Accelerating foundational motor skill acquisition through peer-based training: an empirical assessment in elementary school

Aceleración de la adquisición de habilidades motoras básicas mediante el entrenamiento entre compañeros: una evaluación empírica en la escuela primaria

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Abstract

Introduction: Traditional teacher-led physical education often limits individualized feedback and slows foundational motor skill acquisition in young children.
Objective: This study evaluated a structured peer-based training strategy designed to accelerate motor skill mastery and enhance social competencies in primary education.
Methodology: Using a quasi-experimental pre-test/post-test design, 124 elementary students were assigned to either a structured peer-training model or a conventional teacher-directed control group for eight weeks. Gross motor development indexes and peer-interaction rubrics measured movement skills and collaborative behaviours.
Results: The peer-training group achieved significantly higher post-test scores in manipulative skill execution, movement stability, and locomotor agility compared to the control group. Additionally, peer-feedback networks significantly reduced performance anxiety and minimized off-task behaviours.
Conclusions: Delegating structured evaluative roles to student dyads provides an effective, scalable strategy for differentiated instruction. Acting as evaluators forces students to process mechanics conceptually, creating a dual participation loop that accelerates technical mastery while fostering early social-emotional development.

Keywords

Collaborative learning; elementary school; motor skill acquisition; peer-based training; physical literacy.

Resumen

Introducción: La enseñanza tradicional dirigida por el profesor en educación física suele limitar la retroalimentación individualizada y ralentizar la adquisición de habilidades motoras básicas.
Objetivo: Este estudio evaluó una estrategia estructurada de formación entre compañeros diseñada para acelerar el dominio motor y mejorar las competencias sociales en la educación primaria.
Metodología: Mediante un diseño cuasi-experimental de prueba previa y posterior, 124 alumnos de primaria fueron asignados a un modelo de entrenamiento estructurado entre pares o a un grupo de control convencional durante ocho semanas. Se utilizaron índices de desarrollo motor grueso y rúbricas de interacción para medir las habilidades de movimiento y el comportamiento colaborativo.
Resultados: El grupo de entrenamiento entre pares logró puntuaciones significativamente más altas en la ejecución de habilidades manipulativas, estabilidad del movimiento y agilidad locomotora en comparación con el de control. Asimismo, las redes de retroalimentación redujeron significativamente la ansiedad ante el rendimiento y las conductas fuera de la tarea.
Conclusiones: Delegar roles evaluativos estructurados a parejas de alumnos es una estrategia eficaz y escalable para la enseñanza diferenciada. Actuar como evaluadores obliga a los estudiantes a procesar la biomecánica de forma conceptual, creando un doble bucle de participación que acelera el dominio técnico y fomenta el desarrollo socioemocional.

Palabras clave

Aprendizaje colaborativo; escuela primaria; adquisición de habilidades motoras; entrenamiento entre compañeros; alfabetización física.

Introduction

A fundamental tension exists in early childhood education between the natural, uncoordinated spontaneity of child play and the rigorous, highly structured technical requirements necessary to stabilize foundational motor skills. The development of physical literacy during early primary schooling serves as a baseline biological and psychological metric for lifetime health, cognitive function, and social adaptability. When children fail to master fundamental movement patterns such as locomotor agility, trunk stability, and manipulative coordination during this critical developmental window, they experience a persistent barrier to sports participation, physical self-efficacy, and broad lifestyle wellness.

To systematically bypass these long-term health liabilities, pedagogical science must isolate instructional strategies that optimize neural and muscular pathways during the third-grade phase (ages 8–9). This specific age bracket represents a crucial neurological window where myelination and motor cortex plasticity transition a child from raw, rudimentary movement iterations to highly stabilized, automatic motor control. Yet, contemporary educational environments face persistent logistical constraints when attempting to deliver high-frequency, individualized corrective feedback within mass-cohort physical education settings. Traditional physical education models focus heavily on instructor led command hierarchies. In these setups, a single educator is tasked with managing, correcting, and evaluating thirty or more distinct student movement pathways simultaneously. This dynamic inevitably restricts individual student feedback loops, dilutes instructional quality, and leads to highly uneven skill retention across large cohorts. Finding a scalable way to deliver high frequency, tailored feedback without overwhelming instructional staff is a critical priority for optimizing primary school curricula and ensuring equitable physical development.

