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The Effectiveness of Play Activities in Increasing the Physical Literacy of Young Children: A Literature Review

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ABSTRACT

Physical activity is crucial for optimal growth and development in children. However, digitalization and rapid technological advancement have impacted children's physical engagement. Therefore, efforts are needed to strengthen movement skills and self-confidence in physical abilities. This study aims to review the effectiveness of play activities in increasing physical literacy in early childhood. Using the Google Scholar database, the researchers applied the keywords "Effect of Play Activities on Increasing Physical Literacy in Young Children" and "Elementary School Students". Articles analyzed were published between 2005–2025 and met the criteria of international research articles indexed in Scopus Q1, with subjects aged early childhood or elementary school (8 years). Eight eligible articles were reviewed. The findings show that play activities have strong potential to enhance physical literacy. The play-based method encourages children to participate in varied physical experiences that support skill transfer and understanding across multiple sports contexts. This approach demonstrates promising outcomes for improving physical literacy, particularly in young children.

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1. INTRODUCTION

Early childhood is an important period in life since the experiences of development and learning at this time will impact future success (Suherman et al., 2019). If a child does not receive adequate stimulation during the golden age through training and learning, it can be expected that the child will experience difficulties in the following stage or phase of development (Sit, 2015). Some people prioritize intellectual development over the development of physical abilities (Safitri et al., 2020; Syaikhu & Napis, 2020) In contrast, physical activity is important for childhood development and must be optimized (Ali et al., 2017; Bellows et al., 2017; Eisen et al., 1975; Hasibuan et al., 2020; Logan et al., 2012). The era of digitalization and the rapid advancement of technology also have an impact on their physical activity. This was demonstrated in a study carried out by (Pratiwi, 2020), which discovered that there has been an increase from 39% to 80% of young children today who spend a significant amount of time using electronic devices or gadgets. In addition, according to (Chomitz et al., 2009), the number of children with type 2 diabetes (which is directly associated with a lack of physical activity) is rapidly increasing; only 33% of boys and 21% of girls meet the minimum level of physical activity. The physical education program designed by the teacher does not increase students' motivation to be physically active, which is also a factor that has a big impact (Eastham, 2018). This is due to the fact that practically all teachers are in control of learning, whereas students only follow the lessons provided by the teacher (Kurniawan, 2018). This method of teaching results in students who are not active participants in learning (Roberts & Fairclough, 2011). As a result, students become bored when learning physical education since they believe they have failed and are unable to participate in a sports game (Bildhonny, 2017). Moreover, according to (Balyi et al., 2013), children must participate in a variety of well-structured activities during the basic period to develop basic movement abilities and general motor skills such as agility, balance, and coordination. However, programs and activities should remain enjoyable, with formal competition maintained to a minimum.

