COMPETITOR:
JURNAL PENDIDIKAN KEPELATIHAN OLAHRAGA
e-ISSN: 2657-0734 & p-ISSN: 2085-5389 ‖ Volume 17, Number 2, 2025 ‖ P.880-892

Analysis of the Development of Physical Education Materials in Teaching Modules in Elementary Schools, State 2 North Loktabat, Banjarbaru City

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]

[1,2,3] Lambung Mangkurat University, South Kalimantan, Indonesia

nopitalestari89@gmail.com[1], rahmadi@ulm.ac.id[2], lazuardy.fauzan@ulm.ac.id[3]

ABSTRACT

The purpose of this study is to analyse the development of Physical Education (PE) materials in the odd semester teaching module for Grade VI at State Elementary School 2 North Loktabat, Banjarbaru City. The analysis is grounded in Gallahue's theory of movement concepts, which emphasises three fundamental aspects: effort, space, and relationship. This research employed a quantitative descriptive approach using a closed observation instrument to evaluate seven PE teaching modules. The results revealed that the space aspect demonstrated the highest level of fulfilment, with an average score of 91.79%, indicating strong representation of spatial awareness and locomotor movement planning. This was followed by the relationship aspect at 88.94%, reflecting satisfactory inclusion of peer interaction and cooperative learning elements. However, the effort aspect scored relatively lower at 78.89%, suggesting limited incorporation of movement dynamics such as force, time, and flow. A particularly significant gap was identified in the football module, which only achieved 20% fulfilment for the effort component. These findings highlight that although certain aspects of Gallahue's framework are well represented, the effort dimension remains underdeveloped, especially in sport-specific modules. Therefore, the study underscores the importance of teacher training and curriculum enrichment to enhance the comprehensiveness and developmental alignment of PE modules. The research provides a foundational evaluation that can inform the design of more contextualised, effective, and child-centred PE teaching materials, particularly in the Indonesian elementary education context.

ARTICLE HISTORY
Received: 2025/06/04
Accepted: 2025/06/08
Published: 2025/06/15

KEYWORDS
Development;
Materials;
Physical Education;
Learning Modules;
State Elementary Schools.

AUTHORS' CONTRIBUTION
A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

Cites this Article : Lestari, Nopita Puji; Rahmadi, R.; Fauzan, Lazuardy Akbar. (2025). Analysis of the Development of Physical Education Materials in Teaching Modules in Elementary Schools, State 2 North Loktabat, Banjarbaru City. **Competitor: Jurnal Pendidikan Kepelatihan Olahraga**. 17 (2), p.880-892

INTRODUCTION

The value of PE extends beyond the classroom. Studies have shown that regular participation in structured physical education positively correlates with academic achievement, self-discipline, emotional regulation, and reduced levels of anxiety and depression among students (Donnelly et al., 2016; Trudeau & Shephard, 2010). Furthermore, physical education fosters the development of teamwork, leadership, and

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

respect—essential skills for personal and professional life (Hardman & Green, 2011). The movement-learning connection, where physical activity is used as a medium for cognitive engagement, has become a vital pedagogical tool in elementary education (Pangrazi & Beighle, 2020).

In recent years, there has been a notable shift in how PE is delivered, especially with the introduction of curriculum modules and digital integration tools such as the Physical Education Curriculum Analysis Tool (PECAT). These modular approaches allow for more structured, goal-oriented, and competency-based instruction tailored to developmental stages (CDC, 2023). Moreover, e-modules and digital platforms have gained momentum, particularly in response to remote learning demands during the COVID-19 pandemic (Erfayliana, Demirci, & Toptaş Demirci, 2021), creating new avenues for flexible and inclusive PE instruction in elementary schools across the globe, including Indonesia.

The development of physical education (PE) modules has evolved to include a variety of instructional models tailored to student development levels, learning styles, and curricular needs. In Indonesia, thematic games-based modules have been integrated into elementary PE to make learning more interactive and age-appropriate. For instance, Satyawan and Dartini (2021) developed a thematic PE games module for Grade 1 students that aligns movement activities with story-based content, thereby enhancing cognitive and emotional engagement. These modules are effective in helping students understand abstract concepts through physical activities embedded in relatable scenarios.

