TRiJ
TVET Research and Innovation Journal
Universiti Pendidikan Sultan Idris
Sultan Idris Education University

Enhancing Elementary Students' Physical Literacy and Vocabulary Through Movement-Based Learning Using Educational Games: A Holistic Approach to Fostering Optimal Human Development

Eli Nurlaeli*, Lutfi Nur, Erwin Rahayu Saputra

Primary School Teacher Education Tasikmalaya Campus, Universitas Pendidikan Indonesia, Indonesia

***Corresponding author email: elinurlaeli@upi.edu**

ARTICLE HISTORY
Received: 22nd April 2026
Revised: 19th May 2026
Accepted: 24th May 2026
Published: 9th June 2026

KEYWORDS
Physical Literacy
Vocabulary
Movement-Based Learning
Educational Games
Elementary School
SDG 4 Quality Education

ABSTRACT - Learning in elementary schools needs to be designed holistically, integrating cognitive, affective, and psychomotor aspects to support optimal student development. Physical literacy and vocabulary mastery are two important competencies that need to be developed from an early age. However, in practice, they are often taught separately, thus lacking meaningful learning experiences for students. Therefore, a learning approach is needed that can integrate these two aspects effectively and contextually. This study aims to describe the implementation of Movement-Based Learning (MBL) based on educational games to improve physical literacy and vocabulary in elementary school students. This study used a descriptive qualitative approach, with students and teachers in elementary schools as research subjects. Data collection techniques included observation, interviews, and documentation studies. Observations were conducted to observe students' physical engagement, vocabulary use, interactions between students, and student responses during the learning process. Interviews were conducted with teachers and students to explore their views, experiences, and perceptions regarding the implementation of MBL. Documentation studies were conducted by reviewing Lesson Implementation Plans (RPP), teaching materials, assessment instruments, and documentation of learning activities. Data were analyzed using the interactive analysis model of Miles, Huberman, and Saldaña, which includes data reduction, data presentation, and continuous conclusion drawing. The results of the study indicate that game-based Movement-Based Learning (MBL) can increase student engagement both physically and verbally, create an active, fun, and collaborative learning atmosphere, and help students understand and remember vocabulary, especially in action verb material through contextual movement activities. In addition, this learning also contributes to the development of students' physical literacy through structured, directed, and developmentally appropriate movement activities. Thus, educational game-based Movement-Based Learning can be an alternative learning strategy that is effective, innovative, and meaningful in supporting the development of student competencies as a whole in elementary schools.

https://doi.org/10.37134/trij.vol2.sp.6.2026

INTRODUCTION

Elementary school education generally plays a fundamental role in establishing the foundation of student learning, encompassing cognitive, affective, and psychomotor aspects. In the context of 21st-century learning, the integration of physical activity and academic learning is increasingly relevant and crucial for optimizing children's holistic development. Physical literacy and vocabulary mastery are two essential competencies that need to be developed early in elementary school students.

Physical literacy encompasses the motivation, self-confidence, physical competence, knowledge, and understanding necessary to value and be responsible for engaging in lifelong physical activity. According to Rosiana et al. (2023), physical literacy media can be a solution for providing students with an understanding of the importance of physical activity. However, its implementation still faces various challenges, including a lack of infrastructure and teacher training. Meanwhile, vocabulary is a crucial component of language skills that determines students' academic success in various subjects, including English.

Currently, a common problem in elementary school learning is the low level of physical literacy in students due to the lack of physical activity in the learning process. According to research by Priadana (2021), children's physical literacy knowledge falls into the poor category, with an average score of 25.93. This condition is exacerbated by a sedentary lifestyle and excessive use of gadgets. Arifin (2022) explains that some elementary school students in Indonesia engage in less than 60 minutes of physical activity per day. Meanwhile, elementary school students' vocabulary mastery remains a major challenge in language learning, both Indonesian and English.

Movement-Based Learning (MBL) presents an innovative approach that integrates physical movement with academic learning. This approach aligns with the theory of embodied cognition, which states that cognitive processes cannot be separated from the body's sensorimotor experiences. Through educational games, MBL can be a solution to improve physical literacy while enriching students' vocabulary in a fun and meaningful way.

