

IMPROVING MANIPULATIVE SKILLS AND MOTIVATION THROUGH TASK ANALYSIS AND VISUAL PROMPTING

^{*1}Iwan Setiawan, ²Erwin Setyo Kriswanto, ³Lantip Diat Prasajo, ⁴Eka Sapti Cahya Ningrum, ⁵Shely Cathrin

^{*1,2,3,4,5}Universitas Negeri Yogyakarta

Email: ^{*1,2,3,4,5}iwansetiawan.2025@student.uny.ac.id

Abstract

This study aims to improve manipulative motor skills and learning motivation among a slow learner student in Physical Education, Sports, and Health (PJOK) through the implementation of task analysis and visual prompting strategies. Low manipulative motor skills and learning motivation were identified as problems among a seventh-grade (VII C) student at SMP Negeri 1 Rantau Pulung, necessitating an adaptive and structured instructional intervention. This study employed a Classroom Action Research (CAR) approach based on the Kemmis and McTaggart model, implemented across two cycles, each consisting of planning, action, observation, and reflection stages, with one slow learner student as the subject. Data were collected through observation, performance tests, questionnaires, and documentation, and were analyzed using descriptive quantitative and qualitative methods. The results show that manipulative motor skills improved from 43.75% in the Pre-Cycle to 81.25% in Cycle II. Learning motivation based on observation increased from 50% to 80%, while motivation based on the questionnaire increased from 60% to 84%. The implementation of task analysis and visual prompting also improved from 41.6% to 83.3%, exceeding the predetermined success criterion of $\geq 75\%$. These findings indicate that the combination of task analysis and visual prompting effectively helps slow learner students understand instructions gradually, improve motor skills, and build self-confidence and learning motivation. This study recommends the strategy as an adaptive alternative for PJOK instruction that supports inclusive education in schools.

Keywords: manipulative motor skills, learning motivation, task analysis, visual prompting, PJOK, slow learner

Abstrak

Penelitian ini bertujuan untuk meningkatkan kemampuan gerak manipulatif dan motivasi belajar siswa slow learner pada mata pelajaran Pendidikan Jasmani, Olahraga, dan Kesehatan (PJOK) melalui penerapan strategi task analysis dan visual prompting. Rendahnya kemampuan gerak manipulatif dan motivasi belajar merupakan permasalahan yang ditemukan pada siswa kelas VII C di SMP Negeri 1 Rantau Pulung, sehingga diperlukan intervensi pembelajaran yang adaptif dan terstruktur. Penelitian ini menggunakan pendekatan Penelitian Tindakan Kelas (PTK) model Kemmis dan McTaggart, dilaksanakan dalam dua siklus yang masing-masing meliputi tahap perencanaan, pelaksanaan tindakan, observasi, dan refleksi, dengan subjek seorang siswa slow learner. Data dikumpulkan melalui observasi, tes kinerja, angket, dan dokumentasi, kemudian dianalisis secara deskriptif kuantitatif dan kualitatif. Hasil penelitian menunjukkan bahwa kemampuan gerak manipulatif meningkat dari 43,75%

pada Pra Siklus menjadi 81,25% pada Siklus II. Motivasi belajar berdasarkan observasi meningkat dari 50% menjadi 80%, sedangkan berdasarkan angket meningkat dari 60% menjadi 84%. Penerapan task analysis dan visual prompting juga meningkat dari 41,6% menjadi 83,3%, melampaui indikator keberhasilan yang ditetapkan sebesar $\geq 75\%$. Temuan ini menunjukkan bahwa kombinasi task analysis dan visual prompting efektif membantu siswa slow learner memahami instruksi secara bertahap, meningkatkan keterampilan gerak, serta menumbuhkan kepercayaan diri dan motivasi belajar. Penelitian ini merekomendasikan strategi tersebut sebagai alternatif pembelajaran PJOK yang adaptif dalam mendukung pendidikan inklusif di sekolah.

