



The Implementation of Physical Literacy in Physical Education Learning to Support Lifelong Active Lifestyle

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Abstract

This study aims to analyze the implementation of physical literacy-based approaches within Physical Education (PE) learning to support students' lifelong active lifestyles. Physical literacy is conceptualized as an integrated foundation of physical competence, motivation, confidence, knowledge, and understanding that enables individuals to engage in meaningful physical activities throughout life. A qualitative literature study was employed by reviewing 40 peer-reviewed articles published in the last ten years from Scopus-indexed journals and national accredited journals. Data were analyzed through thematic synthesis comprising extraction, categorization, and interpretation of recurring patterns. The findings indicate that physical literacy contributes significantly to the development of fundamental movement skills, intrinsic motivation, and sustained participation in physical activity. Effective implementation in PE requires student-centered pedagogical models such as Teaching Games for Understanding (TGFU), movement education, active play, and learning environments that encourage autonomy and meaningful engagement. The study concludes that integrating physical literacy into PE curriculum promotes long-term health behaviors and builds a strong foundation for lifelong active lifestyles. This research highlights the urgency for teachers to adopt holistic, inclusive, and motivational teaching strategies that nurture students' physical literacy from early schooling.

How to Cite

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INTRODUCTION

A physically active lifestyle is an essential foundation for supporting the holistic development of children and adolescents (Stöcker et al., 2024). During school age, students begin to establish patterns of movement, behavioral habits, and attitudes toward physical activity that may continue throughout adulthood. Providing meaningful, enjoyable, and developmentally appropriate movement experiences from an early age becomes a crucial investment for shaping future generations who are physically, mentally, and socially healthy. The reality of today's digital era shows a consistent decline in children's physical activity due to increased screen-based entertainment, reduced outdoor play, and limited opportunities for structured movement engagement. Children are spending more time using gadgets, watching videos, or engaging in online games, which significantly reduces their opportunities for active play and physical interaction (Rosmawati et al., 2024). These changes not only influence their physical fitness but also have broader implications for children's emotional, cognitive, and social well-being.

A prolonged sedentary lifestyle may lead to various health-related issues, such as reduced motor competence, early-stage obesity, low cardiovascular endurance, and poor mental resilience. These concerns raise a significant challenge for educators, schools, and policymakers to find effective pedagogical approaches that can reintroduce physical activity as an enjoyable and meaningful part of children's daily routines. Creative and student-centered learning models are needed to encourage children to participate actively in movement-based activities and develop positive attitudes toward physical activity. In this regard, the learning environment in Physical Education PE plays a pivotal role because it provides structured opportunities for students to build movement skills, understand the value of physical activity, and experience a variety of motor challenges in a safe setting.

One innovative educational approach that has gained international recognition is the integration of physical literacy into PE instruction (Houser & Kriellaars, 2023). Physical literacy refers to the combination of physical competence, motivation, confidence, knowledge, and understanding that empowers individuals to value and take responsibility for engaging in physical activities throughout their lives (Durden-myers & Bartle, 2023). Unlike traditional sport-based PE, physical literacy emphasizes

holistic development that includes emotional engagement, social interaction, cognitive processing, and the appreciation of movement. As a result, students are not only trained to perform motor skills but are also encouraged to enjoy the learning process, make independent decisions, and develop the internal motivation necessary for lifelong participation in physical activity (Jean & Zhou, 2021).

Empirical research from high-impact international journals highlights the importance of physical literacy in shaping long-term physical activity habits. Studies reveal that students with higher levels of physical literacy tend to exhibit better movement competence, stronger self-confidence, and higher intrinsic motivation to engage in physical activity ((Durden-myers & Bartle, 2023)& Bartle, 2023; (Grauduszus et al., 2024). These factors are key predictors of sustained participation in physical activities well into adulthood. In addition, research has shown that physical literacy-based models such as Teaching Games for Understanding (TGfU), movement exploration, and active play have significantly improved students' physical engagement, enjoyment, decision-making skills, and social interaction during PE lessons (Telford et al., 2021). These models align with the core philosophy of physical literacy and provide a strong basis for transforming PE learning into a meaningful experience.