This study aims to analyze the effectiveness of educational game-based movement-based learning in improving physical literacy and vocabulary in elementary school students based on a literature review of various relevant studies. The benefits of this study are expected to provide theoretical contributions regarding integrative learning models and practical assistance for teachers in designing holistic learning in elementary schools.

METHODS AND MATERIALS

This study used a descriptive qualitative approach to describe the implementation of movement-based learning (movement-based learning) using educational games to improve physical literacy and vocabulary skills in elementary school students. This approach was chosen because it captures learning phenomena naturally and provides a comprehensive understanding of the learning processes and dynamics that occur.

Data collection techniques included observation, interviews, and documentation studies. Observations were conducted to observe the learning process, interaction patterns, and vocabulary use in educational games. In-depth interviews were conducted to explore the subjects' perspectives and experiences regarding learning effectiveness. Documentation studies were conducted by reviewing lesson plans (RPP), game modules, evaluation results, and learning videos. Data were analyzed using the interactive analysis model of Miles, Huberman, and Saldaña, which includes data reduction, data presentation, and drawing and verifying conclusions. Conclusions were drawn continuously by applying triangulation of techniques and data sources to ensure the credibility of the research findings (Miles, Huberman, & Saldaña, 2014).

https://doi.org/10.37134/trij.vol2.sp.6.2026

RESULTS AND DISCUSSION

Research Result

The results of this study were obtained through data collection techniques such as observation, interviews, and documentation studies. These three techniques were then used to provide a comprehensive overview of the implementation of Movement-Based Learning (MBL) based on educational games and its impact on elementary school students' physical literacy and vocabulary mastery.

Observation Results of the Implementation of Movement-Based Learning

Observations were conducted throughout the learning process, focusing on student activities, physical engagement, vocabulary use, and interactions during educational games. The results of these observations indicate that MBL was implemented through structured stages, including initial, core, and closing activities. In the core activities, the teacher integrated movement activities with vocabulary introduction and reinforcement through various forms of educational games. Students were seen very actively following the teacher's instructions, which combined movement commands with vocabulary. These learning activities involved locomotor and non-locomotor movements, such as walking according to directional instructions, jumping while saying vocabulary, and group games that required students to match words with movements or images. Throughout the activities, students demonstrated high enthusiasm and equal involvement.

Observations also showed that students were more confident in using vocabulary verbally when learning was presented in a game format. Mispronunciation did not become a barrier due to the relaxed and enjoyable learning environment. Furthermore, students appeared able to follow game rules, collaborate with their peers, and demonstrated improved motor coordination. However, variations in student ability were also found in participating in movement activities. Some students required further guidance, particularly in following complex movement instructions. The teacher addressed these challenges by repeatedly demonstrating the movements and adjusting the game's difficulty level. Based on Table 1, observations show that MBL based on educational games can create active learning and engage students physically and verbally. Student engagement is evident not only in movement activities but also in vocabulary use during the learning process.

Table 1. Summary of Observation Results

Observation Aspect	Findings
Student Engagement	Students are active and enthusiastic in participating in learning.
Movement Activities	Locomotor and non-locomotor movements are integrated with vocabulary.
Use of Vocabulary	Students pronounce vocabulary during game activities.
Interaction between Students	There is cooperation and communication between students.
Emerging Obstacles	Differences in students' physical abilities and concentration

Interview Results on the Role and Implementation of Movement-Based Learning

In-depth interviews with teachers and students revealed a congruence in their perspectives on the application of movement-based learning, based on educational games, to action verbs. Both teachers and students agreed that learning that integrates movement activities with vocabulary can improve student engagement and understanding during the learning process.

One quote from an interview with a teacher is as follows:

> **Researcher:** *"How has your experience been implementing learning that integrates movement activities with the introduction of action verbs?"*

https://doi.org/10.37134/trij.vol2.sp.6.2026

> **Teacher:** *" Learning becomes more engaging. Students don't just sit and listen, but directly practice vocabulary through movement, making it easier for them to understand and remember."*

Teachers also reported that movement-based learning helped students focus better on instructions and reduced boredom during the lesson. According to teachers, students showed high levels of enthusiasm and were more confident in responding to instructions in English.