Kata kunci: gerak manipulatif, motivasi belajar, task analysis, visual prompting, PJOK, slow learner

INTRODUCTION

Education is a systematic process aimed at comprehensively developing students' potential, encompassing cognitive, affective, and psychomotor aspects. One subject that contributes significantly to the development of psychomotor aspects is Physical Education, Sports, and Health (PJOK). PJOK is not only focused on physical activity but also plays a vital role in shaping character, improving physical fitness, and developing students' basic motor skills. Basic motor skills encompass cognitive, affective, and psychomotor aspects used to achieve specific movement goals, such as throwing, catching, and maintaining balance (Abdullah & Nurrochmah, 2021). Thus, Physical Education, Health, and Sports (PJOK) instruction plays a strategic role in equipping students with motor skills that will be used in various daily life activities.

One of the crucial basic motor skills that often poses a challenge in PJOK instruction is manipulative movement—the skill of controlling objects such as a ball using the hands or feet. Various studies indicate that this skill remains at a low level among both regular students and students with special needs. The manipulative motor skills of students with special needs were found to be in the low category, with a percentage of approximately 43.75% (Octaviyani, 2022), while the majority of students generally remain in the early and transitional stages of manipulative motor skill development and have not yet reached the mature stage (Desri, 2023). These findings are supported by research indicating that students' manipulative motor skills, in general, are still relatively poor, with many students experiencing difficulties in practical learning activities (Firdaus & Nurrochmah, 2021). The low level of these skills indicates the need for more systematic and adaptive learning strategies.

This issue becomes more complex in the context of inclusive education, particularly for students with slow learner characteristics. Slow learners have below-average learning abilities, so they require more time to understand material, experience difficulty processing information, and need a simpler and more structured learning approach (Nurfadhillah, 2022). These characteristics are reinforced by findings that students with learning difficulties tend to be less active in learning, have trouble understanding instructions, and require repetition in the learning process (Mastur & Haryanti, 2022).

These conditions pose a unique challenge in Physical Education (PJOK) instruction, which demands both physical activity and rapid comprehension of instructions; consequently, conventional teaching approaches are deemed insufficient to accommodate the learning needs of students with these characteristics.

The results of preliminary observations conducted at SMP Negeri 1 Rantau Pulung reinforce the picture of the problem described above. A slow learner in Class VII C demonstrated difficulty performing manipulative motor skills such as kicking, catching, and hitting a ball, with an initial achievement of 43.75% of the maximum possible score—a result consistent with findings on the manipulative motor skills of students with special needs in a previous study (Octaviyani, 2022). This student also required 3–5 repetitions of instructions before being able to perform the movements correctly and tended to be passive during group learning activities. This empirical data confirms that manipulative movement challenges are not merely an assumption but a real condition requiring targeted learning interventions.

In addition to psychomotor aspects, low learning motivation is also a determining factor in the success of Physical Education (PJOK) learning. Learning motivation is closely linked to learning outcomes, with highly motivated students tending to achieve better learning outcomes (Fernando, 2024). Initial observation results indicate that student learning motivation stands at 50%, which is relatively low and characterized by minimal student participation and enthusiasm in class. This situation aligns with findings that the use of video-based learning media can enhance students' learning motivation by creating a more engaging learning environment (Maulani, 2022), as well as the view that teachers play a crucial role in boosting learning motivation through creative and innovative teaching strategies (Jainiyah, 2023). Thus, low learning motivation and poor manipulative motor skills are two interrelated problems that need to be addressed simultaneously.

To address these issues, a learning strategy is needed that can break down complex skills into simple steps while providing concrete visual stimuli for students. Task analysis is a learning strategy that breaks down complex skills into small, systematic parts so they are easier for students to understand (Edwards, 2021). This strategy can be combined with visual prompting—the use of visual media such as images, videos, or symbols to provide guidance during learning—which has been shown to enhance students' understanding and engagement in the learning process (Zendrato, 2024). The effectiveness of visual-based approaches is further supported by findings that the use of animated videos in manipulative movement instruction has a high level of feasibility and can improve student understanding (Putranto, 2023), as well as that traditional games can significantly enhance students' manipulative movement skills (Rahman, 2021). Furthermore, Physical Education (PJOK) instruction for students with special needs must be designed systematically and adaptively according to student characteristics (Kurniawan, 2022), highlighting a strong correlation between the needs of slow learners and the application of task analysis and visual prompts. Based on the above discussion, it is evident that the issue of low manipulative motor skills and learning motivation among slow-learning