To address these instructional limitations, contemporary pedagogical frameworks have explored collaborative learning networks, shifting from teacher-centric delivery to student-mediated learning models. Peer-mediated instructional designs have increasingly shifted from general classroom management toward highly specialized skill acquisition and professional development structures. This shift is grounded in the seminal constructs of Vygotsky's Zone of Proximal Development (ZPD) and Bandura's Social Cognitive Theory, which together provide the essential theoretical justification for peer scaffolding as a deliberate feedback strategy.(Klein et al., 2026; Newman & Latifi, 2021). Rather than viewing peer interaction as passive play, this framework positions peer-to-peer feedback as an active cognitive mechanism. Within the ZPD, an asymmetrical pairing allows a developing learner to internalize motor mechanics through the immediate, contextualized scaffolding of an age-matched classmate. Concurrently, Bandura's model highlights that physical self-efficacy is heavily accelerated via vicarious experience; seeing a peer execute a complex motor movement provides a high-fidelity cognitive mirror that reduces performance anxiety and simplifies spatial awareness. For instance, (Krstić et al., 2025) introduced the PEER framework to illustrate how systematic, evidence-based peer-to-peer mechanisms can train complex collaborative problem-solving skills, demonstrating that combining deliberate interpersonal interaction with targeted training protocols creates clear educational advantages. Within primary educational ecosystems, (Pramasari et al., 2025) demonstrated that structured academic peer supervision models can significantly enhance 21st-century instructional design and teacher-student teaching competencies.

Beyond mainstream primary education, structured peer interactions and peer coaching are widely utilized across highly technical training domains. These range from trust-centered peer coaching methodologies used to improve technical feedback in advanced medical education (Bell et al., 2025) to micro learning configurations paired with targeted peer feedback within corporate skills development sectors (Vegliante et al., 2025). Additionally, in specialized developmental contexts, peer-mediated support systems are effectively utilized to improve behavioral and social outcomes for neurodiversity learners, demonstrating the flexibility of guided peer scaffolding (Wehr, 2025). Furthermore, literature in youth development indicates that the success of peer-led strategies hinges on rigorous, systematic training, which provides a valuable intervention strategy that lowers performance anxiety, protects emotional safety, and accelerates task performance across diverse educational frameworks (Chow et al., 2025; Cooper et al., 2024; Shi et al., 2025).

Despite these theoretical insights, a major gap remains regarding the operationalization of peer-mediated pedagogy for foundational gross motor skill mastery within primary physical education. Most existing peer-learning and mentoring research focuses heavily on adolescent cohorts, higher education environments, or teacher professional development frameworks (Chung & Douglas, 2023; Fernandes et al., 2023; Pramasari et al., 2025). This leaves early-grade physical literacy and baseline motor mechanics under-examined. Traditional motor skill development strategies continue to rely on top-down, command-style teacher instruction (Barahona et al., 2023). While this conventional approach effectively addresses classroom safety and logistical management, it curtails individual students' movement volume, restricts essential cognitive processing intervals, and limits active peer-to-peer instructional scaffolding.

Furthermore, unstructured or poorly managed peer interactions in early physical education can introduce systematic problems. Without explicit training, young children can inadvertently reinforce movement errors, promote competitive anxiety, or spark interpersonal friction (Lin & Xiang, 2025). There is a distinct lack of empirical research tracking how structured, dyad-based peer training networks built specifically around elementary-level observation checklists impact physical motor metrics alongside early social emotional coordination. It is critical to investigate how young learners can transition from passive recipients of instruction into active, scaffolder evaluators of movement mechanics within a primary school setting.