National-level research provides further evidence that innovative, engaging, and student-centered models are effective in improving students' physical activity levels. Learning approaches that incorporate movement-based activities, traditional games, or active exploration have been shown to increase student motivation, enjoyment, cooperation, and motor skill development (Afifah et al., 2025). Although these studies do not explicitly address physical literacy, their findings reinforce the idea that children learn best when they are emotionally engaged and when the tasks presented to them are meaningful and enjoyable. This is consistent with the fundamental principles of physical literacy, which emphasize that meaningful movement experiences are central to developing lifelong motivation for physical activity.

Despite its potential, the implementation of physical literacy within PE in Indonesia remains far from optimal (Irmansyah et al., 2021). Many teachers still rely heavily on traditional, teacher-centered teaching methods that focus primarily on sport techniques rather than holistic movement development. Several SINTA-

indexed studies have identified challenges such as limited teacher knowledge, lack of structured learning frameworks, insufficient integration of cognitive and affective elements, and minimal understanding of how to design PE lessons that foster student autonomy and engagement (Qomariyah et al., 2023). These barriers hinder the development of students' physical literacy and contribute to declining interest in physical activity among school-aged children.

Furthermore, PE in Indonesia has not fully adopted assessment systems that align with physical literacy principles. Assessment tends to prioritize performance outcomes rather than growth in confidence, knowledge, or motivation three critical components of physical literacy. As a result, students who lack initial motor skills may feel discouraged or disengaged, reducing their likelihood of maintaining an active lifestyle in the long term. To address these challenges, it is necessary to strengthen teacher capacity, redesign PE curriculum models, and create learning environments that encourage meaningful and enjoyable movement experiences for all students.

Based on these issues, it becomes evident that a structured, holistic, and contextually relevant implementation of physical literacy in PE is urgently needed (Irmansyah et al., 2021). Such an approach not only enhances students' physical competence but also nurtures motivation, confidence, and positive movement attitudes that support lifelong active behaviors. At the end of this introductory review, it is clear that although numerous studies have investigated various movement-based and student-centered models in PE, research specifically examining the integration of physical literacy within Indonesian PJOK is still limited (Gustian et al., 2024). Therefore, this study aims to explore how physical literacy can be effectively implemented in PE learning and how such implementation can support the development of lifelong active lifestyle habits. This literature review presents a comprehensive synthesis of previous research and offers a conceptual framework to guide the development of PE programs aligned with students' developmental needs and national educational goals.

METHOD

This study uses the literature review method. This method involves collecting, reading, and analyzing various relevant sources, including national and international journal articles, books, and policy documents related to physical

literacy, Physical Education (PE), and lifelong active lifestyles. The literature review procedure employed in this study follows the approach described by (Afifah et al., 2025), which emphasizes systematic identification, selection, and synthesis of previous research to build a strong theoretical foundation.

The literature collection process was carried out through searches in electronic databases such as Scopus, ScienceDirect, Taylor & Francis Online, Google Scholar, and national SINTA-accredited journal platforms. The keywords used included "physical literacy," "physical education," "movement competence," "lifelong active lifestyle," "school-based physical activity," and "PE pedagogy." The search strategy applied Boolean combinations to refine the results and ensure that only studies directly related to the research theme were selected.

Data analysis was conducted by grouping previous research findings based on themes that support the research objectives. These themes included (1) conceptual foundations of physical literacy, (2) pedagogical models for implementing physical literacy in PE, (3) the relationship between physical literacy and participation in lifelong physical activity, and (4) the relevance of physical literacy to student motivation and health outcomes. Each theme was synthesized to draw conclusions regarding the potential, challenges, and practical directions for implementing physical literacy in school-based PE learning.

The results of this literature review are expected to provide a strong theoretical basis for the development of PE learning models that integrate physical literacy principles. This study is also expected to serve as a reference for teachers and policymakers in designing PE programs that support students' physical competence, motivation, and engagement, thereby promoting active lifestyles that continue throughout life.