students in Physical Education and Health (PJOK) instruction requires adaptive, structured, and visually-based instructional solutions. Although various previous studies have examined task analysis and visual prompting separately, research integrating both strategies simultaneously in PJOK instruction for slow-learning students at the junior high school level remains limited. This gap served as the basis for the researcher to conduct a classroom action research study by applying task analysis and visual prompting strategies in Physical Education, Health, and Sports (PJOK) instruction, with the aim of improving the manipulative motor skills and learning motivation of students with learning disabilities at SMP Negeri 1 Rantau Pulung.

METHOD

This study employed a Classroom Action Research (CAR) approach aimed at directly improving the learning process and outcomes in the classroom through reflective and continuous action. The CAR design was based on the model proposed by Kemmis and McTaggart (2014), which consists of four stages in each cycle: planning, implementation of actions, observation, and reflection. This cyclical model was chosen because it allows for gradual and continuous improvement in learning, while also being relevant to the characteristics of slow learners who require an individualized and repetitive learning approach (Mastur & Haryanti, 2022). To closely examine the individual development of the research subject, this study also adopted the principles of Single Subject Research (SSR), which allows for repeated measurements in each cycle to clearly observe changes in ability before and after interventions are implemented.

The choice of the action research design in this study was based on several considerations. First, action research allows the researcher—who serves a dual role as a teacher—to make direct improvements to instruction based on real-world classroom conditions. Second, its flexible nature allows for adjustments to interventions based on student responses over time, enabling the task analysis and visual prompting strategies to be continuously refined in each cycle. Third, this cyclical design aligns with the needs of students with learning difficulties, who require an individualized approach and ongoing evaluation to ensure that each stage of movement is fully mastered before proceeding to the next stage.

The study was conducted at SMP Negeri 1 Rantau Pulung, East Kutai Regency, East Kalimantan Province, during the even semester of the 2025/2026 academic year. The research subject was a seventh-grade student in Class VII C who was identified as having the characteristics of a slow learner, with challenges in the cognitive (difficulty understanding instructions), affective (low learning motivation), and psychomotor (low manipulative motor skills) domains. The selection of the subject was based on the results of initial observations that revealed real-world conditions in the field, ensuring that the designed interventions were data-driven rather than based solely on assumptions.

More specifically, the research subject required instructions to be repeated 3–5 times before being able to perform a single movement correctly, exhibited a passive tendency during group activities, and demonstrated an initial level of manipulative motor skills at

43.75% and learning motivation at 50% of the maximum score. SMP Negeri 1 Rantau Pulung was selected as the research site because the school faces real challenges in teaching Physical Education and Health (PJOK) to slow learners, is located in a semi-rural area with limited technological facilities, and provides full support for the implementation of classroom action research.

The intervention was carried out in two cycles, with the possibility of adding additional cycles if the success indicators were not met. Each cycle consisted of four stages carried out repeatedly: planning, implementation of the intervention, observation, and reflection. In Cycle I, the intervention focused on the initial application of task analysis—breaking down manipulative movements (kicking and throwing) into the preparatory, execution, and follow-through phases (Edwards, 2021)—combined with simple visual prompts in the form of sequential movement diagrams and instruction cards. In Cycle II, the intervention was refined by enhancing visual prompts using animated video media (Putranto, 2023) and structuring learning as simple game-based activities to boost student motivation and engagement (Rahman, 2021). Each cycle lasted approximately two weeks and concluded with a reflection session to determine whether a subsequent cycle was necessary.

Operationally, each learning session was conducted through three stages of activities: introduction, core, and conclusion. During the introductory stage, the teacher provided an overview, motivation, and an explanation of the learning objectives. In the core activity of Cycle I, the teacher explained the manipulative movements step-by-step through task analysis, demonstrated the movements directly, guided students in practice, and presented visual aids in the form of images. In Cycle II, the core activities are enriched with the screening of videos of manipulative movements, step-by-step explanations of movement sequences, and a combination with game-based activities such as catch and kick a ball at a target. This implementation process follows a cyclical pattern of planning, action, observation, reflection, and improvement and will be discontinued once the established success indicators have been achieved.

