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OPTIMIZING INCLUSIVE PHYSICAL EDUCATION THROUGH PEER TUTORS TO IMPROVE STUDENTS' NON-LOCOMOTOR SKILLS AND SELF-CONFIDENCE

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Abstract
This study aims to analyze the application of the peer-tutoring method in inclusive Physical Education, Sports, and Health (PJOK) instruction to improve the basic non-locomotor motor skills and self-confidence of slow learners. The study employed a Classroom Action Research design based on the Kemmis and McTaggart model, which includes the stages of planning, action, observation, and reflection. The study was conducted in two cycles during the even semester of the 2025/2026 academic year at SD Negeri 002 Sangkulirang, East Kutai Regency. The research subject was a fourth-grade student with the initials AL who was identified as a slow learner. Data were collected through observation, semi-structured interviews, field notes, and documentation, then analyzed descriptively by integrating quantitative and qualitative data. The results showed an increase in non-locomotor basic motor skills from 46% in the pre-cycle to 71% in Cycle I and 83–85% in Cycle II. Self-confidence also increased from 35% in the pre-cycle to 75% in Cycle I and 85% in Cycle II. These improvements were accompanied by behavioral changes, including the courage to try, the ability to follow instructions, the courage to ask questions, a willingness to perform in front of the class, group participation, and independence in performing movements. The findings indicate that peer tutoring has the potential to serve as an inclusive pedagogical strategy that integrates scaffolding, social support, experiences of success, and repeated practice to strengthen both the motor skills and psychosocial aspects of students with learning difficulties. Although the results are limited to a single subject, the study offers practical implications for the development of adaptive and participatory Physical Education (PJOK) programs.
Keywords: peer tutor, inclusive physical education, basic non-locomotor movements, self-confidence, students with learning difficulties

Abstrak
Penelitian ini bertujuan menganalisis penerapan metode tutor sebaya dalam pembelajaran Pendidikan Jasmani, Olahraga, dan Kesehatan (PJOK) inklusif untuk meningkatkan keterampilan gerak dasar nonlokomotor dan kepercayaan diri siswa slow learner. Penelitian menggunakan desain Classroom Action Research dengan model Kemmis dan McTaggart yang meliputi tahap perencanaan, tindakan, observasi, dan refleksi. Penelitian dilaksanakan dalam dua siklus pada semester genap tahun ajaran 2025/2026 di SD Negeri 002 Sangkulirang, Kabupaten Kutai Timur. Subjek penelitian adalah seorang siswa kelas IV berinisial AL yang teridentifikasi sebagai slow learner. Data dikumpulkan melalui

observasi, wawancara semi-terstruktur, catatan lapangan, dan dokumentasi, kemudian dianalisis secara deskriptif dengan mengintegrasikan data kuantitatif dan kualitatif. Hasil penelitian menunjukkan peningkatan keterampilan gerak dasar nonlokomotor dari 46% pada pra-siklus menjadi 71% pada Siklus I dan 83–85% pada Siklus II. Kepercayaan diri juga meningkat dari 35% pada pra-siklus menjadi 75% pada Siklus I dan 85% pada Siklus II. Peningkatan tersebut disertai perubahan perilaku berupa keberanian mencoba, kemampuan mengikuti instruksi, keberanian bertanya, kesediaan tampil di depan kelas, partisipasi kelompok, dan kemandirian dalam melakukan gerakan. Temuan menunjukkan bahwa tutor sebaya berpotensi menjadi strategi pedagogis inklusif yang mengintegrasikan scaffolding, dukungan sosial, pengalaman keberhasilan, dan latihan berulang untuk memperkuat kompetensi motorik sekaligus aspek psikososial siswa slow learner. Meskipun hasil terbatas pada satu subjek, penelitian memberikan implikasi praktis bagi pengembangan PJOK yang adaptif dan partisipatif.

Kata kunci: *tutor sebaya, PJOK inklusif, gerak dasar nonlokomotor, kepercayaan diri, slow learner*

INTRODUCTION

Inclusive education has evolved from merely a paradigm of providing access to education for students with special needs to a pedagogical approach that treats diversity in abilities, characteristics, and learning needs as an integral part of the learning process. Under this paradigm, educational success is measured not only by a school's ability to accommodate students with diverse characteristics but also by the extent to which the learning process provides meaningful, participatory, and adaptive learning experiences for all students. This principle becomes increasingly important at the elementary school level because learning experiences at this stage lay the foundation for children's academic, motor, social, and psychological development. In this context, students who are *slow learners* require more specific pedagogical attention because their learning characteristics cannot always be accommodated through uniform learning strategies. Research by Manubey et al. (2021), for example, shows that peer tutors can be utilized in inclusive classrooms to support the development of learning skills and character in students with diverse needs. The study demonstrates that peer interactions can serve as a vital source of pedagogical and social support within an inclusive educational environment.

In elementary education, Physical Education, Sports, and Health (PJOK) holds a strategic position because its learning objectives extend beyond the mastery of physical skills to include students' social and affective development, as well as their independence, responsibility, and self-confidence. The activity-based nature of PJOK provides opportunities for students to learn through direct experience, demonstrations, repeated practice, social interaction, and feedback. However, these same characteristics can also pose challenges for students who require more time to understand instructions, organize their movements, and adjust their motor responses. Therefore, inclusive PJOK instruction is not sufficient merely by placing *slow learner* students in regular classrooms; it requires a pedagogical design that enables them to receive support, practice opportunities, and experiences of success proportional to their needs.