> **Teacher:** *"The children seem more willing to follow instructions. Even students who are usually passive are getting involved and trying."*

Meanwhile, interviews with students showed that they enjoyed participating in learning that involved movement activities. Students stated that learning was more engaging and less boring than learning that was conducted passively in the classroom.

One of the excerpts from the interview with the students is as follows:

> **Researcher:** *"How do you feel when you learn vocabulary with lots of movement?"*
> **Student:** *"I enjoy it because I can move around and it doesn't get boring. It makes it easier to remember the words."*

Students also revealed that they found it easier to understand the meaning of action verbs because they could directly perform the appropriate movements. Furthermore, they noted that they paid more attention to the teacher's instructions to avoid making mistakes.

> **Student:** *"When you hear the command, you have to focus, so that your movements don't go wrong."*

Based on the interview results, it can be concluded that movement-based learning, based on educational games for action verbs, is viewed positively by both teachers and students. This learning approach is considered to increase student engagement, create a fun learning environment, and facilitate vocabulary comprehension through hands-on movement activities.

The following table presents the key findings based on interview results involving both teacher and student. It summarizes the main insights and experiences related to movement-based vocabulary learning implemented through educational games, highlighting how the activities influenced student engagement, participation, and vocabulary development. The interview results showed in Table 2 shows a common view that MBL based on educational games provides a positive learning experience and increases student engagement in learning.

Table 2. Summary of Interview Results

Informant	Key Findings
Teacher	Learning is more active, students can easily understand and remember vocabulary
Student	Feel happy, not bored, and more courageous

Documentation Study Results

A documentation study was conducted by in-depth reviewing the learning tools and supporting documents used in the implementation of Movement-Based Learning (MBL) based on educational games. The documents analyzed included the Lesson Implementation Plan (RPP), teaching materials, observation sheets, assessment instruments, and photographic documentation of learning activities. This documentation study aimed to ensure alignment between lesson planning, classroom implementation, and recording of learning outcomes.

https://doi.org/10.37134/trij.vol2.sp.6.2026

The analysis of the RPP showed that the MBL was designed systematically and structured. The RPP contained learning objectives that clearly integrated aspects of physical literacy and vocabulary mastery, particularly for action verbs. The learning objectives were formulated not only to improve students' cognitive abilities in understanding vocabulary but also to develop physical engagement through movement activities. The learning steps in the RPP were structured sequentially, starting with introductory activities, core activities, and closing activities, with an emphasis on active student involvement throughout the learning process.

In the core activities section, the lesson plan explicitly includes the use of movement activities and educational games as the primary learning strategies. Each stage of the activity is designed to enable students to understand vocabulary through direct experience, namely by listening to instructions, observing movement examples, and practicing the movements independently or in groups. This demonstrates that the lesson plan has taken into account the characteristics of elementary school students, who tend to learn optimally through concrete and kinesthetic activities.

Analysis of the teaching materials indicates that the media used supports the implementation of MBL. Teaching materials in the form of vocabulary cards and visual media are used to introduce and strengthen students' vocabulary understanding. Vocabulary cards contain words related to action verbs that are used as reinforcement before and during the movement activities. Visual media helps students understand vocabulary meaning more clearly and contextually, especially for students who are still in the early stages of learning English.

Photographic documentation of learning activities demonstrates active student engagement throughout the learning process. Students are seen performing various movement activities according to instructions, both individually and in groups. The photos also demonstrate interaction between students and teacher involvement in guiding and facilitating activities. This documentation reinforces the observational finding that game-based MBL can create an active and participatory learning environment.

Furthermore, the observation sheets and assessment instruments analyzed indicate that learning assessment focuses not only on the final outcome but also on the learning process. The assessment instruments cover motor skills, accuracy of activities according to instructions, and student vocabulary mastery. This demonstrates that the learning process and student development are observed comprehensively, from both physical and language aspects.