Data were collected through three techniques: observation, performance tests, and documentation. Observation was used to directly assess students' manipulative movement abilities and learning motivation during instruction, in line with the view that motor skills must be comprehensively observed from various aspects (Abdullah & Nurrochmah, 2021). Performance tests were used to directly measure students' ability to perform throwing, catching, kicking, and dribbling movements. Documentation in the form of photographs, instructional videos, and field notes served as supporting data to reinforce the observation results. The instruments used include an observation sheet for manipulative motor skills and an observation sheet for learning motivation, each rated on a 1–4 scale based on indicators of movement accuracy, motor coordination, object control, and appropriateness of movement sequences for the psychomotor aspect; and activity level, enthusiasm, participation, and perseverance for the motivational aspect (Fernando, 2024).

In addition to these two main observation sheets, this study also utilized observation guidelines and field notes as supporting instruments. The observation guidelines were used to record students' responses to instruction, the difficulties they encountered, and interactions between teachers and students during the intervention process, while the field notes were used to document specific incidents, teacher reflections, and changes in student behavior over time. These instruments were developed based on theoretical reviews and prior research, ensuring they possess content validity, and were adapted to the characteristics of students with learning difficulties to ensure ease of application and relevance to real-world learning conditions (Zendrato, 2024).

Data were analyzed both quantitatively and qualitatively to obtain a comprehensive picture of the changes that occurred. Quantitative analysis was conducted by calculating the achievement percentage using the formula $P = (F/N) \times 100\%$, where P represents the percentage of ability, F represents the score obtained, and N represents the maximum score. The resulting percentages were then categorized into four levels (very good, good, fair, and poor for motor skills; very high, high, moderate, and low for motivation) and compared across cycles to assess the extent of improvement. Qualitative analysis was conducted through data reduction, the presentation of data in the form of narrative descriptions, and the drawing of conclusions, in order to describe changes in student behavior, such as increased engagement and responsiveness to the use of visual media (Zendrato, 2024).

Comparisons of results across cycles were made by calculating the percentage difference in achievement between Cycle II and Cycle I to assess the effectiveness of the interventions implemented at each stage. In the qualitative analysis stage, data obtained from observations, field notes, and documentation were first selected and simplified (data reduction) to focus on relevant information; they were then presented narratively to facilitate interpretation, before conclusions were drawn regarding the changes that occurred (Desri, 2023).

Interventions were deemed successful if students' manipulative motor skills reached a percentage of $\geq 75\%$ and their learning motivation reached $\geq 75\%$ of the maximum score, accompanied by a demonstrable increase in engagement, understanding of instructions, and motor skills. These criteria were established by considering the students' initial conditions, which were in the low category (Octaviyani, 2022), as well as the needs of slow learners for repetitive and systematic learning to achieve optimal learning outcomes (Mastur & Haryanti, 2022). The success criteria in this study were measured not only in terms of outcomes but also in terms of the learning process, including students' ability to better understand instructions, increased engagement, the ability to follow movement steps gradually, and positive responses to the use of visual media. The success threshold of 75% is based on the learning mastery standards commonly used in classroom action research, while also taking into account that students with learning difficulties require gradual improvement and cannot be expected to achieve optimal results in a single intervention (Desri, 2023).

RESULTS AND DISCUSSION

1. Improvement in Manipulative Motor Skills through Task Analysis

Observation results showed that students' manipulative motor skills in the volleyball underhand pass improved gradually, from 43.75% (poor category) in the pre-cycle to 62.5% (good category) in Cycle I, and reached 81.25% (very good category) in Cycle II, with a total improvement of 37.5%. Initially, the most prominent weakness lay in object control, while movement accuracy and motor coordination were in the "adequate" category. After implementing task analysis, movement accuracy improved in Cycle I, and in Cycle II, the most significant improvements occurred in movement coordination and movement sequence, indicating that students were beginning to integrate various movement components into a cohesive whole. The pattern of improvement across cycles was also relatively balanced, suggesting that students' skill development proceeded in a linear and gradual manner, rather than in uneven leaps.