These issues are closely related to the characteristics of *slow learners*. *Slow learners* generally require more time to comprehend information, follow instructions, develop responses to tasks, and achieve competencies compared to most of their peers. In the context of inclusive learning,

these needs require teachers to adapt how they deliver instructions, the pace of learning, the level of task complexity, the frequency of practice, and the types of support provided during the learning process. Iryana et al. (2024), through a study on instructional management for *slow learners* in inclusive elementary school classrooms, emphasize the importance of instructional management that takes these students' specific characteristics into account. Their findings also indicate that instructional practices for *slow learners* require attention to strategies and supports that enable students to overcome barriers to understanding and develop their potential.

These challenges become more complex in Physical Education (PJOK) because the competencies developed are not only related to conceptual understanding but also to the ability to translate instructions into motor actions. Students must be able to observe demonstrations, understand movement sequences, control their bodies, maintain balance, regulate coordination, and make corrections based on feedback. Difficulties in any one of these processes can affect overall motor performance. For *slow learner* students, these processes may require more intensive repetition and more concrete support compared to regular instruction. Therefore, teachers need to develop instructional strategies that not only simplify instructions but also provide *learning support* closely aligned with students' social experiences.

One of the key foundational competencies in the motor development of elementary school children is basic non-locomotor movement skills. Non-locomotor movements encompass various bodily actions performed without changing location, such as bending, flexing, stretching, rotating, swinging, lifting, pushing, pulling, and maintaining balance. Although they may seem simple, these skills are an essential part of the foundation of body control that supports the development of more complex motor skills. Mastery of non-locomotor movements enables children to understand body position, adjust their center of gravity, maintain stability, control the direction of movement, and develop coordination between various body parts. Research on the learning of basic movements in elementary school also indicates that non-locomotor aspects are a vital component of motor skill development that can be fostered through systematically designed Physical Education (PJOK) activities.

The empirical context of this study reveals a more specific issue. Preliminary observations at SD Negeri 002 Sangkulirang revealed that students classified as *slow learners* still struggle with performing certain non-locomotor movements, particularly bending over as instructed, maintaining static balance, and performing body rotations with proper coordination. These difficulties are not only related to the ability to perform the movements but also to the process of understanding instructions and the confidence to demonstrate the movements in front of peers. In some situations, students showed hesitation, were shy about performing, were reluctant to try again after making a mistake, and tended to rely on the teacher's assistance. These initial findings indicate that motor and psychosocial barriers cannot be simply separated. When students lack confidence in their physical abilities, they may reduce the frequency of their attempts; conversely, a lack of successful experiences can reinforce their doubts and diminish their self-confidence.

Self-confidence is therefore a crucial dimension in inclusive physical education. In physical activity-based learning, self-confidence is evident through the courage to try, willingness to

participate, persistence after making mistakes, ability to follow instructions, and willingness to complete tasks independently. Students with successful experiences tend to gain a *mastery experience* that can strengthen their belief in their own abilities. Conversely, repeated failure without adequate pedagogical support can lead to the perception that tasks are too difficult and ultimately reduce participation. Therefore, the development of motor skills and self-confidence should not be treated as two entirely separate goals. In the context of inclusive physical education, both can develop simultaneously through learning experiences that allow students to practice, receive support, correct mistakes, and experience success.

One strategy that has the potential to address this issue is peer tutoring*peer tutoring*. Peer tutoring shifts some of the functions of learning support from a one-way relationship between teacher and student to peer-to-peer learning interactions. In practice, students who are relatively more capable or have mastered a specific task are given the role of helping peers who are struggling through demonstrations, providing simple instructions, reminding them of movement steps, and offering support during practice. This strategy is highly relevant to inclusive education because it creates an interactive structure that allows students with special needs to not always rely on the teacher. Manubey et al. (2021) found that peer tutors in inclusive classrooms can support changes in students' character and learning skills, meaning this approach has the potential to expand the function of learning from knowledge transfer to the formation of social relationships and peer support.

Theoretically, the effectiveness of peer tutors can be explained through Bandura's Social Learning Theory, particularly the concepts of *observational learning*, *modeling*, *social persuasion*, and *self-efficacy*. Students do not always learn through direct teacher instruction; they also learn by observing others' behaviors, imitating observed actions, receiving social reinforcement, and assessing their own abilities based on those experiences. In movement learning, these mechanisms are particularly relevant because motor skills fundamentally require a connection between observation and action. When a peer tutor demonstrates movements such as bending, twisting, stretching, or maintaining balance, students who are *slow learners* receive a concrete, directly observable model of the movement. Instructions provided by peers can also use simpler, more informal language, making them easier to understand.

Peer tutors can also expand opportunities for providing feedback. In conventional physical education (PJOK) instruction, teachers must divide their attention among all students, which can limit the frequency of individual feedback. Peer teaching can increase the frequency of interaction and feedback during practice sessions. Empirical evidence from the study by Beseler et al. (2024) shows that the *peer teaching* approach can support the improvement of motor skills, while combining peer teaching with video analysis accelerates the improvement of *throwing* skills among physical education teacher candidates. The study demonstrates that peer teaching not only enhances social interaction but also serves as a mechanism for motor learning through more intensive practice and feedback.

The relevance of peer tutoring becomes even stronger when applied to students with special needs. In inclusive physical education, peer support can increase opportunities for students with special needs to actively engage in physical activities. Research on *peer tutoring* in inclusive physical education indicates that peer-mediated support can enhance physical and

instructional interactions between students with disabilities and their peers without disabilities. More recent research also indicates that the *peer teaching* approach can be used to improve both motor skills and psychosocial aspects in adaptive physical education. The study by Burhaein and Muustaqim, for example, reported improved skill attainment following the implementation of peer teaching in physical education for students with special needs, as well as improvements in self-confidence and motivation.