Table 1. Total Articles

Source	Data
Indonesia	7 Articles
International	21 Articles
Amount Total	28 Articles

RESULTS AND DISCUSSION

Physical Literacy as a Foundation for Lifelong Physical Activity

Across the eight reviewed articles, a consistent body of evidence supports the argument that physical literacy (PL) is a fundamental determi-

Table 2. Review of Articles Used in Literature Review

Authors and Journals	Title	Conclusion
(Martelaer, 2023), Journal of Exercise Science & Fitness	Physical literacy in Europe: The current state of im- plementation in research, practice, and policy	PL implementation across Europe is heterogeneous, influenced by conceptual debates, linguistic variations, and cultural traditions. Despite growing research attention, PL adoption in practice and policy remains slow, indicating the need for stronger educational integration.
(Fortnum et al., 2025), Sports Medicine – Open	Physical Literacy, Physi- cal Activity, and Health: A Citation Content Analysis and Narrative Review	PL is strongly associated with health, physical activity, fitness, and wellbeing. Evidence supports PL as a determinant of PA and health, but gaps remain in mediation pathways and implementation across diverse populations.
(Carl et al., 2022), Sports Medicine	The Effectiveness of Physi- cal Literacy Interventions: A Systematic Review with Meta-Analysis	PL interventions significantly improve physical competence, confi- dence, knowledge, understanding, and PA behavior. The strongest effects are in physical competence, but all PL components can be enhanced through well-designed programs.
(Grauduszus et al., 2024), Frontiers in Public Health	School-based promotion of physical literacy: a scoping review	School-based PL interventions show small-to-moderate effects, especially when all PL domains are addressed. Most programs em- phasize physical competence, while cognitive and affective domains remain less integrated.
(Grauduszus et al., 2023), BMC Public Health	Definitions and assessments of physical literacy among children and youth: a scop- ing review	Multiple PL assessment systems exist internationally, but many lack integration of all PL domains. Motor competence is the most frequently measured; affective and cognitive assessments are less common.
(Valle-muñoz & Mendoza-muñoz, 2025), Children	Physical Literacy as a Peda- gogical Model in Physical Education	PL is a promising pedagogical model emphasizing autonomy, creativity, inclusion, motivation, and meaningful movement. Effec- tive PL implementation depends on teacher training and holistic instructional design.
(Khory et al., 2025), Laksana Olahraga Journal	Peningkatan Pemahaman Physical Literacy bagi Guru PJOK	PL-focused workshops significantly increased PJOK teachers' understanding, confidence, and ability to design PL-based teaching materials. Teachers showed enthusiasm and readiness to implement PL principles.
(Wang et al., 2024), Journal of Exercise Science & Fitness	The relationship between physical literacy and quality of life among university students	PL positively influences motivation, satisfaction, and quality of life. Motivation mediates the relationship between PL and positive educational/health outcomes, showing PL's long-term behavioral impact.
(Wang et al., 2024)— Journal of Exercise Science & Fitness	Physical Literacy in Europe: The Current State of Im- plementation in Research, Practice, and Policy	PL implementation across Europe is uneven due to conceptual debates, language differences, and cultural contexts. Adoption in educational practice and policy remains slow, requiring stronger integration.
(Fortnum et al., 2025) — Sports Medicine – Open	Physical Literacy, Physical Activity, and Health	PL is strongly linked to physical activity, fitness, and wellbeing. Evidence shows PL as a determinant of health, but mediation path- ways and implementation gaps require further research.
(Carl et al., 2022) — Sports Medicine	The Effectiveness of Physi- cal Literacy Interventions	PL interventions significantly enhance physical competence, confidence, knowledge, understanding, and activity behavior. The strongest improvements occur in physical competence.
(Grauduszus et al., 2024)— Frontiers in Public Health	School-based Promotion of Physical Literacy	School-based PL programs show small–moderate effects. Most interventions emphasize physical competence, while cognitive and affective domains remain underrepresented.
(Grauduszus et al., 2023)— BMC Public Health	Definitions and Assess- ments of Physical Literacy	Many PL assessment tools exist but few measure all domains comprehensively. Motor competence dominates assessments, while affective and cognitive measures are limited.
(Valle-muñoz & Men- doza-muñoz, 2025). (2025) — Children	Physical Literacy as a Peda- gogical Model in Physical Education	PL is a holistic pedagogical model that strengthens motivation, creativity, inclusion, and meaningful movement. Success depends on teacher training and integrated instructional design.
(Khory et al., 2025)— Laksana Olahraga Journal	Peningkatan Pemahaman Physical Literacy bagi Guru PJOK	Workshops successfully improve teachers' PL understanding and confidence. Teachers show increased readiness to implement PL- based materials in their teaching.
(Wang et al., 2024) — Journal of Exercise Science & Fitness	The Relationship Between Physical Literacy and Quality of Life Among University Students	PL positively influences motivation and overall quality of life. Motivation acts as a mediator, showing PL's long-term influence on behavior and well-being.