This improvement occurred because task analysis provided students with the opportunity to learn complex skills through simple steps, thereby reducing the cognitive load that had previously made it difficult for students to integrate various movement components simultaneously. This finding aligns with the view of Alberto and Troutman (2013), who explain that task analysis breaks down complex skills into simple steps, making it easier for students with special needs to master them. These results are also consistent with Collins's (2018) findings that task analysis effectively improves the functional and motor skills of students with special needs through systematic and sequential learning stages. Thus, the improvement in students' manipulative motor skills is not solely influenced by the frequency of practice but also by how the material is presented in stages according to the students' information-processing capacity.

2. Enhancing Learning Motivation through Visual Prompting

Observational data on learning motivation showed an increase from 50% (moderate category) in the pre-cycle to 65% in Cycle I and 80% (high category) in Cycle II, while questionnaire results showed a similar pattern, rising from 60% to 74% and reaching 84% in Cycle II. Initially, students demonstrated relatively high perseverance but very low levels of engagement and initiative, indicating that their intrinsic motivation had not yet fully translated into active participation. Following the interventions in Cycle I, the most significant improvement was observed in engagement and initiative, whereas in Cycle II, nearly all aspects of motivation reached the "high" category, with learning interest achieving the maximum score.

This increase in motivation occurred because visual media provided a more concrete and engaging learning experience for slow learners, so that students who were initially passive and lacked self-confidence gradually became more active after being introduced to sequential movement images, visual cards, posters, and instructional videos. These

findings support Paivio's (2006) Dual Coding theory, which explains that information presented both verbally and visually is easier to process and store in long-term memory, as well as Mayer's (2021) Multimedia Learning theory, which emphasizes that a combination of text, images, and visual demonstrations enhances learning effectiveness. Thus, visual prompting serves not only as a tool to aid understanding of movements but also as a stimulus that evokes students' intrinsic motivation to engage more actively in Physical Education (PJOK) learning.

3. Implementation Fidelity and the Relationship Between Task Analysis and Visual Prompting

The results of observations on implementation fidelity indicate that the application of task analysis increased from 41.6% in the pre-cycle to 62.5% in Cycle I and 83.3% in Cycle II, with an identical pattern of improvement observed in the application of visual prompting. In the pre-cycle, the indicators of learning sequence from easy to difficult and opportunities for practice repetition were the weakest points, indicating that previous instruction had not been designed progressively or systematically.

The similarity in the patterns and magnitude of improvement between these two strategies confirms that they are complementary: task analysis simplifies complex motor skills into steps that are easier to learn, while visual prompting provides visual aids so that each step can be understood more concretely. When task analysis was applied without visual support, students still struggled to visualize the intended movements; conversely, when visual prompting was used without a clear learning structure, students could see examples of the movements without understanding the sequence of execution. These findings support the view of Friend and Bursuck (2019) that students with special needs require a combination of structured instruction and visual support to optimally understand the learning material.

4. Behavioral Changes Based on Field Notes

Field notes enrich quantitative data with in-depth narratives regarding the students' learning process. In the pre-cycle phase, students frequently asked for instructions to be repeated, were passive, and lacked confidence during practice. In Cycle I, students began to respond to the movement stages broken down through task analysis and started paying attention to the visual aids introduced. In Cycle II, students demonstrated a far more significant transformation: they were able to understand instructions with almost no repetition, actively referred to visual aids during practice, and were bold enough to try new movements without fear of failure.

Referring to Vygotsky's (1978) Zone of Proximal Development theory, task analysis and visual prompts function as forms of scaffolding that help students gradually achieve higher levels of ability, as evidenced by the reduced need for instruction repetition. Furthermore, based on Bandura's (1997) theory of self-efficacy, the increase in self-