In addition to thematic models, online or digital modules are increasingly utilised, particularly in response to the shift to remote learning environments. Erfayliana, Demirci, and Toptaş Demirci (2021) emphasised that online modules for fifth-grade students could significantly increase access to PE content, ensuring continuity of physical activity education even during school closures. Such modules incorporate multimedia, video demonstrations, and interactive quizzes, which have been shown to improve students' motivation and participation.

Numerous studies affirm that the use of structured PE modules, whether digital or thematic, contributes to higher levels of student engagement and motivation. According to Ginanjar (2023), project-based and modular approaches increase enjoyment, focus, and teamwork among learners in physical education classes. Similarly, research from Prasetyo (2022) noted that module-based learning contributes to a more student-centred learning environment, where autonomy and responsibility are encouraged through active learning tasks.

However, implementing these modules in Indonesian elementary schools presents various challenges. Infrastructure limitations such as a lack of access to ICT tools, insufficient space, and inadequate PE facilities constrain effective delivery (Winarni, 2020). Moreover, many teachers express limited confidence in integrating technology into PE instruction due to inadequate training and limited professional development opportunities (Kuswanto & Cahyono, 2021). These issues hinder the optimal use of modules, calling for a more systemic approach to curriculum design, teacher empowerment, and facility development.

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

The main objective of this study is to analyse the development quality of physical education (PE) materials embedded within teaching modules used at State Elementary School (SD Negeri) 2 North Loktabat, Banjarbaru City. This analysis seeks to examine the extent to which these modules align with national curriculum standards, integrate key pedagogical principles in PE, and respond to the contextual needs of elementary-level learners.

Several critical issues arise in the implementation and development of PE modules within this context. First, there are observable gaps in content accuracy and consistency, where some modules may lack age-appropriate progression or fail to address essential movement skills across the cognitive, affective, and psychomotor domains (Nurhasan et al., 2024). These deficiencies can result in fragmented learning experiences for students and misalignment with expected learning outcomes.

Second, the level of digital readiness among schools and educators remains uneven. Many modules are still presented in static print form, with limited interactive or multimedia features that could enhance student engagement, particularly important in today's technology-integrated learning environments (Winarni, 2020). In addition, modules are often not well aligned with the local context, failing to consider regional culture, student needs, or available physical resources.

Lastly, teacher capacity and ICT proficiency are central issues affecting the quality of module implementation. As highlighted by Kuswanto and Cahyono (2021), many PE teachers in Indonesia express difficulties in integrating digital tools due to a lack of training and confidence. This constraint limits the potential impact of digital or blended PE modules and reinforces reliance on outdated teaching methods.

Over the past decade, a growing body of international research has emphasised the relationship between well-designed physical education (PE) modules and increased student motivation, engagement, and learning outcomes (Ahn & Lim, 2025; Vujičić, Peić, & Petrić, 2020). Modular learning formats, especially those incorporating thematic activities and digital elements, have proven effective in stimulating both cognitive and psychomotor development among primary school learners. These global findings underscore the potential of PE modules as dynamic instructional tools in 21st-century education.

However, few studies have systematically explored the adaptation of such modules to local contexts in Indonesia, particularly at the elementary school level. Most existing evaluations focus on general curriculum implementation, neglecting the unique characteristics, cultural settings, and pedagogical needs of individual institutions. Specifically, State Elementary School (SDN) 2 North Loktabat in Banjarbaru City remains largely underrepresented in academic evaluations despite being a key site for regional education innovation. This creates a gap in localised evidence needed to inform policy, teacher training, and future curriculum development.

Furthermore, while ICT-enhanced and AI-assisted PE modules are beginning to gain attention in developed educational systems (Ahn & Lim, 2025), their implementation and impact in Indonesian elementary schools remain understudied. Challenges such as teacher preparedness, infrastructure readiness, and digital literacy have further slowed their adoption and evaluation (Kuswanto & Cahyono, 2021).