Based on the results of the documentation study, it can be concluded that the implementation of Movement-Based Learning based on educational games is supported by learning tools that are systematically and consistently designed. Learning documentation shows the integration between planning, implementation, and assessment of learning, so that the implementation of MBL in the classroom runs in accordance with the established learning objectives.

DISCUSSION

The research results show that Movement-Based Learning (MBL) based on educational games for action verbs can create active learning, engage students physically and verbally, and improve elementary school students' vocabulary mastery. Based on observations, MBL, which integrates locomotor and non-locomotor movements with vocabulary introduction, demonstrates high student engagement and enthusiasm in following teacher instructions. Students who participate in movement-based learning demonstrate better vocabulary recall compared to conventional learning. This occurs because physical involvement in learning helps students associate words with movements, thus strengthening and lasting vocabulary memory.

Interviews with teachers indicate that MBL improves student focus and reduces boredom during learning. Enjoyable learning encourages students to follow instructions and respond to commands in English, encouraging even typically passive students to participate and try. This condition reflects the importance of creating a supportive and non-threatening learning environment (low-anxiety environment) in foreign language learning. Educational games combined with movement activities allow students to learn in a relaxed atmosphere and reduce psychological stress, making it easier for them

https://doi.org/10.37134/trij.vol2.sp.6.2026

to accept and remember new information. This is consistent with student interviews, which stated that they feel happy, less bored, and more easily remember vocabulary when learning involves a lot of movement.

However, observations also revealed variations in students' abilities in participating in movement activities, with some requiring further guidance, particularly in following complex movement instructions. This highlights the importance of differentiating learning and adjusting the difficulty level of the game to suit individual student abilities. Teachers need to provide repeated examples of movements and adjust the complexity of the instructions to ensure all students can participate optimally.

A documentation study of lesson plans and learning materials shows that MBL has been systematically designed with clear learning objectives integrating aspects of physical literacy and vocabulary mastery. Structured lesson planning and the use of supporting learning media, such as vocabulary cards and visual media, are important factors in the successful implementation of MBL. Educational game-based Movement-Based Learning (MBL) also aligns with a learning approach that considers student diversity. Each student has a different learning style and pace, and learning that involves physical activity provides opportunities for students with kinesthetic learning styles to develop optimally.

Overall, the implementation of Movement-Based Learning (MBL) based on educational games on action verbs has proven effective in improving physical literacy and vocabulary mastery in elementary school students. This learning creates a holistic learning experience where students' physical, cognitive, and affective aspects develop simultaneously. The integration of movement activities with language learning not only makes learning more engaging and enjoyable but also facilitates better vocabulary comprehension and retention through concrete, multisensory experiences. These findings have important implications for learning practices in elementary schools, namely the need to integrate physical activity into foreign language learning to create more effective and meaningful learning for students.

CONCLUSIONS

Based on the research results and discussion, it can be concluded that Movement-Based Learning (MBL), an educational game-based approach to action verbs, has been proven to create active, enjoyable, and meaningful learning for elementary school students. The implementation of MBL allows students to engage directly through movement activities integrated with vocabulary learning, thereby simultaneously supporting the development of physical literacy and vocabulary mastery.

Observations indicate that MBL encourages physical and verbal student engagement, increases enthusiasm, and strengthens student interaction during the learning process. Students not only understand vocabulary verbally but are also able to connect word meanings with body movements through concrete learning experiences. Interviews with teachers and students corroborate these findings, stating that movement-based learning is considered more engaging, reduces boredom, and helps students more easily understand and remember action verbs.

Furthermore, the results of the documentation study indicate that Movement-Based Learning (MBL) is supported by systematic lesson planning, relevant learning tools, and assessment instruments that cover both the learning process and outcomes. The integration of planning, implementation, and assessment is a crucial factor in the successful implementation of Movement-Based Learning in elementary schools.