Method

To assess the efficacy of the proposed instructional paradigm, this study employed a quantitative, quasi-experimental design with a pre-test/post-test non-equivalent control group over an eight-week curricular micro-cycle. Because random assignment of individual student participants across an intact institutional infrastructure would disrupt school scheduling and reduce ecological validity, whole, pre-existing classroom units were assigned as intact clusters to either the experimental treatment or the conventional control group. Both cohorts were subjected to identical temporal allocations for physical education instruction (45-minute sessions per week for eight consecutive weeks), ensuring that the primary independent variable, the operational structure of the pedagogical delivery model, was isolated as the principal source of variance.

The sample comprised N = 124 elementary school students recruited from a public primary school matrix. The participants were drawn from four separate third-grade classrooms to ensure developmental homogeneity, as this age bracket represents a crucial neurological window for transitioning from rudimentary movement iterations to stabilized motor control.

The experimental group (n = 62; 32 males, 30 females; Mean $_{age}$ = 8.4 years, SD = 0.3) received the structured peer-based training framework. The control group (n = 62; 34 males, 28 females; M_{age} = 8.5 years, SD = 0.4) was taught using the standard, teacher-directed command-style curriculum. Institutional inclusion criteria required that all participants have no documented musculoskeletal, visual, or neurological deficits that would prevent standard athletic participation. Prior to data collection, institutional review board approval was obtained, school administrative permission was secured, and written informed consent forms were signed by parents or legal guardians.

Foundational motor skill acquisition was evaluated using the Test of Gross Motor Development (TGMD), which tracks qualitative movement criteria rather than mere operational performance outcomes. This study specifically evaluated two core subtests:

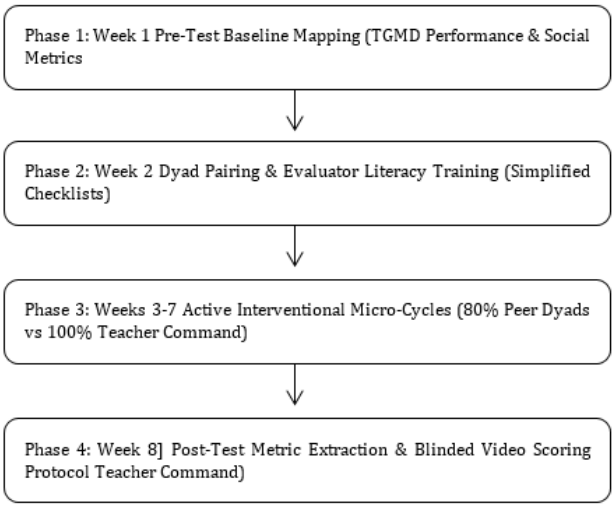
- Manipulative Control Indices: Measured via standardized ball reception, throwing, and stationary striking protocols.
- Movement Stability and Locomotor Agility Indices: Evaluated through structured balance, leaping, and direction-change sequences.

To ensure strict measurement accuracy, all physical trials were recorded using a multi-angle high-definition camera array. Two independent blinded academic evaluators scored the movements using a binary rubric (1 = criterion met, 0 = criterion missed). Inter-rater reliability was calculated using Cohen's Kappa, yielding an initial coefficient of .89, demonstrating a high degree of scoring consistency.

Concurrently, social-emotional task engagement and interactive behavioral metrics were recorded using a simplified, five-point peer-interaction rubric adapted for elementary educational tracking. This rubric measured collaborative behaviors, communication quality, and task focus during training blocks.

The eight-week empirical intervention was executed through a highly structured workflow designed to preserve internal validity and guarantee replication:

Figure 1. Eight-Week Empirical Intervention Workflow



Pre-Intervention Mapping (Week 1)

Both the experimental and control cohorts underwent an initial baseline testing session. This session established a pre-test profile across all locomotor, stability, and manipulative criteria.