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

This research aims to fill these gaps by conducting a comprehensive evaluation of PE teaching modules at SDN 2 North Loktabat, providing empirical insights into their structure, contextual relevance, and implementation barriers, with particular focus on the role of technology-enhanced learning tools.

This study presents the first module-level analysis of physical education (PE) teaching materials at SD Negeri 2 North Loktabat, uniquely integrating assessments of content quality, teacher readiness, and the incorporation of digital tools. While previous research has examined module development in general, few have delved into the comprehensive evaluation of locally implemented modules within the specific context of an Indonesian elementary school.

What sets this research apart is its use of a triangulated approach, gathering perceptions and experiences from multiple stakeholders, including PE teachers, students, and school administrators, to obtain a holistic understanding of module functionality and relevance. This inclusive perspective not only enriches the data quality but also highlights the real-world challenges and successes in module delivery.

The findings are expected to offer valuable insights for policy-makers, curriculum developers, and educators seeking to enhance module design, contextual alignment, and technology integration in similar elementary school settings across Indonesia.

In summary, physical education (PE) plays a vital role in developing students' physical, cognitive, and emotional competencies. As instructional delivery shifts toward modular and digitally-supported approaches, the quality and contextual relevance of PE teaching modules become increasingly important, particularly in elementary school settings. Despite international advancements, there remains a significant gap in localised evaluations of such modules within Indonesian schools, especially at the primary level.

This study aims to evaluate the quality of existing PE teaching modules at SD Negeri 2 North Loktabat, examining their strengths, weaknesses, and implementation challenges. By analysing aspects such as content structure, teacher readiness, and digital integration, the research seeks to generate evidence-based recommendations for more effective and context-sensitive module development.

Ultimately, the study is expected to make a meaningful contribution to enhancing the quality of PE instruction and informing curriculum development strategies in similar educational contexts across Indonesia, supporting long-term improvements in student learning outcomes.

METHODS

This study uses a quantitative descriptive approach to analyse the suitability of Physical Education, Sports, and Health (PJOK) materials in the teaching module. This approach was chosen because it aims to describe and measure the extent to which the material in the teaching module meets the principles of student development, especially in the aspects of effort, space, and relationships.

According to Alfati (2021) quantitative descriptive approach is a research method

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

used to describe or provide an overview of a social phenomenon that is studied systematically and factually through numerical data obtained from a specific sample or population. The main goal is to provide an accurate, actual, and measurable picture of the research object being studied.

The population in this study is all documents of the Physical Education teaching module class VI used at State Elementary School 2, North Loktabat, Banjarbaru City. (Sugiyono, 2017) According to, "Population is a generalised area consisting of objects or subjects that have certain qualities and characteristics that are determined by the researcher to be studied and then drawn conclusions". The sample of this study is the teaching module of the Physical Education class VI, odd semester. According to (Sugiyono, 2017) Sample is a part of the number and characteristics possessed by the population that is selected by purposive sampling because the module is actively used in the learning process and is relevant to the focus of the research. According to Sugiyon (2017). The purposive sampling technique is a technique for determining samples with certain considerations.

Data collection was carried out through document analysis using a closed observation sheet containing indicators based on the theory of Movement Concepts. The instruments in the study have gone through a validity test process by an expert lecturer who has competence in the field of Physical Education, to ensure the suitability of the content with the purpose of the research. The researcher examined the content of each teaching module of Physical Education class VI odd semester, then matched it with each indicator item in the observation sheet.

The data was analysed in a quantitative descriptive manner by calculating the number of "Yes" and "No" answers from the observation sheet for each aspect (Effort, Space, and Relationship) in each module. Each number of "Yes" and "No" is calculated per aspect and module, and then converted into a percentage form using the formula:

$$P = \frac{F}{N} x100\%$$

Information:

P: Percentage
F: Number of "Yes" or "No" answer frequencies
N: The total number of indicators on the aspect

The percentage results in each aspect were then used to assess the level of content of the teaching module material with the principles of Movement Concepts as a whole.