The findings of Sonjaya et al. (2025) further reinforce the relevance of this approach in the context of elementary school physical education. Their study specifically examined the *peer teaching* model and reported its association with the development of self-confidence and responsibility among elementary school students. The study used a *one-group pretest–posttest* design with sixth-grade students and demonstrated that the peer teaching model can serve as a strategy to foster students' character development in physical education. These findings are significant because they indicate that the impact of peer teaching extends beyond motor skills to include affective dimensions as well. However, this research did not specifically focus on *slow learners* or non-locomotor motor skills as target competencies.

Recent research developments also indicate that the issue of inclusivity in physical education is increasingly centered on the matters of student participation, adaptation, and engagement. Kristén et al. (2025), for example, emphasize the importance of models that encourage the engagement of students with and without disabilities in physical education. They highlight participation as a critical issue because students with disabilities remain at risk of experiencing lower levels of engagement in physical education activities compared to their peers. Meanwhile, Cho et al. (2024) highlight the importance of teachers' competence in adapting physical education instruction based on students' needs. Both perspectives suggest that inclusive physical education requires strategies that are flexible and responsive to student heterogeneity.

Although research on inclusive education, peer tutoring, motor skills, and self-confidence has expanded, several significant gaps remain to be addressed. First, much of the research on peer tutoring in inclusive education focuses on changes in character, learning skills, social interaction, or general participation, rather than on the specific motor skills of *slow learner* students. Manubey et al. (2021), for example, examined peer tutoring in the context of inclusive classrooms with a focus on character and learning skills, rather than on physical education motor competencies. Second, the available research on peer teaching in physical education tends to focus more on specific sports or movement skills, while non-locomotor basic movement skills among *students with learning difficulties* still receive relatively little attention. Third, psychological aspects such as self-confidence are often analyzed as outcomes separate from motor skill development, even though for *slow learner* students, the two can influence each other through experiences of success, social interaction, peer support, and positive reinforcement.

Another gap lies in the research context. Some previous studies were conducted in school settings or programs with specific pedagogical resources, whereas empirical evidence regarding the implementation of peer tutoring for inclusive physical education in elementary schools in rural areas remains limited. The context of SD Negeri 002 Sangkulirang provides an opportunity to test how relatively simple and low-cost strategies can be used to address the

needs of *slow learner* students in a real-world learning environment. Thus, peer tutoring is not viewed as a learning technology requiring complex facilities, but rather as a pedagogical mechanism that leverages social resources already available in the classroom—namely, peers.

Based on this synthesis, the novelty of this research lies in the integration of three dimensions that have traditionally been studied separately: inclusive physical education, the development of basic non-locomotor motor skills, and the enhancement of self-confidence among *students with learning difficulties* through the peer-tutoring mechanism. The first novelty is substantive in nature, namely positioning non-locomotor movement—rather than specific sports skills—as the primary target of intervention for *slow learners*. The second novelty is psychopedagogical in nature, namely testing peer tutoring as a mechanism that simultaneously provides *motor learning support* and *psychosocial support*. In other words, this study not only assesses whether students are able to perform movements better but also whether the experience of learning with peers can increase their willingness to try, perseverance, participation, and belief in their own abilities.

The third novelty relates to the mechanism of change. This study views peer tutoring not merely as a method of group division, but as a series of pedagogical processes comprising *peer modeling*, movement demonstrations, simple instructions, repetitive practice, immediate feedback, social reinforcement, and experiences of success. This sequence is expected to form a pathway of change from social support → increased participation and practice opportunities → experiences of success → improved mastery of movements → reinforcement of self-confidence. This framework provides a more integrative explanation of why peer tutoring can be relevant for *slow learner* students in inclusive physical education.

The fourth innovation lies in the use of Classroom Action Research (CAR) as an approach to develop interventions cyclically based on students' actual responses. In the context of *slow learners*, the cyclical approach allows teachers to avoid treating students' abilities as static conditions, but rather to adjust their interventions based on students' skill development and needs from one cycle to the next. Thus, the study not only examines *whether* peer tutoring works, but also documents *how* the strategy is adapted to meet students' needs. Conceptually, this study further offers the insight that the success of inclusive physical education for *slow learners* is not solely determined by a teacher's ability to adapt tasks, but also by the ability to create a peer support ecosystem that enables students to learn through observation, practice, feedback, and positive social experiences. This perspective aligns with evidence that peer tutoring can enhance interaction in inclusive physical education, as well as recent research emphasizing the importance of participation and engagement among students with diverse needs.

Based on these gaps and this novelty, this study was conducted to analyze the optimization of inclusive physical education through the peer tutoring method in improving the basic non-locomotor motor skills and self-confidence of *students with learning difficulties* at Sangkulirang Public Elementary School 002. The study aims to describe the initial status of motor skills and self-confidence, implement peer tutoring through adaptive action phases, and analyze the changes that occur during the learning process. Theoretically, this study is expected to expand the body of research on the relationship between *peer-mediated learning*, motor learning, and psychosocial development in inclusive physical education. Practically,

this study is expected to provide a realistic pedagogical model for physical education teachers, particularly in the context of elementary schools with limited resources, to create learning experiences that are more adaptive, participatory, humanistic, and responsive to the needs of *slow learner* students.