Thus, game-based MBL not only contributes to improved vocabulary mastery but also plays a role in developing students' physical literacy, which encompasses movement skills, self-confidence, and motivation to actively move. This learning creates a holistic learning experience by integrating cognitive, affective, and psychomotor aspects in a balanced manner.

https://doi.org/10.37134/trij.vol2.sp.6.2026

ACKNOWLEDGEMENT

This study was not supported by any grants from funding bodies in the public, private, or not-for-profit sectors.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest regarding the conduct, results, or publication of this research.

AUTHORS CONTRIBUTION

Eli Nurlaeli: Conceptualization, Methodology, Writing- Original draft preparation and Editing, Investigation. **Lutfi Nur**: Supervision, Validation, Reviewing. **Erwin Rahayu Saputra**: Supervision, Validation, Reviewing.

AVAILABILITY OF DATA AND MATERIALS

Data is openly available in a public repository, with a permanent identifier (such as a DOI).

DECLARATION OF GENERATIVE AI

During the preparation of this work, the author used ChatGPT (OpenAI) to enhance the clarity of the writing. After using the ChatGPT (OpenAI), the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

ETHIC STATEMENTS

'Not applicable'

REFERENCES

Arifin, Z. (2022). Tingkat literasi fisik siswa sekolah dasar di Indonesia: Sebuah survei nasional. *Jurnal Ilmu Keolahragaan*, 21(2), 112-125.

Damayanti, F. E., Sari, N. T. A., & Caturiasari, J. (2023, July). Penguasaan Kosakata Bahasa Inggris Siswa Sekolah Dasar Melalui Game Edukasi Educandy. In *Renjana Pendidikan: Prosiding Seminar Nasional Pendidikan Dasar* (Vol. 4, No. 1, pp. 316-325).

Fatimah, S., Abror, M., & Zuhdi, R. (2025). Pengaruh Permainan Edukatif pada Penguasaan Kosakata dalam Pembelajaran Bahasa Indonesia. *DEIKTIS: Jurnal Pendidikan Bahasa dan Sastra*, *5*(3), 1793-1801.

Liu, Y., & Chen, S. (2021). Physical literacy in children and adolescents: Definitions, assessments, and interventions. *European Physical Education Review*, *27*(1), 96-112.

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). Qualitative data analysis: A methods sourcebook. *(No Title)*.

Muliawan, S. A., Fauzi, I., Nugraha, R. F., Nasution, H. M., & Jami, S. V. Y. (2025). Penerapan Game-Based Learning Untuk Peningkatan English Vocabulary di LKSA Yayasan Panti Asuhan Sumber Karya El Ministry. *Jurnal Pengabdian Masyarakat Bhinneka*, *3*(4), 939-951.

Priadana, H. (2021). Pengembangan instrumen Physical Literacy Knowledge Questionnaire (PLKQ) untuk mengukur pengetahuan physical literacy anak usia 8-12 tahun. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, 7(3), 385-402. https://doi.org/10.29407/js_unpgri.v7i3.16418

https://doi.org/10.37134/trij.vol2.sp.6.2026

Rohmatin, R. (2023). Penggunaan game edukasi berbasis wordwall untuk meningkatkan kemampuan vocabulary siswa dalam pembelajaran bahasa inggris. *EDUTECH: Jurnal Inovasi Pendidikan Berbantuan Teknologi*, *3*(1), 79-88.

Rosiana, R., Sulasmono, B. S., & Astuti, S. (2023). Pengembangan Media Literasi Fisik (MELIFIS) untuk siswa sekolah dasar. *Jurnal Basicedu*, 7(5), 3349-3359. https://doi.org/10.31004/basicedu.v7i5.6026

Roziqi, M. A., Murdiono, M., Rahman, N. F., & Arif, M. (2025). Mapping Of Strategies And Methods For Learning Arabic Speaking Skills. *Mapping Of Strategies and Methods for Learning Arabic Speaking Skills*, *8*(1), 431-450.

Sabani, F. (2019). Perkembangan anak-anak selama masa sekolah dasar (6–7 tahun). *Didaktika: Jurnal Kependidikan*, *8*(2), 89-100.

https://doi.org/10.37134/trij.vol2.sp.6.2026