RESULTS AND DISCUSSION

Result

The results of the research on the analysis of the development of Physical Education materials in the teaching module at State Elementary School 2 North Loktabar, Banjarbaru City are as follows:

The table of the results of the recapitulation of observations on the three aspects (Effort, Space, and Relationship) in the teaching module at State Elementary School 2, Loktabar Utara, Banjarbaru City, is as follows. The number of question indicators in the

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

observation sheet consists of 379 questions, the observation sheet on the effort aspect consists of 146 questions, the space aspect consists of 123 questions, and the relationship aspect consists of 110 questions.

This study aims to analyse the level of fulfilment of the aspects of Movement Concepts (Effort, Space, and Relationship) in the Physical Education teaching module for class VI odd semester at Elementary School State 2 North Loktabat, Banjarbaru City. Observations were made on seven teaching modules using a closed observation sheet that contained indicators based on the theory of Movement Concepts (David L.Gallahue, 1995).

Table 1.

The results of the recapitulation of observations on these three aspects:

No	Aspects	%M1		%M2		%M3		%M4	
		Yes	No	Yes	No	Yes	No	Yes	No
A	Effort	20	80	76,67	23,33	72,22	27,78	83,33	16,67
B	Space	62,5	37,5	86,67	13,33	93,33	6,67	100	0
C	Relationship	83,33	16,67	70	30	92,31	7,69	100	0
	Sum	**165,8333**	**134,1667**	**233,33**	**66,67**	**257,86**	**42,14**	**283,33**	**16,67**

Aspects	%M5		%M6		%M7		Total already	Not
	Yes	No	Yes	No	Yes	No		
Effort	100	0	100	0	100	0	78,89	21,11
Space	100	0	100	0	100	0	91,79	8,21
Relationship	76,92	23,08	100	0	100	0	88,94	11,06
Sum	**276,9231**	**23,07692**	**300**	**0**	**300**	**0**		

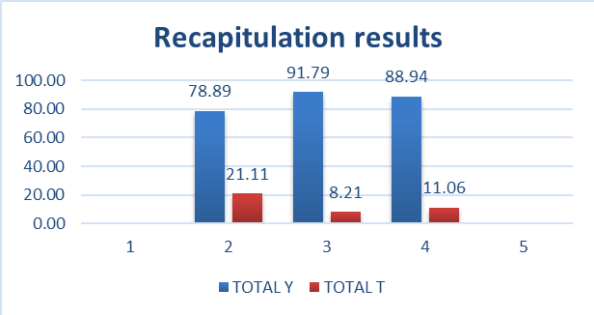

Image 1.

The results of the observation recapitulation are presented in the form of a bar diagram.

Based on the results of observations on seven Physical Education teaching modules for class VI odd semesters, data on the fulfilment of the indicators of Movement Concepts aspects, consisting of Effort, Space, and Relationship, were obtained. These three aspects were analysed using a closed observation sheet based on the theory (David L.Gallahue, 1995). The observation results showed a varying level of fulfilment in each aspect and module.

Discussion

Effort Aspect

The effort aspect showed an average fulfilment of 78.89%, with the highest fulfilment in modules 5, 6, and 7 (100%) and the lowest in Module 1 (20%). This shows that not all of these modules contain learning activities that emphasise variations of

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

movement efforts such as speed, strength, and rhythm. Especially in Module 1 (football), the effort indicator has not been optimally depicted in the material presented. The Soccer module shows the lowest level of fulfilment in the effort aspect, which reflects the lack of variation in motion, such as strength and speed. Basic skills such as shooting require precise technique and mastery of elements of movement effort (Reza Maulana et al., 2024). Assessment of students' physical condition is very important to ensure that the Physical Education learning material is in accordance with the abilities and needs of the participants(Jeki & Fauzan, 2025). A variety of efforts is very important in developing children's motor skills. The high fulfilment in Modules 5-7 indicates that activities such as brisk walking, relay, and high jump have been well designed to involve varied movement efforts. This shows that these modules have supported the development of the overall quality of movement.

The effort dimension encompasses teacher commitment, pedagogical strategies, and the institutional will to implement high-quality PE modules. Findings indicate that PE teachers at SD Negeri 2 North Loktabat demonstrate a strong dedication to module-based instruction, aligning with studies showing that teacher enthusiasm and perceived value are vital for successful module adoption (Nur et al., 2022). Indonesian educators, despite limited formal training in PE, are eager to integrate thematic and digital resources—echoing previous national findings where 77–91% of early childhood teachers expressed readiness for advanced PE training.