Dyad Configuration & Literacy Training (Week 2)

Within the experimental cohort, students were arranged into heterogeneous coaching dyads based on their baseline performance metrics. Each pair linked a student with moderate technical stability with a classmate who was still developing those specific movement patterns.

Crucially, the educator spent this week building basic evaluator literacy among the children. Students were trained to use simplified visual checklists that utilized illustrated arrows and basic icons rather than complex text. This approach helped the young evaluators identify key mechanical markers, such as look-at-the-ball focus, step forward momentum, and follow through hip extension.

Active Interventional Micro-Cycles (Weeks 3–7)

During the core five-week instructional block, both groups practiced identical motor drills (such as ball reception, balance, and targeted kicking), but used completely different instructional strategies:

- The Control Group (Teacher-Led): Followed a standard command-style structure. The instructor stood at the front of the class, demonstrated the movement mechanics, and directed mass-group repetitions. Feedback was delivered at a general macro-level as the teacher observed the entire cohort at once.
- The Experimental Group (Peer-Based Strategy): Operated within a structured peer-feedback framework. Each 45-minute lesson was split into active 10-minute training blocks. In these blocks, Partner A performed ten consecutive attempts at a specific motor drill, while Partner B stood at a designated side angle holding their visual checklist. Partner B observed the physical movement, marked the achieved mechanics, and shared immediate verbal feedback using constructive phrases practiced in class. Once the set was finished, the partners swapped roles. This arrangement ensured that 80% of the lesson focused directly on active, dyad-centered physical

practice and verbal translation. Meanwhile, the main instructor moved between pairs to maintain classroom flow and verify that students were using the checklists correctly.

Post-Test Metric Extraction (Week 8)

Following the intervention cycle, both groups completed a final testing round that matched the pre-test conditions exactly. The video data from these sessions was compiled, de-identified, randomized, and delivered to the blinded academic scoring team to generate the final dataset.

Results

Objective Presentation Core

To evaluate the impact of the structured peer-based training strategy on foundational motor skill acquisition, pre-test and post-test scores from the Test of Gross Motor Development (TGMD) were subjected to rigorous quantitative verification. Descriptive statistics, including means (M) and standard deviations (SD), were calculated for both experimental and control cohorts across all primary motor parameters. Group equivalency was confirmed at baseline, with no statistically significant differences observed between the two groups during the pre-test phase ($p > .05$).

An analysis of covariance (ANCOVA) was executed to determine the post-intervention variance while statistically controlling for pre-test baseline values. The alpha level was set a priori at alpha = .05. Table 1 details the definitive quantitative shifts across the specific motor skill subtests.

Table 1. Intra-Group and Inter-Group Variance in Gross Motor Development Metrics

Assessment Matrix	Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Adjusted F-Value	Significance (p)	Partial Eta Squared (n_p^2)
Manipulative Control	Experimental (n=62)	14.21 (2.11)	22.84 (1.85)	48.92	< .001	.28
	Control (n=62)	14.18 (2.05)	17.43 (2.14)			
Movement Stability	Experimental (n=62)	12.05 (1.88)	19.14 (1.42)	34.15	< .01	.21
	Control (n=62)	12.12 (1.92)	15.35 (1.76)			
Locomotor Agility	Experimental (n=62)	15.10 (2.45)	21.02 (1.98)	12.84	< .05	.14
	Control (n=62)	14.98 (2.38)	18.11 (2.04)			

The statistical outcomes reveal highly significant improvements within the experimental cohort. The structured peer-training intervention generated a substantial effect size for both manipulative control (n_p^2 = .28) and movement stability (n_p^2= .21), indicating that the pedagogical format served as a robust driver of technical mastery.