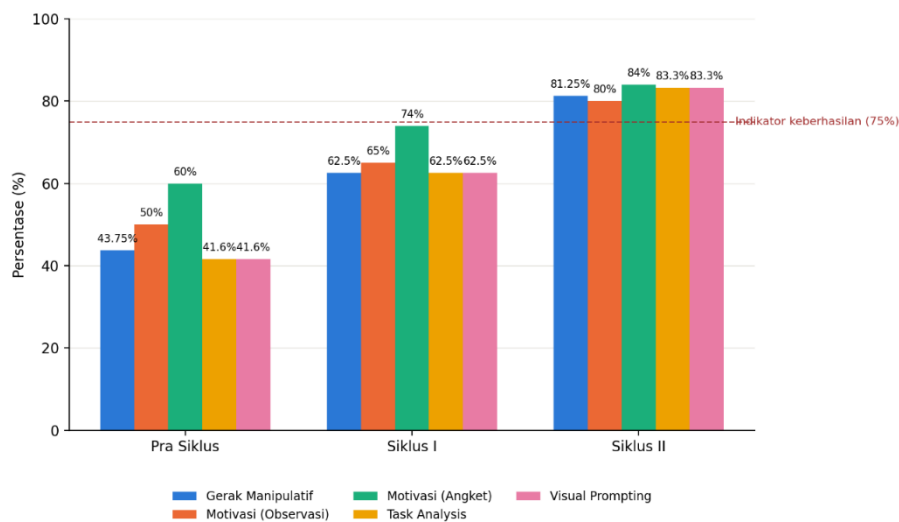
confidence that accompanies improved motor skills indicates that small mastery experiences at each stage of task analysis reinforce students' belief in their ability to continue learning.

5. Summary of Outcomes and Relevance to Previous Research

Overall, the average achievement scores across the six instruments increased from 48.45% in the pre-cycle to 65.45% in Cycle I and 82.35% in Cycle II, representing a relative increase of approximately 70% from the baseline. A notable finding is that the highest increases actually occurred in the instruments measuring the quality of strategy implementation (41.7% for task analysis and 41.7% for visual prompting, respectively), compared to the increases in learning outcomes themselves, indicating a consistent relationship between the quality of intervention implementation and the learning outcomes achieved.

A comparison of the scores for these five instruments is presented in Figure 1.

Figure 1. Improvement in scores for the five research instruments from the Pre-Cycle to Cycle II



The results of this study are consistent with a number of previous studies. Knight, McKissick, and Saunders (2013) found that the use of visual supports increases the engagement and understanding of students with special needs; Yakubova and Bouck (2014) demonstrated that a combination of visual media and step-by-step instruction effectively improves both the academic abilities and functional skills of students with learning disabilities, while Snell and Brown (2015) emphasized that task analysis can improve the ability of students with special needs to learn complex skills through systematic stages.

6. Achievement of Success Indicators

All success indicators for the intervention, set at $\geq 75\%$, were achieved and even exceeded in Cycle II, namely manipulative motor skills (81.25%), learning motivation based on

observation (80%), learning motivation based on a questionnaire (84%), and the application of task analysis and visual prompting (83.3% each). The characteristics of slow learners, as defined by Hallahan, Kauffman, and Pullen (2019)—which include slower information processing speed and a need for concrete assistance—aligned with the initial conditions of the research subjects and were effectively accommodated through a combination of these two strategies.

Achievements that exceeded the targets across all indicators—further supported by qualitative data showing increased student engagement, self-confidence, and the quality of teacher-student interactions—confirm that the action hypothesis in this study has been proven and accepted. Thus, the combination of task analysis and visual prompting is an effective learning strategy for improving the manipulative motor skills and learning motivation of students with learning difficulties in Physical Education and Health (PJOK) classes at an inclusive school.