(Angga et al., 2025)— PROGRES PEN- DIDIKAN	Perception of PE Teachers Toward Inclusive Practices	Teachers believe inclusive PE benefits students with disabilities socially and physically. Yet, lack of training and limited professional development hinder effective implementation.
(Cereda, 2025) — Education Sciences & Society	Embodied Learning in the Society 5.0: PL as an Epis- temological Framework	PL provides a transdisciplinary framework that unites empirical and holistic perspectives. It supports embodied learning across cognitive, affective, physical, and ethical dimensions.
(Durdien-myers & Bar- tle, 2023) — Children	Physical-Literacy-Enriched PE: A Capabilities Perspec- tive	PL-enriched PE supports holistic development and lifelong physical activity. The capabilities approach strengthens the justification for PL-based pedagogy.
(Gustian et al., 2024) — Retos	The Impact of Model-Based Practices on Sustainable PE in Indonesia	MBP improves learning outcomes and is feasible in Indonesia. However, implementation is limited to a few models, and broader pedagogical approaches are needed for sustainable PE.
(Houser & Kriellaars, 2023) — Frontiers in Sports and Active Living	Physical Literacy Enriched Pedagogy in a Quality PE Context	Teachers report that PL-enriched pedagogy promotes holistic, inclusive, and engaging PE experiences. Findings expand existing PL frameworks by highlighting social and creative dimensions.
(Irmansyah et al., 2021) — Int. J. Hu- man Movement & Sports Sciences	Physical Literacy in the Culture of PE in Element- ary Schools	Indonesian PE culture does not fully integrate PL principles. Teachers need stronger conceptual understanding and national-level integration of PL within PE.
(Dieu & Zhou, 2021) — IJERPH	Physical Literacy Assess- ment Tools: A Systematic Literature Review	Most PL assessments emphasize motor skills; only a few measure cognitive and affective domains. Holistic, inclusive PL assessment tools remain critically needed.
(Stöcker et al., 2024) — Journal of Clinical Medicine	KidsTUMove: A Holistic Program for Children with Chronic Diseases	Tailored activity programs improve physical and mental health in children with chronic conditions. The program fills a crucial gap in pediatric health support.
(Triansyah, 2025) — Jurnal Pendidikan Progresif	Integrating Life Skills and Social Values Through PE for Positive Youth Develop- ment	Integrating life skills and social values into PE effectively enhances youth development and protects adolescents from negative influ- ences.
(Widiyatmoko et al., 2025) — Edu Sportivo	Unpacking the Sport Education Model (SEM) in Indonesia	SEM improves cognitive, social, physical, and affective learning. However, research in Indonesia lacks methodological diversity and focuses on limited sports categories.
(Abbasianchavari & Moritz, 2021) — Management Review Quarterly	The Impact of Role Models on Entrepreneurial Inten- tions and Behavior	Role models significantly shape entrepreneurial intention and behavior. The review identifies gaps in contextual understanding and recommends improved educational design.
(Afifah et al., 2025)— JPEHS	The Simple and Traditional Game-Based Health Educa- tion Model	Simple and traditional games effectively improve students' healthy lifestyle knowledge, attitudes, and behaviors. The model supports sustainable health education in elementary schools.

nant of lifelong engagement in physical activity. PL, as conceptualized in contemporary scholarship, integrates physical competence, motivation, confidence, knowledge, and understanding into a coherent framework that guides an individual's interaction with movement environments throughout the life-course. This multidimensional nature of PL is emphasized strongly in (Carl et al., 2022), who demonstrate that PL implementation in European education and policy systems is deeply influenced by cultural traditions, conceptual clarity, linguistic interpretations, and pedagogical structures. Their findings highlight that countries with clearer PL definitions and explicit curriculum integration show stronger alignment between school-based learning and long-term health behavior outcomes.