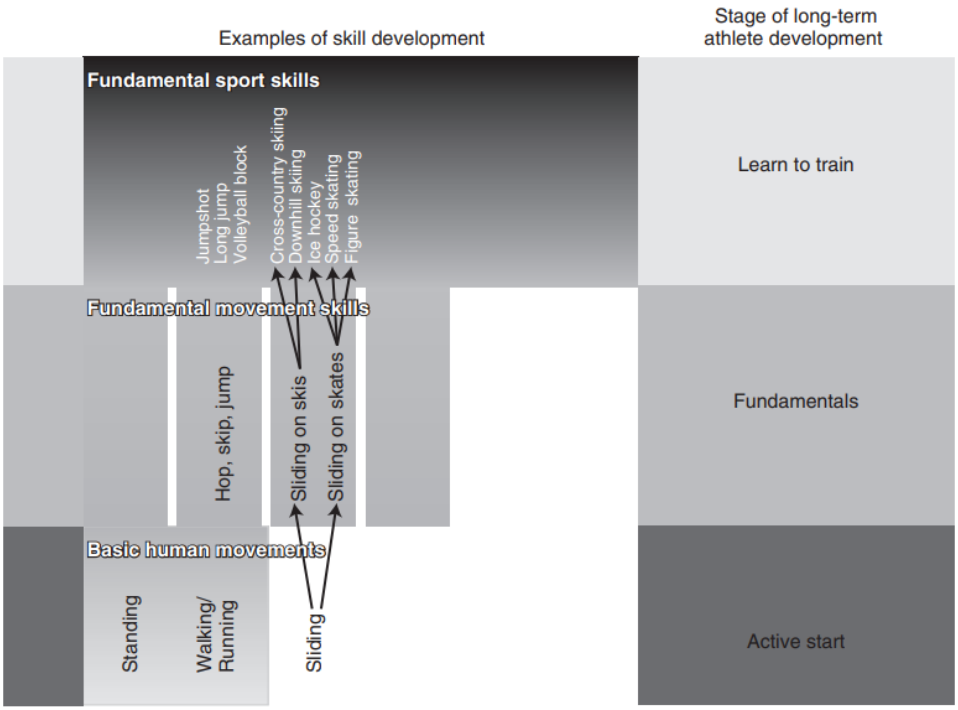

FIGURE 1. From movement to sports skills

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Based on these problems, efforts are required to stimulate basic movement skills and children's self-confidence so that children have the motivation and ability to understand the movement activities being performed, have confidence in their movement abilities, adopt an active lifestyle, and have good movement abilities, also known as physical literacy (PL). Moreover, getting accustomed to physical literacy activities in the family context requires parents to provide a good example for their children. In the school environment, physical literacy activities are carried out by getting used to the movements carried out by physical education teachers during daily learning in a consistent and programmed manner (Nur & Aprilo, 2021). Thus, when fostering physical literacy is done consistently and is programmed, the individual will become a physically literate individual. A fit physique is certain to be healthy, and if healthy, learning each subject will run well and smoothly (J. Mandigo et al., 2009).

In the previous decade, the tendency in physical literacy research has been to focus more on measurement by developing a variety of instruments (Young et al., 2021). Moreover, (Longmuir et al., 2015) created CAPL for fourth grade students, which focused on individual assessments of all aspects of the physical literacy domain. Furthermore, (Whitehead et al., 2018). Measured the domains of movement motivation, self-confidence, and understanding as part of their journey to acquire physical literacy. Meanwhile, physical literacy in Indonesia has not developed as rapidly as in other developed countries. There have not been many studies on physical literacy in Indonesia (Permana & Alfadh, 2021). Therefore, from theoretical and practical explanations, this study aims to scientifically examine theories that focus on the effectiveness of play activities in increasing physical literacy. This is because physical activity using the playing method will produce beta-endorphins, which have the effect of improving mood while reducing the hormone cortisol (the stress hormone) in the body (Asri & Lely Octaviana, 2021). In addition, dopamine is released more during play activities. Additionally, play activities have a positive impact on psychological and physical development and shape student character. Therefore, this makes play activities an appropriate alternative in PL development.

This study used a literature review approach. The results of this study are expected to be a source of information as well as a reference for learning methods that can be used by sports experts, physical education teachers, and parents to start cultivating and implementing an active life through play activities in order to form children's physical literacy.

2. METHODS

Study Design and Participant Selection

The research method used was a literature review using the PRISMA flowchart. The information base used was Google Scholar. Moreover, internet-based searches were directed to observe additional information obtained from several research articles that have been published regarding the effectiveness of play activities in improving physical literacy in early childhood. The researchers used the PICO method to determine the keywords used in finding published articles that are in accordance with novelty. The first stage in searching for international articles used the keywords "The Effect of Play Activities on Increasing the Physical Literacy of Young Children" and "The Effect of Play Activities on Increasing Physical Literacy in Elementary School Students". Furthermore, articles must be published between 2005 and 2025. The inclusion criteria used were research articles from international journals and Scopus Q1-indexed articles, and the population, sample, or research subjects were children in early childhood or elementary school aged 6–8 years.