However, constraints in professional development emerged as a key barrier. Aligning with Atabek (2019), teachers cite insufficient in-service training and a lack of sustained support as significant obstacles to implementing technology-enhanced materials. Similarly, a systematic review of technology-mediated teacher development in lower-middle-income countries highlights that limited content support and ongoing training significantly hinder effective implementation. These insights suggest that while individual effort is high, institutional support remains inconsistent.

Additionally, teachers involved in blended-learning environments report enhanced student outcomes but face increased workload due to design and adaptation tasks. The additional effort required for lesson planning, assessment, and module customisation underscores the necessity for structured pedagogical frameworks—such as Gerlach and Ely's model—which advocate thoughtful design and contextual resource alignment.

Space Aspect

The space aspect showed that the average indicator fulfilment reached 91.79%, with five of the seven modules reaching 100%. This shows that most of the modules have presented variations in the use of space, such as the direction of movement, level (high-low), and movement path (straight, zigzag, curved). This shows that most of the modules have taught optimal use of space, which is very important to help students understand body orientation and position in physical activity. Modules that have a space percentage below 100% are modules 1 and 2, although they remain above 60%. Thus, it can be concluded that the use of space in these Physical Education modules is generally very

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

good and supports learning outcomes.

The space dimension captures both physical and digital environments, encompassing school infrastructure, module layouts, and pedagogical settings. Physically, the school faces spatial limitations in indoor facilities, storage, and designated areas for PE, which mirror broader challenges identified in Punjab's primary schools, where physical infrastructure directly relates to teacher and student performance. California's facilities guidelines also emphasise dedicated PE spaces, showers, and storage as critical for age-appropriate programming.

Beyond indoor space, flexibility in classroom layouts—such as movable furniture and multifunctional zones—supports active and collaborative learning. Applying these principles could enhance module utilisation at SD Negeri 2 North Loktabat, especially for movement-rich thematic modules and digitally integrated instruction.

The digital space or online learning environment plays an equally pivotal role. Pandemic-era insights reveal PE teachers struggled with poorly designed online instruction and limited digital infrastructure. Despite these setbacks, blended learning models—supported by adequate space and digital tools—yield improved student engagement and performance. Thus, transforming both physical and virtual spaces to support blended module implementation should be a priority.

Freed from rigid classroom boundaries, schools can leverage outdoor areas, community centres, and open spaces, as advocated by the Gerlach and Ely model. Expanding learning domains beyond classroom walls enriches PE experiences and aligns with modern pedagogical standards.

Relationship Aspect

The relationship aspect has an average fulfilment of 88.94%, with slight shortcomings in Module 2 and Module 5. Weaknesses are found in indicators related to tools or in the context of pairs and group cooperation. In fact, relationships between individuals and the use of tools are very important in forming social attitudes such as cooperation, empathy, and responsibility. The other modules (M3, M4, M6, and M7) have shown 100% fulfilment, which means they have fully incorporated the element of interaction in physical activity. So it can be concluded that, in general, the learning of Physical Education at Elementary School State 2, Loktabat Utara has supported the development of the social-emotional aspects of students.

As a concrete example, in Module 7 (High Jump), the fulfilment of the space aspect can be observed through activities that encourage students to jump by considering the direction of the forward jump, the height of the jump that suits their abilities, and the use of short trajectories before pushing. This shows that students are invited to understand and utilise space effectively in physical activities, following the principle of space in Movement Concepts.

On the other hand, the results of this study also have practical implications for Physical Education teachers. Considering the low fulfilment of the effort aspect in several modules, especially Module 1 (Soccer), teachers need to be given special training

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

in designing learning activities that contain optimal variations of movement efforts. This training should emphasise the importance of elements such as rhythm, speed, and strength of motion in the learning process. Thus, teaching materials can be more effective in developing students' motor skills as a whole.