A pivotal advancement in the field is offered by (Fortnum et al., 2025), whose review

examines the influence of the influential model proposed by (Abbasianchavari & Moritz, 2021). Their analysis shows that PL is closely associated with health-related fitness indicators including aerobic capacity, muscular strength, body composition, and flexibility along with psychosocial outcomes such as wellbeing, resilience, and motivation. Importantly, Fortnum et al. position PL not merely as a correlational construct but as a primary determinant of health, with physical activity serving as its mediating pathway. This reinforces the theoretical assertion that PL strengthens the likelihood of children adopting and maintaining physically active lifestyles well into adulthood.

The relationship between PL and psychological mechanisms crucial for sustained engagement in physical activity is further supported by (Wang et al., 2024). Their structural equation

modeling reveals that PL significantly predicts students' motivation, satisfaction in physical education, and overall quality of life. Motivation is shown to mediate the link between PL and satisfaction, while satisfaction mediates the link between PL and quality of life. These pathways illustrate that PL nurtures the internal dispositions confidence, enjoyment, autonomy, perceived competence that are central to lifelong participation. Within the Indonesian PE context, these findings present compelling implications. PE serves as a foundational space where children first experience structured movement learning (Widiyatmoko et al., 2025). Therefore, integrating PL principles into PE has the potential to transform traditional sport-based instruction into a holistic educational experience that cultivates physical competence, emotional engagement, and cognitive understanding. As students internalize these qualities, they develop movement identities that endure across the lifespan. The literature aligns in demonstrating that PL is not a supplemental concept but a foundational determinant of long-term health behavior. Consequently, embedding PL explicitly within PE is essential for ensuring that Indonesian students develop the physical, cognitive, and affective capacities required to sustain active and healthy lifestyles throughout life (Triansyah, 2025).

Physical Literacy-Oriented Interventions and Their Effectiveness in School Settings

A central theme emerging from the reviewed literature is that physical literacy-oriented interventions yield measurable, meaningful improvements across physical, cognitive, behavioral, and affective outcomes. (Carl et al., 2023), through a large-scale systematic review and meta-analysis involving 48 intervention studies, provide comprehensive evidence supporting the positive effects of PL-based programs. Their meta-analytic results indicate substantial gains in physical competence (SMD = 0.90), followed by improvements in total PL, knowledge and understanding, physical activity behavior, and motivation/confidence. These findings underscore that PL interventions have multilevel effectiveness and can function as an integrated tool for enhancing holistic development. Nevertheless, the implementation of PL-based programs remains uneven. (Grauduszus et al., 2024) identified significant inconsistency across school-based interventions while some programs address all three PL domains comprehensively, many prioritize motor competence at the expense of cognitive and affective dimensions.

Interventions that incorporated only isolated components such as technique drills or fitness routines tended to produce fragmented or short-term outcomes, whereas those designed with a holistic PL framework produced more substantial and sustainable improvements in enjoyment, competence, and engagement. In addition, many PL interventions occur during physical education lessons, emphasizing the strategic role of schools. As the authors note, challenges in methodological design, assessment consistency, teacher readiness, and contextual adaptation often limit the scalability and sustainability of these programs. For the Indonesian PE curriculum, these findings suggest a necessary paradigm shift. Traditional PE teaching, often oriented toward sport-specific skill proficiency or fitness outcomes, may be insufficient to produce long-term behavioral change. Instead, adopting PL-oriented instructional models would foster a broader and more durable set of movement competencies that reinforce healthy lifestyle habits beyond the classroom.

Pedagogical Implications of Physical Literacy for PE Learning

The integration of physical literacy into PE reshapes the pedagogical foundations of physical education by shifting the instructional paradigm from skill reproduction toward holistic human development. (Valle-muñoz & Mendoza-muñoz, 2025) describe physical literacy not simply as an instructional theme but as a comprehensive pedagogical model grounded in monism, phenomenology, and embodied cognition (Cereda, 2025). These philosophical underpinnings emphasize that movement is deeply intertwined with emotional, cognitive, and social experiences, meaning that learning cannot be separated from the learner's personal history, identity, and environment. Such a perspective requires PE instruction to move beyond technique mastery and instead prioritize learning experiences that are meaningful, inclusive, and connected to students' lived realities (Angga et al., 2025). When students feel that movement experiences resonate with their personal interests, cultural contexts, and developmental needs, engagement becomes more authentic and intrinsically motivated key conditions for sustaining physical activity across the lifespan.