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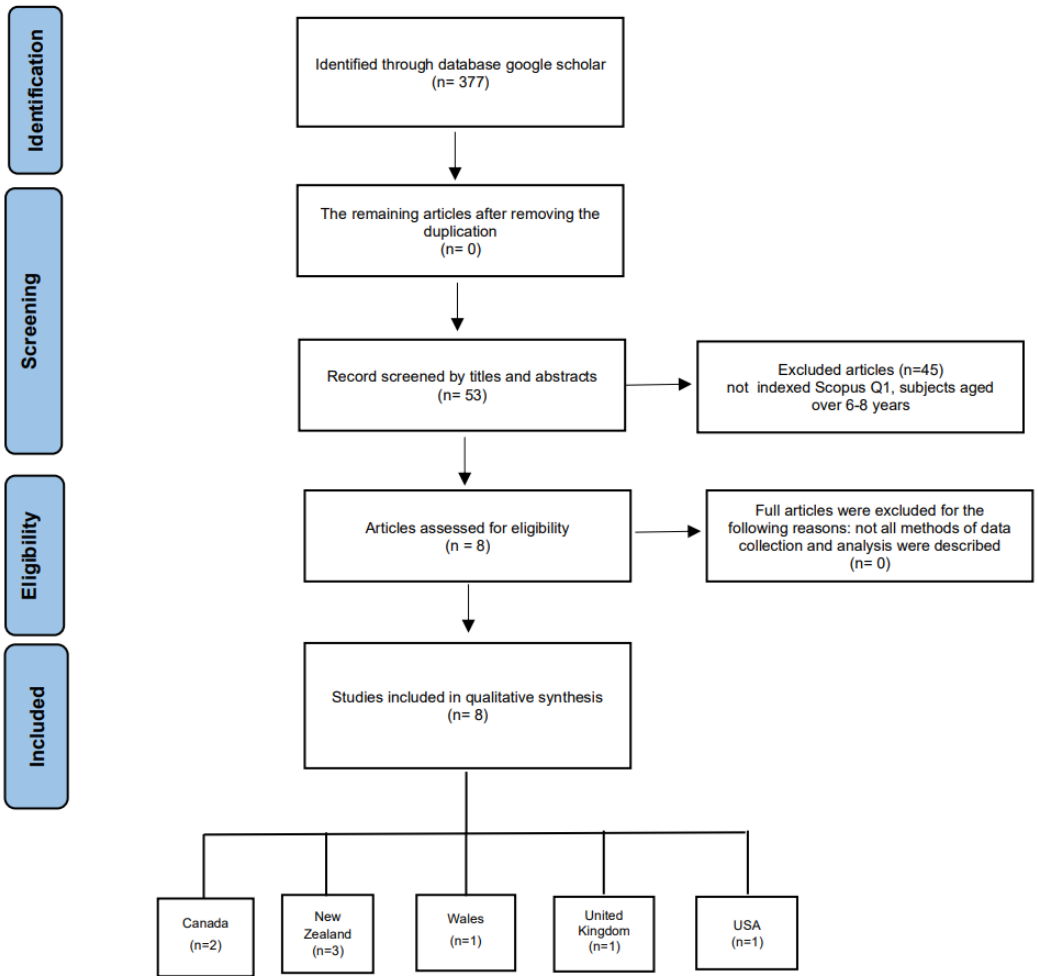

FIGURE 2. PRISMA flowchart of systematic search and data extraction

3. RESULT AND DISCUSSION

The review process was carried out on selected scientific articles based on keywords in Google Scholar. The researchers used the PICO method to determine the keywords used in finding published articles that are in accordance with novelty. The first stage in searching for international articles uses the keywords "The Effect of Play Activities on Increasing Early Childhood Physical Literacy" and "The Effect of Play Activities on Increasing Physical Literacy in Elementary School Students". There are eight international articles that have been reviewed based on the author's name and year, journal index, research methods, samples, interventions, and research findings. The following is a review of journals that have been reviewed.