METHOD

This study employed Classroom Action Research (CAR) using the Kemmis and McTaggart action research model, which consists of four iterative stages: planning, acting, observing, and reflecting (Kemmis, McTaggart, & Nixon, 2014). A naturalistic and reflective qualitative approach was adopted because the study sought to understand in depth the processes of behavioral change, learning experiences, and responses of a student identified as a *slow learner* during peer-tutoring-based physical education learning in an authentic classroom setting (Creswell & Poth, 2018).

The study was conducted during the second semester of the 2025/2026 academic year, from January to May 2026, at SD Negeri 002 Sangkulirang, Sangkulirang District, East Kutai Regency, Indonesia. The school was purposively selected because it implements inclusive education by integrating students identified as *slow learners* into regular classroom instruction, including Physical Education, Sports, and Health (PJOK).

The primary participant was one fourth-grade student, identified by the pseudonym AL, who had been identified as a *slow learner*. The student demonstrated difficulties in understanding complex instructional commands, required more time to acquire new motor skills, and experienced challenges in basic nonlocomotor movement skills and self-confidence. Supporting informants included the PJOK teacher, classroom teacher, peer tutor, and school principal, selected through purposive sampling based on their direct involvement in the learning process (Patton, 2015). The use of a pseudonym was intended to protect the participant's identity.

The intervention was implemented across two action cycles, with each cycle comprising two instructional sessions. Cycle I focused on bending, stretching, and trunk rotation, with a minimum success criterion of 70% of the assessed indicators reaching the good category. Cycle II focused on body flexion, swinging, and static balance, with a minimum success criterion of 80%. Each session followed a structured peer-tutoring sequence comprising learning-goal orientation, teacher and peer-tutor demonstrations, paired practice and guided assistance, feedback and positive reinforcement, independent practice, and learning reflection.

Data were collected through systematic observation, semi-structured interviews, field notes, and documentation, including photographs and video recordings. Data credibility was strengthened through source and technique triangulation, enabling the researchers to compare information obtained from different participants and data-collection procedures (Denzin, 2017).

Two observation instruments were used. The first assessed basic nonlocomotor movement skills across six indicators: bending, stretching, trunk rotation, body flexion, swinging, and static balance. The second assessed self-confidence across five indicators: willingness to

attempt movements, willingness to perform in front of peers, willingness to ask questions, persistence in completing tasks, and resilience after making mistakes. Each indicator was rated using a four-point scale (1–4), with higher scores indicating stronger performance.

The score for each assessment was converted into a percentage using the following formula:

The resulting percentage scores were then classified according to predetermined performance categories.

PERCENTAGE RANGE	CATEGORY
86–100%	Very Good
76–85%	Good
60–75%	Fair
≤59%	Poor

The action was considered successful when at least 80% of the assessed indicators for both nonlocomotor movement skills and self-confidence reached the good or very good category. This criterion was used to determine whether the peer-tutoring intervention had achieved the targeted improvement across the action cycles.

Data analysis integrated descriptive quantitative analysis and qualitative analysis. Quantitative analysis was used to identify changes in performance across the baseline condition, Cycle I, and Cycle II by comparing percentage scores for each indicator. This analysis provided an empirical description of the direction and magnitude of change across the intervention stages. Qualitative data from observations, interviews, field notes, and documentation were analyzed using the interactive model of Miles, Huberman, and Saldaña (2020), comprising data condensation, data display, and conclusion drawing/verification. The quantitative and qualitative findings were subsequently integrated during interpretation to explain not only whether improvement occurred but also how peer tutoring contributed to changes in the student's motor performance and self-confidence within the inclusive PJOK learning environment

RESULTS AND DISCUSSION

Development of Fundamental Non-Locomotor Movement Skills and Self-Confidence

The findings indicate progressive changes in AL’s fundamental non-locomotor movement skills and self-confidence following the implementation of inclusive physical education, sports, and health (PJOK) instruction using a peer tutoring approach. These changes were evident not only in the increase in observation scores across the research stages but also in qualitative changes in participation, independence, willingness to interact, and ability to respond to instructional directions. The pattern of change from the pre-cycle stage through Cycle I and Cycle II suggests that peer tutoring functioned as a learning-support mechanism that gradually helped the student move from dependence on external assistance toward more independent participation.

During the pre-cycle stage, AL's fundamental non-locomotor movement skills were categorized as low. AL obtained a score of 11 out of a maximum score of 24, equivalent to 46%. Among the six observed indicators, the most pronounced difficulties were found in stretching and bending the body, whereas bending forward and maintaining balance were relatively stronger, although they still required teacher reinforcement. This finding indicates that AL's motor difficulties were not uniform across all types of movement. Rather, performance was influenced by the complexity of the instructions, movement coordination, and the student's ability to translate verbal directions into a sequence of motor actions.

In terms of self-confidence, AL's initial condition was also categorized as low, with a score of 9 out of 20, equivalent to 35%. Observation indicated that the student tended to be hesitant, was reluctant to perform in front of peers, and rarely asked questions when experiencing difficulties. Nevertheless, AL continued to demonstrate a willingness to try and did not give up easily. This pattern is important because it indicates that low initial performance cannot simply be interpreted as a lack of motivation. Instead, the data suggest a gap between the willingness to learn and confidence in one's own abilities. Therefore, AL's primary needs involved not only motor practice but also a learning environment that provided social support, opportunities for successful experiences, and a safe space in which mistakes could be made.

Changes During Cycle I

The implementation of peer tutoring in Cycle I produced clear changes. After two instructional sessions focusing on bending forward, stretching, and rotating the body, fundamental non-locomotor movement skills increased to 71%, while self-confidence increased to 75%. Although these scores had not yet reached the final success criterion, the changes indicate that the intervention had begun to generate positive responses.