The results of this study are in line with the findings of several researchers who affirm the importance of developing innovative, adaptive, and traditional play or games based on physical education teaching materials to improve students' motivation, activity, and motor and social-emotional skills (Petra Haumahu et al., 2023). In addition, research also shows that the approach of learning "through movement" is more effective in instilling character values such as responsibility, discipline, and social care in students (Tri Irianto, 2014).

However, there are still some modules that do not fully accommodate all the principles of Movement Concepts, especially in the aspect of effort and relationship. This shows the need for periodic evaluation and revision of the teaching module so that every aspect of movement development can be comprehensively accommodated in all materials. Teachers also need to be provided with training and assistance in order to be able to develop learning tools that are in accordance with the independent curriculum and student characteristics. Learning media innovations in Physical Education have been proven to be able to increase the effectiveness of the learning process and students' motor skills, as evidenced in the development of interactive multimedia-based swimming learning (Mashud & Widiastuti, 2018). Thus, it is hoped that Physical Education learning at Elementary School State 2, Loktabat Utara can be more contextual, relevant, and support the achievement of overall learning goals.

Overall, the analysis of PE materials at SD Negeri 2 North Loktabat demonstrates an emerging structure of quality physical education content, but also reveals clear areas for refinement. The effort aspect would benefit from differentiated task intensity and clearer physical fitness benchmarks. The space aspect requires greater adaptability to varied school environments, and the relationship aspect demands intentional social-emotional learning integration. By enhancing these three pedagogical elements, the school can develop more inclusive, engaging, and developmentally appropriate PE modules aligned with 21st-century educational priorities.

CONCLUSION

Based on the results of the analysis of seven odd-semester Physical Education teaching modules for grade VI at Elementary School State 2 Loktabat Utara, Banjarbaru City, it can be concluded that in general, the development of materials in these modules has reflected the principles of Movement Concepts from David L. Gallahue, especially in the aspects of space, relationship, and effort. The observation results showed that the spatial aspect had the highest fulfilment rate, which was 91.79%, which means that most of the modules have accommodated the optimal use of movement space, such as

directions, levels, and movement paths. This reflects that learners have been allowed to explore the physical learning environment in a meaningful way, which is important for the development of spatial awareness and body control.

Meanwhile, the relationship aspect also showed excellent results, with an average fulfilment of 88.94%. This indicates that most modules have successfully facilitated social interaction through group work, pairing activities, and the use of tools, which play an important role in shaping learners' social-emotional skills such as empathy, cooperation, and responsibility. However, there are still some modules that are not fully optimal in presenting the context of this social relationship, especially in the use of tools or organising interactions between individuals.

The effort aspect, which is related to the variation in the intensity and quality of students' movement efforts, actually showed the lowest achievement, which was only 78.89%. The most striking gap was seen in Module 1 (Football), which only met the indicator of 20%. This reflects that there are still modules that lack emphasis on rhythm, strength, and speed aspects in learning activities. Movement is a fundamental dimension in developing quality motor skills. This imbalance of achievement indicates that module designers need to pay more careful attention to the principle of effort in each physical activity designed.

Critically, these findings show that although the Physical Education teaching module at Elementary School State 2 Loktabat Utara has shown good progress, especially in the use of space and social relations, there are still significant shortcomings in the aspect of movement efforts. This imbalance emphasises the importance of regular revision and improvement of teaching materials, so that the principles of children's movement development as a whole can be accommodated. Modules that do not reflect the overall principles of Movement Concepts have the potential to hinder the optimisation of Physical Education learning outcomes, both from the motor and social-emotional sides.

The results of this study reinforce various previous findings that emphasise the importance of innovative, adaptive, and traditional play or game teaching materials for Physical Education teaching materials. The learning approach through movement is more effective in increasing motivation, active participation, and character values of students. Therefore, it is necessary to conduct training for teachers in compiling modules based on child development principles and adapted to the independent curriculum. With the development of more contextual and comprehensive modules, it is hoped that Physical Education learning in elementary school can be a means of forming a generation that is physically healthy, mentally resilient, and strong in their social skills. With the development of more targeted modules, Physical Education learning can be an important foundation in shaping an active, healthy, and characterful young generation.