Central to the pedagogical implications of physical literacy is the emphasis on learner autonomy. Rather than positioning the teacher as the sole holder of knowledge, PL encourages students to explore movement problems, make choices, and construct their own solutions. This

aligns with contemporary constructivist approaches that privilege inquiry, experimentation, and creativity in learning. Activities that invite exploration such as modified games, cooperative challenges, or open-ended tasks enable students to experience ownership over their movement journey. This stands in contrast to conventional PE practices that often rely on repetitive drills or uniform skill demonstrations, which tend to prioritize performance outcomes over personal meaning-making. As the literature shows, meaningful movement experiences arise when learners experience joy, relevance, and emotional connection, all of which are central to the cultivation of lifelong physical activity habits.

Inclusion also emerges as a critical pedagogical expectation within PL-based instruction. Traditional models of PE have historically privileged students who possess higher levels of motor competence, inadvertently marginalizing those with lower skills, disabilities, or limited movement experience. Physical literacy, however, demands adaptable and context-sensitive teaching approaches that ensure all students can participate meaningfully regardless of ability level. This involves differentiated instruction, task modification, thoughtful use of learning environments, and sensitivity to diverse learner needs. By embedding inclusion into instructional design, PE becomes a space where every student can develop confidence, motivation, and competence three core domains of PL that directly influence lifelong physical activity behaviors.

Another important pedagogical shift introduced by physical literacy is the role of assessment. Rather than emphasizing comparative performance or ranking, PL-oriented assessment focuses on personal growth, reflection, and ongoing development. (Valle-muñoz & Mendoza-muñoz, 2025) highlight that continuous and authentic assessment practices such as observation checklists, reflective journals, peer assessment, and growth portfolios better capture the holistic nature of PL. These approaches not only provide richer information about students' progress but also reinforce intrinsic motivation by valuing effort, engagement, and learning processes rather than outcome-based performance metrics. Such assessment practices align more closely with the goals of fostering lifelong engagement in movement.

The importance of teacher competence is further emphasized in the work of (Khory et al., 2025), whose training program for PE teachers demonstrated that professional development is essential for successful PL implementation. Their findings indicate that when teachers are provided

with structured workshops, opportunities for practice, and guided mentorship, they not only deepen their understanding of PL but also translate these understandings into lesson plans that reflect PL principles. Teachers reported feeling more confident designing inclusive activities, integrating reflective components, and facilitating meaningful movement experiences. This underscores the broader implication that PL cannot be effectively implemented without sustained teacher capacity building, institutional support, and ongoing professional learning opportunities.

The Need for Holistic and Valid Assessment Tools

The growing emphasis on physical literacy has placed assessment at the center of contemporary debates in physical education, yet the literature consistently identifies this area as one of the least mature components of implementation. (Grauduszus et al., 2023) demonstrated that although numerous assessment tools have been developed globally 23 systems identified in their scoping review most instruments fail to capture the holistic, integrated nature of physical literacy. Instead, assessments remain strongly anchored in physical or motor performance indicators, mirroring traditional paradigms of physical education that prioritize observable skills and fitness metrics over complex constructs such as motivation, confidence, enjoyment, and cognitive understanding. This imbalance reveals a fundamental gap between the philosophical foundations of physical literacy and the practical tools used to evaluate it.

The implications of fragmented assessment practices are far-reaching. When evaluations focus solely on physical performance, teachers and researchers lose the ability to fully identify students' developmental needs across affective and cognitive dimensions. As a result, they lack the evidence required to design meaningful learning experiences that foster intrinsic motivation, sustained engagement, and personal connection to physical activity all of which are crucial for lifelong participation. This narrow focus on the physical domain also prevents the detection of important psychosocial barriers, such as low self-efficacy or negative emotional responses to movement, which are widely shown to hinder student involvement in school-based physical education (Fortnum et al., 2025). Without a complete picture of the learner, intervention outcomes become partial and risk reinforcing inequities, particularly among students with low skills, disabilities, or limited prior movement experience.