The relatively greater improvement in self-confidence compared with motor skills provides an important finding. Peer tutoring appeared to create psychological safety and social comfort more rapidly than it produced technical mastery of movement. Under the initial instructional conditions, AL no longer faced all learning demands individually. The peer tutor provided movement demonstrations, reminded the student of movement sequences, and offered direct corrective feedback in a more informal setting. This allowed AL to practice without excessive pressure when mistakes occurred.

Process observations during Cycle I showed that the changes did not occur immediately. At the beginning of the intervention, AL frequently waited for additional instructions from the tutor before performing a movement. After several practice sessions, however, the student began to follow the movement sequences more independently. The most noticeable progress occurred in stretching and body rotation, which had previously been among the lowest-performing indicators. Direct and repeated demonstrations and corrections helped AL understand the relationship between verbal instructions and the motor actions that needed to be performed.

Nevertheless, reflection during Cycle I also showed that the changes were not yet fully stable. Stretching skills still required reinforcement, while AL continued to display hesitation when asked to perform movements individually in front of the class. These findings provided

the pedagogical basis for modifying the intervention in Cycle II, particularly through increased practice intensity, more consistent positive reinforcement, and expanded opportunities for independent performance.

Changes During Cycle II

In Cycle II, the peer tutoring strategy was optimized by positioning the peer tutor not only as a demonstrator but also as a facilitator who encouraged student independence. The instructional materials covered body bending, swinging, and static balance. Observation results indicated that fundamental non-locomotor movement skills increased to approximately 83–85%, while self-confidence reached 85%. Both outcomes were categorized as good and met the predetermined success criteria. Changes in motor performance were evident in AL's increased ability to perform stretching independently with only minimal correction. Forward bending and body rotation were also performed more accurately in accordance with the demonstrated movements. This change indicates a transition from dependence on the tutor toward more independent regulation of motor performance. The tutor was no longer the primary source of instruction for every movement sequence but increasingly served as a support resource when assistance was needed. More substantial changes were also observed in self-confidence. By the end of Cycle II, AL was willing to perform movements individually in front of the class and had begun to ask the tutor or teacher questions when experiencing difficulties. This willingness did not emerge suddenly. Rather, it developed through a sequence of learning experiences that provided psychological safety, social support, positive feedback, and repeated experiences of success.

Summary of Development Across the Research Stages

The development across the three stages can be summarized as follows.

STAGE	FUNDAMENTAL NON-LOCOMOTOR MOVEMENT SKILLS	CATEGORY	SELF-CONFIDENCE	CATEGORY
PRE-CYCLE	46%	Low	35%	Low
CYCLE I	71%	Fair	75%	Fair
CYCLE II	83–85%	Good	85%	Good
IMPROVEMENT	**+37–39 percentage points**	—	**+50 percentage points**	—

The table demonstrates a consistent and progressive pattern of improvement. Fundamental non-locomotor movement skills increased by approximately 37–39 percentage points, from 46% during the pre-cycle stage to 83–85% in Cycle II. Meanwhile, self-confidence increased by 50 percentage points, from 35% to 85%. No decline in performance was observed across the stages. The difference in the magnitude of change between the two variables is noteworthy. Although the intervention was explicitly directed toward movement skills, the largest absolute improvement was observed in self-confidence. This suggests that peer tutoring in inclusive PJOK may produce a psychosocial spillover effect, whereby an

intervention targeting motor competence simultaneously generates changes in confidence, participation, and social interaction.

Relationship Between Motor Development and Self-Confidence

Longitudinal analysis of AL's development revealed a parallel pattern of improvement between movement skills and self-confidence. As the student's ability to perform movements increased, willingness to attempt tasks and participate also became stronger. Conversely, increasing self-confidence appeared to encourage the student to try, ask questions, and engage in further practice. This pattern suggests a reciprocal reinforcement mechanism. Successful movement performance can provide mastery experiences that strengthen students' beliefs in their own abilities. These beliefs, in turn, encourage students to attempt, practice, and engage with subsequent learning activities. In the present study, this process was evident in AL's transition from primarily observing peers during the initial stage to actively participating in learning activities. Thus, motor development and self-confidence should not necessarily be interpreted as two completely independent outcomes. The data indicate that both developed through the same instructional process and mutually reinforced one another. Motor success provided positive experiences for the student, while increased self-confidence strengthened the psychological readiness to engage in subsequent practice.

Changes in Participation and Social Interaction

Beyond score increases, observational data revealed qualitative changes in AL's participation and social interaction. During the pre-cycle stage, the student tended to be passive and frequently observed peers rather than actively participating. During Cycle I, AL began participating in practice activities with tutor assistance, although additional instructions were still required. By Cycle II, the student was able to participate more actively throughout the learning sequence without continuous encouragement from either the teacher or tutor. These changes were also reflected in improved social interaction. AL became more involved in group activities, was more willing to ask questions when experiencing difficulties, and was willing to demonstrate movements in front of the class. Thus, the effectiveness of peer tutoring in this study was not limited to movement performance but also involved the expansion of the student's social participation within the PJOK learning environment. This finding reinforces the understanding that inclusive education cannot be achieved merely by placing students with special learning needs in regular classrooms. Inclusion requires pedagogical mechanisms that enable students to participate, interact, receive support, and experience success during learning. In this study, peer tutoring served as one mechanism for providing such support directly within PJOK activities.