To enhance the quality of Physical Education learning, it is recommended that teachers receive focused training on strengthening the effort aspect, particularly in designing activities that develop strength, speed, and movement rhythm. Teaching modules should undergo regular revisions to ensure that all three aspects of Movement Concepts are accommodated in a balanced and comprehensive manner. Developing

contextual and adaptive modules that reflect students' characteristics, such as incorporating traditional games and integrating interactive media or activity-based e-modules, is believed to increase student engagement and motivation. Furthermore, teacher collaboration through best-practice sharing forums and joint evaluations can serve as a sustainable strategy to improve the overall quality of Physical Education at the elementary school level.

REFERENCES

Ahn, D., & Lim, H. (2025). K-12 physical education teachers' views on AI integration and personalised learning. arXiv preprint. https://arxiv.org/abs/2403.11925

Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., & Sandford, R. (2009). The educational benefits claimed for physical education and school sport: An academic review. Research Papers in Education, 24(1), 1–27. https://doi.org/10.1080/02671520701809817

CDC. (2023). Physical Education Curriculum Analysis Tool (PECAT). Centres for Disease Control and Prevention. https://www.cdc.gov/healthyschools/pecat/index.htm

Donnelly, J. E., Hillman, C. H., Castelli, D., Etnier, J. L., Lee, S., Tomporowski, P., ... & Szabo-Reed, A. N. (2016). Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review. Medicine & Science in Sports & Exercise, 48(6), 1197–1222. https://doi.org/10.1249/MSS.0000000000000901

Erfayliana, Y., Demirci, N. D., & Toptaş Demirci, P. (2021). Developing online modules for educators in the fifth-grade physical education class. Movement Review (MOR), 2(1), 1–15. https://doi.org/10.53863/mor.v2i1.420

Fadlan, A. R., Sujana Wahyuri, A., Ihsan, N., Komaini, A., Batubara, R., Padang, U. N., & Artikel, S. (2023). Pengembangan E-Modul..(Fatihah AL Mutamaddinah) Pengembangan E-modul Pembelajaran Pendidikan Jasmani Olahraga dan Kesehetan (PJOK) Materi Kebugaran Jasmani Kelas IV Sekolah Dasar Berbasis Aktivitas Bermain.

Ginanjar, S. (2023). Enhancing students' enjoyment of physical education using project-based learning. Edu Sportivo, 12(1), 45–60. https://doi.org/10.24114/esj.v12i1.39250

Hardman, K., & Green, K. (2011). Contemporary issues in physical education: International perspectives. Meyer & Meyer Sport.

Jeki, A. R., & Fauzan, L. A. (2025). Tingkat Kondisi Fisik Peserta Ekstrakurikuler Futsal Putra Di SMP Negeri 2 Banjarbaru. https://doi.org/10.36526/kejaora.v10i1.5158

Kementerian Pendidikan dan Kebudayaan Republik Indonesia. (2021). Panduan Pengembangan Materi Pembelajaran Pendidikan Jasmani, Olahraga, dan Kesehatan (PJOK).

Kuswanto, H., & Cahyono, S. (2021). Teachers' perceptions of ICT integration in physical education. Jurnal Penelitian Pendidikan Indonesia, 2(2), 95–104. https://doi.org/10.5430/jppi.v2i2.3401

Mashud, M., & Widiastuti, W. (2018). Pengembangan Pembelajaran Renang Gaya Bebas Berbasis Multimedia Interaktif. Gladi : Jurnal Ilmu Keolahragaan, 9(2), 119–133. https://doi.org/10.21009/gjik.092.05

Muhamad Syafei, A. N. S. N. (2021). Motivasi Belajar Siswa Jasmani Olahraga dan Kesehatan Kelas XI SMK Bina Karya 1 Karawang dimasa Pandemi.

Muhammad Khairullah. HeritawarnidanMa'rufulKahri. (2021). Implementasi Ki Dan Kd Pada Pembelajaran Pjok Pada Kurikulum 2013 Disekolah Menengah Atas Negeri 3 Kota Banjarbaru Tahun Ajaran 2019/ 2020.