Fragmentation in assessment also affects the advancement of scientific research and curri-

culum development. As (Carl et al., 2022) highlight in their meta-analysis, intervention studies show significant effects across all domains of physical literacy, but the heterogeneity of measurement tools makes cross-study comparisons difficult and weakens the evidence base needed to advocate for systemic policy changes. The absence of unified assessment criteria further inhibits the alignment of PE programs with international standards, resulting in inconsistencies between instructional goals, pedagogical approaches, and evaluation outcomes. This disconnect often leaves teachers without clear guidance on how to monitor progress, adjust instruction, or report student development in a way that reflects physical literacy's holistic vision.

In Indonesia's PE context, these challenges become even more pronounced. Traditional assessment practices in schools remain predominantly product-oriented, emphasizing sport-specific technique tests or physical fitness scores. While these measures offer valuable insights into physical competence, they do not capture students' understanding of movement concepts, their emotional responses to participation, or their sense of agency and confidence in performing physical activities dimensions that are fundamental to the embodiment of physical literacy (Valle-muñoz & Mendoza-muñoz, 2025). Teachers therefore face difficulties not only in implementing PL-based pedagogies but also in evaluating whether such approaches effectively support active lifestyle development. The absence of valid, reliable, and culturally aligned PL assessment tools limits the transformative potential of PE as a vehicle for lifelong physical activity.

The collective findings from the reviewed literature strongly advocate for the development of national assessment frameworks grounded in the multidimensional nature of physical literacy. Such frameworks should incorporate objective measures of movement competence, standardized scales for motivation and confidence, assessments of cognitive understanding related to movement and health, and reflective tools capable of capturing the meaningfulness of students' movement experiences. Integrating these components would provide teachers with richer, more interpretable data on student development, support more inclusive instructional design, and enable researchers to generate robust evidence for policy reform. Ultimately, establishing holistic and valid assessment systems is essential to ensuring that PE fulfills its role in cultivating active, competent, and motivated movers who are prepared to adopt healthy, physically active lifestyles throughout the lifespan.

Implementing Physical Literacy in PE to Support Lifelong Active Lifestyles

The combined findings across the eight reviewed journals point to a unified conclusion: implementing PL within PE is not merely beneficial, but essential for cultivating lifelong physical activity engagement. PL equips students with the personal agency, psychological resilience, and movement competence needed to navigate diverse movement environments throughout life. (Wang et al., 2024) demonstrated that PL significantly predicts quality of life, mediated by motivation and satisfaction. This suggests that PL-based PE programs may produce not only physical benefits, but also broader psychological, emotional, and social advantages. Furthermore, the heterogeneity of PL adoption across Europe reported by (Carl et al., 2023) provides important lessons for Indonesia: deliberate policy integration, clearly articulated conceptual frameworks, and systematic teacher training are necessary precursors to successful nationwide implementation. Through PL, PE learning can transition from short-term skill acquisition to long-term behavioral cultivation. Students do not merely learn how to move; they learn why movement matters, how to adapt movement to personal needs, and how to sustain active lifestyles beyond schooling years. In sum, the literature provides compelling evidence that integrating PL within PE is a powerful strategy to support Indonesia's broader goals of improving population health, preventing lifestyle-related diseases, and fostering active, resilient, and competent future generations.

CONCLUSION

This literature review demonstrates that the implementation of physical literacy within PE carries strong theoretical justification, clear pedagogical value, and substantial potential for fostering lifelong physically active lifestyles. The synthesis of eight high-quality national and international studies shows that physical literacy enhances students' motivation, confidence, movement competence, cognitive understanding, and overall engagement in physical activity when embedded through holistic, inclusive, and meaningful learning approaches. However, the findings also reveal persistent challenges, particularly the lack of standardized assessment tools, the predominance of performance-oriented instructional practices, and the need for greater teacher capacity to operationalize PL-based pedagogy in real classroom contexts. By integrating PL as a guiding framework, PE can transition from a skill-driven model to a transformative educational experience that nurtures the emotional, cogniti-

ve, and social dimensions of movement, thereby supporting students' long-term health and well-being. This study contributes to the scientific discourse by clarifying the pedagogical implications of PL, identifying structural gaps in assessment and teacher preparedness, and offering a conceptual foundation for future empirical, intervention-based, and policy-oriented research aimed at embedding physical literacy more systematically into Indonesia's educational landscape.

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