Table 1. Operationalization and data analysis of reviewed articles

No.	Authors / year	Journal	Index	Method	Sample	Respondent Selection Method
1	(Albertin et al., 2018)	Journal of Teaching in Physical Education	Scopus Q1	Experiment	22 elementary school students (16 girls, 6 boys)	Selected based
2	(Giblin et al., 2014)	Sports Medicine	Scopus Q1	Experiment	Elementary school students	Selected based
3	(Smith et al., 2021)	Physical Education and Sport Pedagogy	Scopus Q1	Experiment	Elementary school teachers	Selected based
4	(Slade et al.,	Physical Education	Scopus Q1	Experiment	Beginner hockey	Selected

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No.	Authors / year	Journal	Index	Method	Sample	Respondent Selection Method
	2019)	and Sport Pedagogy			athletes	based
5	(Wainwright et al., 2018)	Physical Education and Sport Pedagogy	Scopus Q1	Experiment	Students aged 5–6 years totaled 67 from two schools in different locations	Selected based
6	(Roberts & Fairclough, 2011)	Physical Education and Sport Pedagogy	Scopus Q1	Experiment	Elementary school students	Total sampling
7	(Fry et al., 2010)	Physical Education and Sport Pedagogy	Scopus Q1	Experiment	Elementary school students, with a total of 297 students	Selected based
8	(Pope, 2005)	Physical Education and Sport Pedagogy	Scopus Q1	Experiment	Elementary school students	Total sampling

Table 2. Findings of reviewed articles

No.	Authors /year	Journal Index	Method	Sample	Intervention	Research Findings
1	(Albertin et al., 2018)	Scopus Q1	Experiment	22 elementary school students (16 girls, 6 boys)	Teaching Games for Understanding (TGfU)	The majority of participants reported higher scores at the end of the program for 10 of the 12 physical literacy indicators. Significant improvement (p<004) was seen in balance and stability skills, cardiovascular endurance, participation in diverse environments, and interest in participating in various activities. These findings supported the hypothesis that the use of pedagogical approaches such as TGfU could be effective in facilitating certain components of children's physical literacy development.
2	(Giblin et al., 2014)	Scopus Q1	Experiment	Elementary school students	Exergaming program	Exergaming programs could improve the measurement of movement skills that reflected skill learning in all physical literacy parameters and provide valid and comparable empirical data to assess the effectiveness of physical literacy education.
3	(Smith et al., 2021)	Scopus Q1	Experiment	Elementary school teachers	The movewell program focuses on learning through play	Movewell is an initiative that signals a shift from teaching basic movement skills to a focus on situational problem solving inherent in the game. It sought to encourage teachers to reflect on the nature and potential of physical and health education and ultimately change the teaching methods they used. Through interactive play in an inclusive play environment, children developed not only physical skills but also a positive sense of self, a sense of belonging, and a sense of community.

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No.	Authors /year	Journal Index	Method	Sample	Intervention	Research Findings
4	(Slade et al., 2019)	Scopus Q1	Experiment	Beginner hockey athletes	TGfU and Game-Centred Learning (GCL)	The proposed GCL model focused on flexibility and pragmatism, with the intention of making the GCL approach accessible to those teaching the game to beginners or more experienced athletes. The game-learning model is a process for aspects of physical education. From the learner's perspective, process models were designed to capture their creative process and make it manifest in the form of games that were created.
5	(Wainwright et al., 2018)	Scopus Q1	Experiment	Students aged 5–6 years totaled 67 from two schools in different locations	Foundation Phase (play-based curriculum) in Wales	The findings showed that the basic phase of holistic play-based learning with active learning and the use of the outdoors allowed students to interact with diverse environments through many areas of learning that contribute to locomotor skills, engagement in learning, and perceived physical competence. A physical game-based approach to learning provided opportunities in many areas of learning for experiences traditionally delivered in physical education to increase physical literacy.
6	(Roberts & Fairclough, 2011)	Scopus Q1	Experiment	Elementary school students	Play-based curriculum based on Ecological Dynamics (ED) principles underlying the Constraints-Led Approach (CLA)	The findings in this study highlighted the importance of developing key principles to deliver a theoretically informed curriculum that elicits the key principles of physical literacy. This approach was able to bring out the desired results in students who are confident, motivated, and competent. This pedagogy has proven successful in providing opportunities to develop physical literacy and a sense of self-realization. The exploratory, flexible, and ever-changing experience in the play environment was well suited to provide the experiential exploration and environmental interaction needed to develop physical literacy.
7	(Fry et al., 2010)	Scopus Q1	Experiment	Elementary school students, with a total of 297 students	Physical education teaching method using the game concept approach (GCA)	It was found that children generally perceived GCA as having a positive impact by adding value to their physical education experience through processes and outcomes that are markedly different from their previous physical education. The implication of this finding is that, from the perspective of children, GCA is feasible to implement as a play pedagogy.
8	(Pope, 2005)	Scopus Q1	Experiment	Elementary school students	Teaching Games for Understanding (TGfU) Model	TGfU has the potential to reinforce physical education and sport in ways that highlight human interaction and the affective dimensions of play. There is a need to rethink or play out in ways that promote a constitutive relationship between learning influence and understanding. Since