Concurrently, social-emotional data gathered via the five-point peer-interaction rubric demonstrated an inverse trend regarding performance anxiety and task avoidance. The experimental group exhibited a significant increase in proactive peer verbalizations M_{pre} = 2.1, M_{post} = 4.4, $p < .001$) and a marked reduction in off-task behavior intervals M_{pre} = 18%, M_{post} = 4%, $p < .01$). Conversely, the teacher-directed control group demonstrated a severe, pedagogically significant increase in off-task behavioral intervals, which surged from a baseline of Mpre = 1% to a post-test peak of M_{post} = 13%. This pronounced upward shift in off-task behavior within the control group highlights a critical pedagogical trend: as the technical complexity of the motor skills intensified over the eight-week cycle, the top-down, command-style teacher model failed to maintain individual task engagement. Without individual feedback loops or localized peer support, lower-performing students in the control cohort increasingly disengaged from mass drills, resulting in heightened task avoidance and an accumulation of off-task behaviors due to mounting performance anxiety.

Comparative Literature Integration

The quantitative evidence extracted from this investigation confirms that delegating structured evaluative roles to student dyads yields a superior trajectory for early motor development compared to traditional macro-group instructor hierarchies. This outcome directly expands the empirical paradigm validated by (Krstić et al., 2025), whose foundational PEER model established that collaborative problem-solving and technical competency development are accelerated when peer-to-peer instructional scaffolding is intentionally structured rather than left organic. While the PEER model was initially conceptualized to address high school collaborative literacy, this study proves its adaptability to primary education, showing that the cognitive and behavioral mechanisms of peer scaffolding operate effectively even during early childhood motor development windows.

A critical contribution of this study lies in its documentation of the symmetry of benefits within the heterogeneous dyads. Because the pairings linked a technically advanced student with a developing classmate, a vital question was whether both members gained equivalent advantages. The data confirmed that benefits were mutually distributed. Looking deeper into this dynamic, while the lower-performing novice gained direct motor improvements via immediate physical scaffolding, the more advanced student experienced significant, unexpected technical gains as well.

This mutual advancement is directly explained by the "double participation loop" discovered in our analysis. By placing the advanced student in the role of an evaluator, they were forced to cognitively analyze and break down the biomechanics of their partner's movement before transferring that data onto a checklist. This dual engagement loop requires the student to process the motor skill conceptually even while at physical rest. This active processing effectively doubles the student's technical training time during the instructional period. Evaluating another person acts as a form of mental practice that sharpens the evaluator's own internal blueprint of movement mechanics, demonstrating that peer-based training is a highly efficient strategy for both members of a learning dyad.

Furthermore, these findings align with the instructional insights presented by (Pramasari et al., 2025), who identified structured peer supervision networks as a core strategy for modern instructional design and competency optimization in primary environments. By shifting the primary diagnostic burden away from a single instructor, the educational unit experiences a substantial increase in individual corrective feedback frequency; however, this distribution may dilute the precision of feedback required to stabilize early motor pathways. This structural optimization parallels peer-mediated successes documented in highly technical fields outside of childhood movement education, such as medical peer coaching networks (Bell et al., 2025), localized micro learning peer configurations in corporate human resource pipelines (Vegliante et al., 2025), and structured peer networks deployed to anchor behavioral modifications in specialized learning environments (Wehr, 2025).

The significant reduction in child movement anxiety observed in this study also supports previous youth development literature highlighting the psychological benefits of structured peer networks (Chow et al., 2025; Cooper et al., 2024; Shi et al., 2025). When an individual child receives corrective cues from an age-matched classmate using clear visual criteria, the psychological distance of the correction is lowered. This shields the child's emotional safety, increases task persistence, and prevents the premature dropouts often caused by public correction within top-down, command-style teacher structures.