Nurhasan, N., Sumaryanto, S., & Nugroho, A. W. (2024). Instrument for assessing physical literacy skills competence in Tasikmalaya elementary schools. Retos: Nuevas Tendencias en Educación Física, Deporte y Recreación, 49, 55–65. https://doi.org/10.47197/retos.v49i49.102320

Nur, L., Stephani, M. R., & Malik, A. A. (2022). Teachers' perspectives on promoting physical activity in early childhood education. Int. J. Hum. Movement Sports Sci.

Pangrazi, R. P., & Beighle, A. (2020). Dynamic physical education for elementary school children (19th ed.). Pearson.

Petra Haumahu, C., T Rampisela, T. P., & Hermanus Wenno, Y. (2023). Pengembangan Modul Pembelajaran Permainan Tradisional Untuk Meningkatkan Aspek Sosio Emosional Anak Kelas 3 Sekolah Dasar.

Prasetyo, A. (2022). Modul pembelajaran PJOK berbasis aktivitas siswa di sekolah dasar. Jurnal Pendidikan UMNU Kebumen, 3(1), 18–28.

Reza Maulana, A., Amirudin, A., Akbar Fauzan, L., Jasmani Olahraga dan Kesehatan, P., Keguruan dan Ilmi Pendidikan, F., Lambung Mangkurat, U., Selatan, K., Kunci, K., Sepak Bola, A., & Bola, S. (2024). SPRINTER: Jurnal Ilmu Olahraga Analisis Tingkat Ketepatan Shooting ke Gawang SSB Batola Muda U-18 Info Artikel (Vol. 5). http://jurnal.icjambi.id/index.php/sprinter/index

Salman, E., & Darsi, H. (2020). Pengembangan Aktivitas Gerak Berbasis Modifikasi Permainan untuk Meningkatkan Kemampuan Keterampilan Motorik pada Anak Sekolah Dasar. Gelanggang Olahraga: Jurnal Pendidikan Jasmani Dan Olahraga (JPJO), 4(1), 47–60. https://doi.org/10.31539/jpjo.v4i1.1203

Satyawan, I. M., & Dartini, N. P. D. S. (2021). Thematic physical education games model for Grade 1 elementary school students. TEGAR: Journal of Teaching Physical Education, 4(2), 106–113. https://doi.org/10.17509/tegar.v4i2.31487

Septiani, H., Dirgantoro, E. W., Hamid, A., Jasmani, P., & Fkip, J. (2021). Hubungan Kebiasaan Belajar Terhadap Prestasi Mata Pelajaran Pendidikan Jasmani Olahraga Dan Kesehatan Kelas V A SDN 1 Guntung Manggis. In Jurnal Pendidikan Jasmani dan Olahraga (Vol. 2, Issue 2).

Siedentop, D., & van der Mars, H. (2012). Introduction to physical education, fitness, and sport (8th ed.). McGraw-Hill.

Tri Irianto. (2014). Implementasi Kurikulum 2013 Dalam Pembelajaran pendidikan Jasmani Olahraga Dan Kesehatan Di Sekolah Dasar.

Trudeau, F., & Shephard, R. J. (2010). Relationships of physical activity to brain health and academic performance in children. American Journal of Lifestyle Medicine, 4(2), 138–150. https://doi.org/10.1177/1559827609351133

Nopita Puji Lestari[1A-E*], Rahmadi[2B-D], Lazuardy Akbar Fauzan[3B-D]
nopitalestari89@gmail.com[1*]

Wei Zheng, Yu-Yu Ma, and Hung-Lung Lin. (2021). Research on Blended Learning in Physical Education During the COVID-19 Pandemic: A Case Study of Chinese Students. SAGE Journals. https://journals.sagepub.com/doi/full/10.1177/21582440211058196?utm_source=chatgpt.com

Winarni, S. (2020). Tantangan pengembangan kurikulum berbasis modul di sekolah dasar. Jurnal Pendidikan Dasar, 11(2), 123–135.

Vujičić, L., Peić, M., & Petrić, V. (2020). Movement-based integrated learning in early education. Revija za elementarno izobraževanje, 3(1), 12–25. https://doi.org/10.18690/rei.13.1.12-25.2020