Atina, Maria Magdalena Sri Wahyuni, Arief Kuswidyanarko, Irene Maria Wato, Anna Mariyani, Hidayatul Hikmah, Amran (2025)	This study incorporates traditional Indonesian games into the Quantum Learning model, including games such as Hadang, Bentengan, Gobak Sodor, Manda Sunda, Congklak, and Dakon. The games were selected based on their suitability for the developmental characteristics of elementary school students and their ability to foster physical, cognitive, social, and cultural competencies.	This study employed a Research and Development (R&D) approach using the ADDIE model (Analyze, Design, Develop, Implement, Evaluate). The research subjects were 34 fifth-grade students from two elementary schools in Paseh Subdistrict, Bandung Regency. Validation was conducted by two instructional design experts and two subject matter experts. The instruments used included questionnaires, observation sheets, and physical literacy tests (PPLQ and APL-PCD). Data analysis utilized Aiken's V, Cronbach's Alpha, the paired-sample t-test, N-Gain scores, and the Mann-Whitney U test.	The validation results showed a high level of validity ($V \geq 0.894$) with good instrument reliability ($\alpha > 0.80$). The model's practicality test achieved an average of 94%, falling into the "very practical" category. In the effectiveness test, the average physical literacy score of the experimental group increased from 53.29 (pretest) to 78.24 (posttest), while the control group's score increased only from 54.06 to 68.53. The experimental group's N-Gain value of 0.53 (moderate category) was higher than that of the control group at 0.30 (low category), with a significant difference ($p < 0.05$). These results demonstrate that the Quantum

				Learning model based on traditional games is more effective at improving students' physical literacy than conventional instruction.
The Effectiveness of a Physical Literacy Model Based on Traditional Games in Reducing Sedentary Lifestyles Among Adolescents	Edi Kurniawan, Mujriah, Maulidin, Johan Irmansyah (2025)	This study utilized four traditional games native to West Nusa Tenggara: ketik jaran, begelompongan, kideng, and panji. These four games were selected because of their ability to develop physical, social, and cognitive skills simultaneously.	The study used a quasi-experimental design involving 238 students aged 12–16 years from two schools in Central Lombok, who were divided into an experimental group (119 students) and a control group (119 students). The experimental group participated in a traditional games program for 12 weeks (3 sessions per week, 60 minutes each), while the control group followed the regular physical education curriculum. Data were collected using the Adolescent Sedentary Activity Questionnaire (ASAQ). Data analysis included tests of normality, homogeneity, paired t-tests, and independent t-tests.	The results of the paired t-test showed a significant reduction in sedentary time in the experimental group ($p < 0.001$), with the average decreasing from 329.50 minutes to 219.50 minutes (a difference of 110 minutes). In contrast, the control group showed no significant change (a decrease of only 5.13 minutes, $p = 0.200$). The results of the independent-samples t-test confirmed a significant difference between the two groups ($t = 3.487$, $p < 0.001$). Specifically, 80% of students in the experimental group experienced a reduction in sedentary time of 1–2 hours per day, with a 42.9% decrease in TV viewing, a 28.6% decrease in video game playing, and a 50% decrease in smartphone use.

In addition, research conducted by (Rasnita et al., 2021) also reinforces the importance of traditional games in physical education. The study employed an experimental approach with middle school students and demonstrated an increase in physical literacy scores after students were exposed to traditional games. The improvement in post-test scores compared to pre-test scores proves that traditional games are effective as a learning approach that can enhance students' physical literacy in a more active and enjoyable manner.

Another study conducted by (Sudarwo et al., 2023) also showed that traditional Lombok games are effective in improving the physical literacy of elementary school students. The traditional games program, implemented over 12 weeks, successfully raised students' physical literacy scores from the "emerging" category to "competent." The results of the study showed improvements in students' locomotor skills, throwing, kicking, maintaining balance, and motor coordination. Additionally, the use of traditional games in physical education was deemed more effective than conventional methods because it enhances students' motor skills and overall physical development. These findings reinforce the notion that physically active learning based on local culture can serve as a contextual and relevant approach to improving students' physical literacy.

Based on these studies, it can be concluded that traditional games play a significant role in the development of students' physical literacy. Traditional games can create a more interactive learning environment, increase students' physical activity, develop motor skills, enhance social skills, and foster motivation to learn in physical education (Sujarwo et al., 2021). Therefore, traditional games can serve as a relevant alternative learning approach to be implemented in schools. From the perspective of Whitehead's physical literacy theory, physical literacy focuses not only on motor skills but also encompasses motivation, self-confidence, knowledge, and an individual's understanding to actively engage in physical activities throughout life. Traditional games possess characteristics capable of accommodating all these aspects because they involve physical movement, social interaction, decision-making, as well as enjoyable and contextual learning experiences (Carmen et al., 2019).