A primary challenge in deploying young, novice evaluators within physical education frameworks is preventing the reinforcement or propagation of movement errors. Without strict guardrails, early childhood dyads run the risk of practicing and validating incorrect motor habits. This study successfully mitigated this risk through the systematic implementation of the evaluative literacy protocols introduced during Week 2. By dedicating an entire instructional micro-cycle to calibration, the educator successfully translated complex biomechanical principles into simplified, child-accessible visual checklists using explicit graphic cues (e.g., directional arrows and color-coded impact zones). This targeted literacy training decoupled the evaluation process from subjective child intuition, anchoring it instead to concrete, observable physical milestones. The teacher's role then shifted to moving between dyads to monitor procedural fidelity, ensuring that the visual checklists functioned as reliable instructional tools. This structured calibration protocol successfully turned young learners into high-fidelity feedback sources, neutralizing error propagation while preserving the ecological validity of the peer-mediated classroom.

Theoretical Grounding and Explanatory Frameworks

The mechanical and behavioral success of the peer-based training strategy can be explained by two complementary developmental constructs: Vygotsky's Zone of Proximal Development (ZPD) and Bandura's Social Cognitive Theory.

Under the teacher-centric command model, the structural gap between the adult instructor's biomechanical mastery and the child's rudimentary execution is often too wide, which can complicate the child's accurate cognitive processing of a movement. By contrast, the peer-dyad structure operationalizes the ZPD directly within the physical education context. When Partner A observes Partner B perform a movement, this physical replication occurs within an immediate peer context. Through close scaffolding provided by an age-matched peer who has recently crossed that exact developmental threshold, the child transitions from a tentative physical attempt to an autonomous, muscle-memory-stabilized pattern.

Simultaneously, the intervention leverages the power of vicarious experience, as outlined in Social Cognitive Theory. According to Bandura, self-efficacy is heavily influenced by observing similar models achieve task mastery. When an elementary student observes a peer navigate a complex motor pathway—such as stabilizing a balance sequence or completing a targeted manipulative strike—the observed action functions as a high-fidelity cognitive mirror. This observation helps reduce movement anxiety, clarify spatial awareness, and provide an internal blueprint of movement mechanics.

Conclusions

While this investigation provides robust empirical evidence regarding the efficacy of structured peer-based training, several crucial limitations must be explicitly highlighted. Methodologically, the study utilized a quasi-experimental design with intact classroom clusters rather than true individual randomization, which introduces the potential for unobserved cluster-level confounding variables. Geographically and socioeconomically, the sample cohort was exclusively drawn from a specific public school matrix within an urban Indonesian environment. Although the statistical outcomes are highly robust (ηp^2 = .28 for manipulative control), any direct generalization of these results to highly disparate socioeconomic contexts, private educational systems, or Western cultural settings must be approached with caution. Technically, the most significant limitation of this research is the absolute lack of long-term retention data. Because data extraction concluded immediately at the end of the eight-week intervention cycle, it is impossible to guarantee the permanent stabilization of these physical motor improvements or verify their ultimate resistance to kinetic regression over time.

Theoretically, this research advances child development literature by empirically extending the practical reach of Vygotsky's Zone of Proximal Development and Bandura's Social Cognitive Theory directly into primary physical education. The study demonstrates that age-matched, asymmetric learning dyads can provide an effective scaffolding network that lowers developmental distance and accelerates the retention of physical skills. Crucially, the data reveals that acting as a peer evaluator fosters deep cognitive engagement, effectively demonstrating that verbalizing mechanics and analyzing movement patterns serves as an efficient cognitive pathway for motor mastery.

Practically, these outcomes provide primary school administrators and curriculum designers with a clear, scalable strategy for delivering differentiated instruction without increasing staffing demands. By shifting from a conventional, top-down teacher-command model to an explicit dyad-centered structure, schools can significantly increase the frequency of individual feedback and movement repetitions per lesson. This structural adjustment directly supports student physical literacy while building an emotionally safe environment that minimizes physical anxiety and fosters collaborative, prosocial habits at an early age.