CONCLUSION

This classroom action research demonstrates that the implementation of task analysis and visual prompting strategies effectively improves the manipulative motor skills and learning motivation of students with learning disabilities in Physical Education (PJOK) classes at SMP Negeri 1 Rantau Pulung. Through two action cycles, students' manipulative motor skills improved from 43.75% in the Pre-Cycle to 81.25% in Cycle II; learning motivation, as observed, increased from 50% to 80%; and learning motivation, as measured by the questionnaire, rose from 60% to 84%, while the fidelity of implementing task analysis and visual prompting each reached 83.3%. All of these achievements exceeded the established success indicator of $\geq 75\%$ and were supported by qualitative data showing increased student engagement, self-confidence, and the quality of teacher-student interactions; thus, the action hypothesis in this study was proven and accepted. These findings reinforce theoretical studies on scaffolding (Vygotsky, 1978), self-efficacy (Bandura, 1997), and dual coding (Paivio, 2006), while also confirming that task simplification and visual aids work synergistically—rather than as two standalone interventions—in accommodating the learning characteristics of students with learning difficulties. Based on these findings, it can be concluded that Physical Education (PJOK) instruction for students with learning difficulties requires a step-by-step, concrete, and visually-based approach to align with their information-processing capacity; thus, this strategy is worthy of being adopted as a best-practice model in adaptive and inclusive Physical Education (PJOK) instruction. Nevertheless, this study has limitations regarding the number of participants (one student), the scope of the material (underhand volleyball pass), and the duration of the intervention (two cycles); therefore, the results cannot yet be broadly generalized without considering the context and characteristics of different students. Therefore, further research is recommended to involve a larger number of participants, expand the scope of the physical education material studied, and combine task analysis and visual prompting with digital learning technologies to strengthen the

generalizability of the findings and support the development of more sustainable inclusive education.

REFERENCES

- Abdullah, A., & Nurrochmah, S. (2021). *Keterampilan gerak dasar dalam pembelajaran pendidikan jasmani*. Jurnal Pendidikan Jasmani dan Olahraga, 6(2), 254–262.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Desri, R. (2023). *Analisis tahapan perkembangan gerak manipulatif pada peserta didik sekolah menengah pertama*. Jurnal Pendidikan Olahraga, 8(2), 154–163.
- Edwards, R. M. (2021). *Task analysis for effective instruction in special education*. Routledge.
- Fernando, A. (2024). *Hubungan motivasi belajar terhadap hasil belajar peserta didik*. Jurnal Pendidikan dan Pembelajaran Indonesia, 9(1), 61–70.
- Firdaus, M., & Nurrochmah, S. (2021). *Keterampilan gerak dasar siswa dalam pembelajaran pendidikan jasmani*. Jurnal Sport Science Indonesia, 4(2), 235–243.
- Jainiyah, S. (2023). *Peran guru dalam meningkatkan motivasi belajar siswa melalui strategi pembelajaran kreatif*. Jurnal Pendidikan Modern, 12(4), 1304–1312.
- Kemmis, S., & McTaggart, R. (2014). *The action research planner: Doing critical participatory action research*. Springer.
- Kurniawan, A. (2022). *Pendidikan jasmani adaptif bagi peserta didik berkebutuhan khusus*. Jurnal Pendidikan Khusus, 7(2), 142–151.
- Maulani, D. (2022). *Pengaruh media video pembelajaran terhadap motivasi belajar siswa*. Jurnal Teknologi Pendidikan Indonesia, 10(1), 19–28.
- Mastur, M., & Haryanti, D. (2022). *Karakteristik dan layanan pembelajaran bagi siswa slow learner*. Jurnal Pendidikan Inklusif Indonesia, 3(1), 1–10.
- Nurfadhillah, S. (2022). *Pembelajaran bagi anak slow learner di sekolah inklusif*. CV Jejak Publisher.
- Octaviyani, R. (2022). *Analisis kemampuan gerak manipulatif siswa berkebutuhan khusus pada pembelajaran PJOK*. Jurnal Pendidikan Khusus dan Inklusi, 4(2), 139–148.
- Paivio, A. (1986). *Mental representations: A dual coding approach*. Oxford University Press.
- Putranto, B. (2023). *Pengembangan video animasi pembelajaran gerak manipulatif pada mata pelajaran PJOK*. Jurnal Pendidikan Olahraga dan Kesehatan, 11(3), 395–404.
- Rahman, M. (2021). *Pengaruh permainan tradisional terhadap peningkatan kemampuan gerak manipulatif siswa sekolah dasar*. Jurnal Pendidikan Jasmani Indonesia, 17(1), 27–35.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Zendrato, Y. (2024). *Penggunaan visual prompt berbasis video untuk meningkatkan keterlibatan siswa dalam pembelajaran*. *Jurnal Teknologi Pendidikan dan Inovasi Pembelajaran*, 5(1), 1–12.