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						understanding is the core of the TGfU model, the essence of this model is 'playing well', and doing so involves an educational journey marked by new feelings, sensations, emotions, insights, and skills.

Physical literacy has become an important outcome in a variety of educational and sports-related contexts (Jurbala, 2015; Albertin et al., 2018). Physical literacy, for example, was recognized as an important educational outcome in recent provincial physical education curriculum updates in Ontario in 2015 and British Columbia in 2017. Canada's National Sport Policy 2.0 and the 2014 Canadian Sport for Life emphasized the importance of developing physically literate citizens through sport and recreation. At the global level (Ayers & Sariscsany, 2011), policies identified physical literacy as the basis for quality physical education. It is important that students are given opportunities to develop characteristics appropriate to the development of physical literacy and to receive formative feedback on their individual journey to becoming physically literate. In addition, (Dudley, 2015) included movement competencies, rules, tactics, and strategies, motivation, and movement behavior skills, as well as personal and social movement attributes, as core elements of physical literacy.

There are three recommended pedagogical strategies to support the development of physical literacy. One approach that is consistent with this pedagogical strategy is the playing method. According to (Karen et al., 2017; Chow, 2009; Davids et al., 1953) the playing method supports contextual learning in real-world game situations. This study highlighted the inextricable relationship between individuals and their environment as well as the importance of developing perceptual acts. Moreover, (Gibson, 1963) recognized the importance of individual engagement in the learning context and thereby promoted practices that acknowledge the embodied, embedded, civilized nature of learning and allow for the development of physical literacy (Karen et al., 2017). Furthermore, when movement in contexts such as games is central to the learning process, children learn not only physical competence and confidence to play games, but also a sense of who they are among other people, a sense of being accepted and valued by others, and a sense of togetherness when valued by a team or group. When these outcomes are cumulatively positive, they are likely to promote life fulfillment and, possibly, lifelong participation in pleasant physical activity. The aim was to recognize the interrelationships between skill development, self, and community. According to (Smith, 2014), the purposes of learning skills and playing games in physical education are significantly more essential than training students for future sports achievement. Physical education should be a place where students may find meaning in their play. A sense of self and a sense of belonging are more significant outcomes of school physical education than sports prowess.

The second core principle is that learning to be skilled is not about learning basic movement skills but rather about learning to perform effectively to solve situational problems posed during dynamic interactions with other players, which are an inherent characteristic of the game (Miller, 2015). In other words, placing learning as a game-based process is a significant change from teaching and developing basic movement skills (Davids et al., 1953). Games enable a wide range of learning outcomes. The game environment is as much about a personal, social, and cultural learning experience as it is about a physical skill-learning experience. They are encouraged to recognize the importance of cultural competence and to

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respect cultural differences through their interactions in the game. In addition, children can develop a positive attitude of belonging and a sense of community through interactive games in the context of fun and inclusive play with their peers.