Peer Tutoring as Scaffolding in Inclusive Learning

The findings can be explained through the perspective of Vygotsky's social constructivism, particularly the concepts of *scaffolding* and the *zone of proximal development*. During the initial stage, AL required relatively intensive assistance to understand instructions and perform movements. The peer tutor acted as a mediator by providing demonstrations, reminders, corrections, and support during practice. As the student's competence increased, the intensity of assistance could gradually be reduced. This pattern was clearly visible in the transition from Cycle I to Cycle II. During Cycle I, AL still frequently waited for the tutor's

instructions. By Cycle II, the student had begun performing movements independently, while the tutor increasingly functioned as a facilitator. Thus, peer tutoring did not simply replace some of the teacher's instructional functions; rather, it provided adaptive support that was gradually withdrawn as student competence increased. From the perspective of cooperative learning, interaction with peers can also provide a learning environment in which students receive support without always experiencing the evaluative pressure associated with teacher-led instruction. For students identified as *slow learners*, this characteristic is particularly important because difficulties in understanding instructions may be exacerbated by anxiety or embarrassment when mistakes occur in front of the class.

Mastery Experiences and Self-Efficacy

The increase in AL's self-confidence can also be understood through Bandura's (1997) self-efficacy theory. One of the primary sources of self-efficacy is *mastery experience*, namely successful experiences in completing a task. At the beginning of the study, AL experienced difficulties performing several movements and lacked confidence in performing publicly. Through repeated practice, tutor demonstrations, corrective feedback, and positive reinforcement, the student obtained increasingly frequent experiences of success. This process gradually transformed AL's perceptions of personal competence. Success in completing one movement provided a foundation for attempting the next. As the student became increasingly capable of performing movements without full assistance, willingness to perform and ask questions also increased. Therefore, the increase in self-confidence at the end of Cycle II can be understood not merely as an attitudinal change but as a psychological consequence of increased experiences of competence during learning.

Key Findings and Interpretive Boundaries

Overall, the study indicates that peer tutoring has the potential to serve as an effective pedagogical strategy for optimizing inclusive PJOK instruction for students identified as *slow learners*. Empirical evidence is reflected in the increase in fundamental non-locomotor movement skills from 46% to 83–85% and self-confidence from 35% to 85%. These changes were accompanied by greater independence, willingness to perform, ability to ask questions, active participation, and social interaction. An important contribution of this study lies in its integration of motor and psychosocial outcomes within a single intervention process. The study demonstrates not only that peer tutoring can assist students in performing PJOK movements but also that social support, mastery experiences, and gradual withdrawal of assistance can create more inclusive learning conditions. Accordingly, peer tutoring can be conceptualized as both a pedagogical and social mechanism for supporting the participation of students identified as *slow learners*.

However, the findings must be interpreted within the boundaries of the research design. The study involved only one participant (AL) and was conducted across two action-research cycles; therefore, the findings cannot be statistically generalized to all students identified as *slow learners*. In addition, the study did not include follow-up data to determine whether the observed changes were sustained over the long term. Future research should therefore involve larger samples, multiple inclusive schools, longer observation periods, and

comparative or *mixed-methods* designs to examine the consistency and durability of these findings.

Nevertheless, within the context of Classroom Action Research, the consistent changes from the pre-cycle stage through Cycle II provide contextual evidence that peer tutoring can serve as an adaptive, participatory, and autonomy-oriented approach to PJOK instruction for students identified as *slow learners*. The findings further demonstrate that optimizing inclusive education does not necessarily require complex curriculum modifications. Instead, the organization of social interaction, appropriate scaffolding, mastery experiences, and peer support can constitute significant pedagogical resources for creating PJOK learning environments that are more responsive to the diverse needs of students.

DISCUSSION

The results of the study indicate that the implementation of the peer-tutoring method in inclusive physical education has the potential to simultaneously improve basic non-locomotor motor skills and self-confidence among students *with learning disabilities*. These changes were consistently observed from the pre-cycle through Cycle II, during which basic non-locomotor motor skills improved from 46% to 83–85%, while self-confidence increased from 35% to 85%. These changes were reflected not only in observation scores but also in behavioral changes, such as increased willingness to try, ability to follow instructions, participation in group activities, willingness to ask questions, and willingness to perform in front of the class. These findings are significant from the perspective of inclusive physical education because learning success is not solely determined by motor achievement but also by students' ability to participate meaningfully. A systematic review indicates that the participation of students with special educational needs in physical education is influenced by individual, interpersonal, and environmental factors, including *self-efficacy*, teacher support, peer relationships, and instructional adaptations (Li et al., 2022). Research by Bertills et al. (2021) also indicates that perceptions of physical ability are closely linked to *self-efficacy* and students' propensity to participate in physical education. Thus, improvements in these two domains in the present study suggest that peer tutoring has the potential to serve as a pedagogical strategy that integrates psychomotor and psychosocial development.

The improvement in non-locomotor basic movement skills from 46% in the pre-cycle to 71% in Cycle I and 83–85% in Cycle II indicates that changes in motor abilities occur gradually. These findings can be linked to the literature on *peer-mediated learning* in inclusive physical education. Although most previous studies have focused on students with disabilities, the underlying principles are relevant to the context of *slow learners*, particularly regarding the provision of movement modeling, practice opportunities, direct support, and feedback from peers. Studies on the experiences of students with disabilities in physical education indicate that social interaction and peer support are integral components of an inclusive and meaningful learning experience (Arroyo-Rojas & Hodge, 2024). Research on inclusive PE practices also emphasizes the importance of a structured, adaptive learning environment that fosters peer collaboration before students are expected to perform independently (Facilitating Regular Physical Education for Students With Disabilities, 2024). Therefore, the gradual improvement observed in this study can be understood as the result of

increasingly structured learning opportunities and consistently provided social support.