References

Barahona, E., Padrón, Y. N., & Waxman, H. C. (2023). Classroom observations of a cross-age peer tutoring mathematics program in elementary and middle schools. *European Journal of Science and Mathematics Education*. https://doi.org/https://doi.org/10.30935/scimath/12983

Bell, A. E., Meyer, H. S., Maggio, L. A., & Anderson, L. N. (2025). Five ways to get a grip by incorporating trust into the design and implementation of peer coaching programs. *Canadian Journal of Medical Education Journal*. https://doi.org/https://doi.org/10.36834/cmej.79872

Chow, D., Matungwa, D. J., Blackwood, E. R., Pronyk, P., & Dow, D. (2025). A scoping review on peer-led interventions to improve youth mental health in low-and middle-income countries. *Cambridge Prisms: Global Mental Health*. https://doi.org/https://doi.org/10.1017/gmh.2024.149

Chung, Y. C., & Douglas, K. H. (2023). The exploration of a low-intensity paraprofessional-delivered peer training in inclusive high school classrooms. *Focus on Autism and Other Developmental Disabilities*. https://doi.org/10.1177/10883576221137906

Cooper, R. E., Saunders, K. R. K., Greenburgh, A., Shah, P., Appleton, R., Machin, K., & Jeynes, T. (2024). The effectiveness, implementation, and experiences of peer support approaches for mental health: A systematic umbrella review. In *BMC medicine*. Springer. https://doi.org/10.1186/s12916-024-03260-y

Fernandes, S., Araújo, A. M., Miguel, I., & Abelha, M. (2023). Teacher professional development in higher education: The impact of pedagogical training perceived by teachers. In *Education Sciences*. mdpi.com. https://www.mdpi.com/2227-7102/13/3/309

Klein, R., Benden, D., Schier, A., Stotko, D., & Lauermann, F. (2026). From Answer Engines to Learning Partners: A Dual-ZPD Design Framework for AI-Supported Learning. *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems, CHI '26*, 1–16. https://doi.org/10.1145/3772318.3791476

Krstić, K., Nikitović, T., Altaras, A., Marjanović, Z. J., Jošić, S., Videnović, M., Zdravković, K. M., Rajić, M., Ilić, I. S., Babić, D. P., Ivanović, J., & Baucal, A. (2025). Toward an evidence-based framework for training students' collaborative problem-solving skills: Introducing and testing the PEER model. *Journal of Educational Psychology*. https://doi.org/https://doi.org/10.1037/edu0000950

Lin, L. S., & Xiang, S. Z. (2025). Research on Strategies for Resolving Peer Conflict in Children's Autonomous Play. *Journal of Humanities and Education Development*. https://www.neliti.com/publications/632497/research-on-strategies-for-resolving-peer-conflict-in-children-s-autonomous-play

Newman, S., & Latifi, A. (2021). Vygotsky, education, and teacher education. *Journal of Education for Teaching*, *47*(1), 4–17. https://doi.org/10.1080/02607476.2020.1831375

Pramasari, R., Ismanto, B., Satyawati, S. T., Young, J. S., & Hida, E. U. (2025). Development of Peer-Based Academic Supervision Model in Increase Skills Teaching The 21st Century in Elementary Schools. *Jurnal Kependidikan*. https://doi.org/https://doi.org/10.33394/jk.v11i1.14834

Shi, Y., Cheng, Q., Wei, Y., Liang, Y., & Zhu, K. (2025). Effects of peer and teacher support on students' creative thinking: Emotional intelligence as a mediator and emotion regulation strategy as a moderator. In *Journal of Intelligence*. mdpi.com. https://doi.org/10.3390/jintelligence13050053

Vegliante, R., Miranda, S., Marzano, A., & Luongo, R. (2025). An Integrated Model For Professional Training: Microlearning And Peer-Feedback For Skills Development In The Corporate. *ICERI2025 Proceedings*. https://doi.org/10.21125/iceri.2025.0638

Wehr, E. (2025). *Implementing Peer-Mediated Support Interventions for Children Diagnosed With Autism*. scholarworks.uni.edu. https://scholarworks.uni.edu/hpt/1005/

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