In the modern era, technological advancements and the increasing use of digital devices have led to a decline in physical activity among children and adolescents. This situation has contributed to a rise in sedentary lifestyles, which can negatively impact students' health and physical development (Hanifah et al., 2023). In this context, traditional games emerge as a solution capable of increasing physical activity while comprehensively developing students' physical literacy. Physical literacy is not limited to motor skills but encompasses physical, psychological, social, and cognitive aspects that support optimal individual development (Goss et al., 2025).

Research conducted by (Çinar & Hassani, 2026) shows that traditional games implemented over an eight-week period significantly improved the physical literacy of school-aged children compared to a control group. This improvement was observed across various domains, including physical, psychological, social, and cognitive domains. The findings of this study demonstrate that traditional games can serve as an effective learning tool to support the holistic development of students amid the challenges of the modern era.

Furthermore, a study by (Kurniawan et al., 2025) demonstrated that a physical literacy model based on traditional games is effective in reducing sedentary lifestyles among adolescents aged 12–16 years. Through traditional games such as *ketik jaran*, *begelompongan*, *kideng*, and *panji*, students' sedentary time decreased significantly compared to the control group, which only participated in conventional physical education classes. This indicates that traditional games can increase adolescents' physical activity while serving as a preventive measure against the negative effects of a modern, inactive lifestyle.

Research on the development of a learning model conducted by (Nurfauzan et al., 2025) also shows that the Quantum Learning model, which is based on traditional games, has high levels of validity, reliability, and effectiveness in improving the physical literacy of elementary school students. This learning model is able to create an active, enjoyable, and contextual learning environment, thereby increasing student engagement in the learning process.

Although traditional games offer various benefits in enhancing students' physical literacy, their implementation in schools still faces several challenges (W. K. Putri et al., 2024). The development of digital technology and the prevalence of gadget-based games have led to a decline

in students' interest in traditional games (A. B. U. Putri & Hasyim, 2018). Additionally, limited resources, a lack of teacher innovation in integrating traditional games into instruction, and insufficient curriculum support act as barriers to the optimal implementation of traditional games in schools (Handayani & Munastiwi, 2022). On the other hand, the modernization of education demands learning that is more adaptive to the times. Therefore, traditional games need to be developed through innovative pedagogical approaches to remain relevant to the characteristics of the modern generation without losing the local cultural values they embody (Harpina & Hakimi, 2025).

Theoretically, the findings of this study reinforce the concept that traditional games can serve as a pedagogical approach that supports the holistic development of physical literacy. Traditional games not only improve motor skills but also foster character development, social interaction, creativity, and critical thinking skills among students (Aisyah, 2017).

In practical terms, this study provides a strong foundation for the development of a physical education curriculum based on local culture. Traditional games can be used as a learning strategy that is more active, enjoyable, contextual, and inclusive (Ashar et al., 2024). Therefore, it is necessary to integrate traditional games into the physical education learning process, teacher training, and the development of relevant evaluation instruments to measure the impact of their implementation on students' physical literacy (Muhammad et al., 2024).

Based on these various studies, traditional games play a very important role in improving physical literacy in the modern era. Traditional games not only help increase students' physical activity but also develop their social, emotional, and cognitive skills (Hassani & Afazeli, 2024). Therefore, the integration of traditional games into physical education instruction needs to be continuously developed as an effort to maintain health, improve the quality of learning, and preserve local culture amidst the advancement of modern technology (Nurhikmah et al., 2022).

CONCLUSION

Based on the literature review conducted, traditional games have been shown to play a significant role in enhancing students' physical literacy in the modern era. Various studies indicate that traditional games can holistically develop physical literacy—encompassing physical, psychological, social, and cognitive domains—while also effectively reducing the increasingly prevalent sedentary lifestyle resulting from the advancement of digital technology. Games such as engklek, gobak sodor, and various other regional traditional games have been shown to improve students' motor skills, physical fitness, motivation, and self-confidence to actively engage in long-term physical activity, as conceptualized in Whitehead's theory of physical literacy. In addition to physical benefits, traditional games also contribute to character building, instilling the values of cooperation and creativity, as well as preserving local cultural heritage that is increasingly being eroded by the tide of modernization.

Based on these findings, traditional games need to be systematically integrated into the physical education curriculum through innovative pedagogical approaches to ensure they remain relevant to the digital generation without losing the cultural values they embody. Consequently, policy support from the government is required in the form of teacher training, the provision of facilities and infrastructure, as well as clear and standardized implementation guidelines. Future research is recommended to use a more rigorous experimental design that includes a broader age range of subjects, while also developing valid and up-to-date evaluation instruments to comprehensively measure the impact of traditional games on physical literacy. Additionally, the active role of parents and the community in introducing traditional games within the family environment is also essential as a preventive measure against a sedentary lifestyle, while preserving the sustainability of local cultural identity amidst the changing times.

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