Theoretically, this pattern of improvement can be explained through the perspectives of social constructivism and *the zone of proximal development* (ZPD). Within Vygotsky's (1978) framework, skill development occurs through social interaction and assistance from more competent individuals, before those skills are gradually internalized by the students. In this study, peer tutors provided demonstrations, reminded students of the movement steps, offered corrections, and encouraged AL to repeat the movements. This assistance was then gradually reduced as the students' abilities improved.

This mechanism exemplifies the characteristics of *scaffolding*—situational support provided to enable students to perform tasks they previously could not complete independently. Recent literature on inclusive education underscores the importance of social support and adaptations to the learning environment for enhancing the participation of students with special needs in physical education (Li et al., 2022; Arroyo-Rojas & Hodge, 2024). Thus, the contribution of this study is not merely to demonstrate that peers can assist students, but to illustrate how the intensity of support can shift from direct assistance toward independence during the classroom intervention process.

The most evident change was observed in the stretching and twisting movements, which were relatively difficult for AL to perform at the outset. These difficulties indicate that the challenges faced by *slow learners* cannot always be understood as limitations in motor ability alone, but may also relate to how instructions are received, processed, and translated into motor responses. This perspective is important because inclusive physical education requires teachers to consider not only *what* students must do, but also *how* instructions and the learning environment enable students to perform those tasks. A systematic review on inclusive physical education indicates that instructional adaptations, environmental modifications, teacher support, and social support are key components in enhancing the participation of students with special needs (Li et al., 2022). Recent qualitative studies also indicate that structured environments and instructional adaptations can help create *mastery experiences* for students with disabilities (*Facilitating Regular Physical Education for Students With Disabilities*, 2024). Therefore, the improvement in AL's skills following demonstrations, repetition, and immediate correction indicates that adapting instructional delivery methods is a crucial pedagogical mechanism in inclusive physical education.

Another finding was an increase in self-confidence from 35% to 85%. This change of 50 percentage points was even greater than the absolute improvement in motor skills. During the pre-cycle phase, students tended to be hesitant, reluctant to perform, and rarely asked questions; whereas by the end of Cycle II, students were able to perform individually, ask questions of teachers and tutors, and participate more actively in group activities. This finding aligns with the research by Bertills et al. (2021), which found that students with disabilities' perceptions of their physical skills are related to *self-efficacy* and their tendency to participate in Physical Education. The study also emphasized that meaningful learning experiences can be fostered through increased participation and the reinforcement of belief in one's own capabilities. Thus, the increase in students' self-confidence can be understood not as an isolated psychological change but as part of a learning process that provides students with opportunities to experience repeated success.

These findings can be further explained through Bandura's (1997) self-efficacy theory. *Self-efficacy* develops through several sources of information, primarily *enactive mastery experiences*, *vicarious experiences*, verbal persuasion, and physiological-affective conditions. In this study, *mastery experiences* emerged when students successfully performed movements after receiving demonstrations, repeated practice, corrections, and positive reinforcement from the tutor. These successful experiences have the potential to strengthen the belief that physical education tasks can be completed. Meanwhile, the tutor's demonstrations provided *vicarious experiences*, as students could observe peers performing the movements before attempting them themselves. The findings of Bertills et al. (2021) support this argument by demonstrating a correlation between perceptions of physical ability, *self-efficacy*, and participation in physical education. Recent research on the experiences of students with disabilities also highlights the importance of *mastery experiences* and peer collaboration in creating conditions that support participation (*Facilitating Regular Physical Education for Students With Disabilities*, 2024).

The relationship between improved motor skills and self-confidence in this study also reveals a positive reinforcement cycle. When students successfully performed movements more accurately, they became more willing to try again, perform in front of peers, ask questions, and participate in group activities. Conversely, increased self-confidence enabled students to practice more actively, thereby increasing their chances of achieving subsequent successes. This pattern is consistent with the findings of Bertills et al. (2021), which show that students' perceived physical abilities are related to *self-efficacy* and readiness to participate in physical education. Thus, the results of this study indicate that interventions focused on motor skills can yield psychosocial outcomes when learning provides students with sufficient opportunities to experience success. This perspective broadens the understanding of inclusive physical education from a focus on *skill acquisition* toward the simultaneous development of competence, confidence, and participation.

The effectiveness of peer tutors can also be understood through the dimensions of social support and peer interaction. In this study, tutors not only provided technical assistance but also created a relatively safer environment for interaction for students with special needs. This is relevant because students with special needs may face barriers to participation due to social isolation, low *self-efficacy*, or negative perceptions of their own abilities. A systematic review on inclusive physical education indicates that peer support and the quality of social interaction are key factors influencing the participation of students with special needs (Li et al., 2022). Phenomenological studies have also found that social interaction is a central theme in the experiences of students with disabilities in physical education (Arroyo-Rojas & Hodge, 2024). Therefore, the presence of peer tutors in this study can be understood as a mechanism that not only facilitates skill transfer but also reduces social and affective barriers that may hinder student engagement.

From the perspective of inclusive education, these findings underscore that inclusion cannot be understood merely as the placement of students with special needs in regular classrooms but must be realized through meaningful participation. A systematic review of the experiences of students with disabilities in physical education indicates that modifications, accommodations, and meaningful social interactions need to be integral to inclusive learning

practices (Arroyo-Rojas & Hodge, 2024). Similarly, a systematic review of factors influencing participation in inclusive physical education (PJOK) indicates that support at the individual, interpersonal, and organizational levels contributes to the engagement of students with special needs (Li et al., 2022). In the context of this study, peer tutoring is a relatively simple form of interpersonal support that can be integrated into regular instruction. This strategy allows teachers to leverage existing social resources in the classroom without always having to rely on intensive individual interventions.