Several experts have highlighted the playing method as an appropriate method for the development of physical literacy (Slade, 2015; Ovens et al., 2014). Moreover, (J. L. Mandigo et al., 2008) identified positive results from the existing literature linking playing methods to acquisitions of knowledge and understanding, technical and tactical skills, and positive motivation. Furthermore, (Doozan & Bae, 2016) argued that the playing method supports the development of physical literacy due to its ability to help cultivate intrinsically motivated, autonomous, and critical thinkers. In one of the earlier reviews of the Game-Centered Approach (GCA) literature, (Stolz & Pill, 2014) highlighted that the evidence to date supports the use of playing methods to foster motivation among participants, enhance students' decision-making skills while playing games, and increase overall game engagement.

If the playing method is implemented in physical activity, tactical transfer, creativity, and social and personal development will occur. In a similar meta-analysis of playing methods and related research, (Miller, 2015) revealed that positive outcomes are often associated with physical literacy. Outcomes such as increased declarative knowledge support during game play (a strategic concept) and increased affective outcomes such as perceived competence, interest or pleasure, and effort or interest were all reported as consistent outcomes as a result of interventions that adopted the play approach. In addition, students will be introduced to a key concept used in the game environment through physical activity modified with games. Concepts usually involve understanding the tactics, skills, and/or rules used within and across game categories (Chow et al., 2007).

The playing method outlines four pedagogical principles that are incorporated into each lesson (Stolz & Pill, 2014). These four pedagogical principles are in line with the results identified by SHAPE America's 2014 results for physical education environments that promote physical literacy development. Previous research using PlaySport with elementary school-aged children found that it improved participants' overall motivation (Mandigo, Holt, Anderson & Sheppard, 2008). Moreover (Albertin et al., 2018) found initial support for using the playing method as a feasible pedagogical approach to support the development of specific physical components for literacy in elementary school-age children. Instead of always depending on instructions from an instructor or teacher, the game became a medium for increasing understanding so that participants could think independently and interpret the game while participating. It could also assist teachers in integrating techniques, tactics, and life skills, which may often become abstract concepts for students to fully comprehend. At the end of the study, one of the significant findings was an increased awareness of various forms of physical activity and the environment. In particular, participants reported an increased interest in participating in a more diverse type of physical activity. Rather than focusing on one formal sport, playing methods attempt to encourage understanding of different rules, strategies, tactics, and life skills. In addition (Mitchell & Oslin, 2006) reported that ninth grade students who received five badminton lessons using the playing method were able to transfer their decision-making skills from one net or wall game to another, known as pickleball. The approach is consistent with the development of physical literacy, which is often characterized as having confidence and competence in a variety of physical activities. The results of this study also revealed improvements in the physical literacy component. More specifically, significant improvements in balance, stability, and cardiovascular skills were reported. Furthermore (Harvey & Jarrett, 2013) reported that the use of modifications and small-sided games, common approaches used in TGfU, have been

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identified in previous studies as effective ways to increase physical activity levels, which in turn are positively related to increased fitness levels. Additionally (Sum et al., 2018) discovered that when the PlaySport program was used, girls reported having more positive experiences than boys and significantly higher levels of enjoyment, optimal challenge, and autonomy support, while boys reported a higher level of perceived competence.

4. CONCLUSION

Playing has been recognized as a promising pedagogical method for encouraging physical literacy development. The results indicated a positive trend towards the development of physical literacy. It is heartening to observe the impact on the school environment since schools are one of the best delivery options for quality physical literacy programs, considering that practically all early childhood children are taking part in this system. School-based activities do not have access barriers and provide excellent opportunities for developing play-based activities. The use of the playing method as part of their overall plan to promote the development of physical literacy among students is an acknowledgement of the supportive environment in which the program was implemented. The playing method as a strategy for developing physical literacy allowed students to participate in a variety of games and physical activities and encouraged the ability to transfer skills and understanding in a variety of sports, which is very promising for the development of physical literacy, particularly in children. Opportunities for children to participate in and engage in various forms of physical activity in a variety of environments will be important in their development of confidence and physical competence.

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