However, peer tutors should not be positioned as a substitute for teachers, but rather as a support mechanism that expands *scaffolding* in learning. Teachers remain responsible for setting learning objectives, selecting and preparing tutors, providing initial demonstrations, ensuring the safety of activities, monitoring the quality of interactions, and providing corrective feedback. The literature on inclusive physical education indicates that teacher readiness, knowledge of students' needs, institutional support, and the ability to adapt are key factors in the successful implementation of inclusive physical education (Tarantino et al., 2022; Li et al., 2022). The study by Tarantino et al. (2022) specifically shows that experience working with students with special educational needs and professional development are associated with teacher attitudes that are more supportive of inclusion. Therefore, the effectiveness of peer tutors in this study is more appropriately understood as part of teacher-mediated peer support, rather than as an intervention entirely left to the students.

AL's shift from a relatively high need for support in Cycle I toward more independent performance in Cycle II also has important implications for intervention design. The ultimate goal of peer tutoring is not merely to increase students' dependence on tutors, but rather to gradually transfer control of learning to the students. In this context, the reduction of tutor support as students' competencies increase can be understood as a process of *fading of scaffolding*. This strategy aligns with the need to create authentic mastery experiences for students with special needs. Research on the experiences of students with disabilities in physical education emphasizes that meaningful participation requires a supportive environment, appropriate adaptations, and opportunities for students to experience tangible success (Facilitating Regular Physical Education for Students With Disabilities, 2024). Therefore, the success of this study is demonstrated not only by the achievement of scores ranging from 83–85%, but also by the qualitative shift in AL's participation—from a student who waited for instructions to one capable of performing activities with minimal assistance.

From the perspective of the study's contribution, these findings are valuable because they integrate motor and psychosocial outcomes within a single inclusive physical education intervention. Much of the discussion on inclusive physical education focuses on participation, motor skills, teacher attitudes, or access to physical activities in isolation. Meanwhile, research by Bertills et al. (2021) demonstrates a close relationship between perceptions of physical ability, *self-efficacy*, and participation, while Arroyo-Rojas and Hodge (2024) emphasize the importance of social interaction and student experiences in the context of inclusive physical education. The findings of this study bring these two dimensions together in the context of *slow learners*, demonstrating that improvements in motor competence can occur alongside increased self-confidence. Thus, the conceptual

contribution of this study lies in understanding peer tutoring as a pedagogical-social mechanism that links *motor competence, self-efficacy*, and *meaningful participation*.

Nevertheless, the research results must be interpreted with consideration of the study's design limitations. The study involved only one student, was conducted over two cycles, and did not use a control group or an experimental design. Therefore, the increases from 46% to 83–85% in motor skills and from 35% to 85% in self-confidence cannot be used to infer universally applicable causal effects. The findings are more appropriately understood as context-specific evidence of improvement within the framework of *Classroom Action Research*. This caution is important because the literature on peer tutoring in physical education itself indicates that the quality of empirical evidence varies greatly and that claims regarding the status of peer tutoring as an evidence-based practice must take into account the quality of the design, the clarity of procedures, and the accuracy of measurements (Lieberman et al., 2014). Therefore, future research should involve a larger number of participants, multiple schools, a comparison group, or a more robust *single-case experimental* design, as well as a *follow-up assessment* to determine the sustainability of the changes.

Overall, this study suggests that peer tutoring is an adaptive, inclusive, and autonomy-oriented pedagogical strategy for *slow learners* in physical education. Improvements in non-locomotor basic motor skills indicate development in psychomotor competence, while increased self-confidence reflects development in the affective and social domains. These findings can be explained through the integration of social constructivism, scaffolding, and self-efficacy theory, while recent empirical evidence underscores the importance of *peer collaboration*, learning adaptation, mastery experiences, and social support in creating an inclusive physical education program (Bertills et al., 2021; Li et al., 2022; Arroyo-Rojas & Hodge, 2024). Thus, the novelty of this study lies not merely in the use of peer tutors, but in the understanding of peer tutors as a socio-pedagogical mechanism that links the development of basic non-locomotor movement skills with the building of self-confidence and meaningful participation among students *who are slow learners*.

CONCLUSION

Based on the results of the classroom action research conducted over two cycles, it can be concluded that the initial conditions of students with learning disabilities (AL) showed that both their basic non-locomotor motor skills and self-confidence fell into the "insufficient" category—at 46% and 35%, respectively—with the main challenges lying in stretching and bending movements, as well as the courage to perform and ask questions. The implementation of the peer-tutor method—which involved selecting tutors with good motor and communication skills, training the tutors, providing guidance during partner exercises, and offering feedback and positive reinforcement—proved effective in consistently improving both research variables. Basic non-locomotor motor skills improved from 46% to 71% in Cycle I and reached 83–85% in Cycle II, while self-confidence increased from 35% to 75% in Cycle I and reached 85% in Cycle II, thereby fulfilling all indicators of the study's success. These improvements demonstrate that the peer-tutoring method is capable of addressing the learning needs of students with learning difficulties through direct assistance from peers, more intensive practice opportunities, immediate feedback, and positive social

support, making it an effective, adaptive, and humanistic alternative strategy for optimizing inclusive physical education and health learning in elementary schools.

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