

Research Article

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Increasing Independent and Active Learning through the Peer Lesson Strategy

Mintasih Indriayu 

Abstract

Background/purpose. Higher education necessitates learner autonomy and active participation for deep engagement in learning. However, significant challenges limited classroom involvement and low student learning autonomy. Infrequent peer discussion further hinders knowledge retention and conceptual mastery. Many lecturers dominate learning in class; these issues constrain independent learning and participation in learning development. This study, therefore, investigates peer lesson strategies to enhance student learning independence and activity.

Materials/methods. The study used Classroom Action Research (CAR), involving 67 active students, and comprised two cycles. Each cycle followed the four standard CAR stages: planning, implementation, observation, and reflection. The initial cycle employed a traditional lecture-based teaching approach, while the second cycle implemented the peer lesson strategy.

Results. In Cycle I, lecture-based instruction, achievement remained below the benchmark, with independent learning indicators 26.87%–41.79% (explorative and creative, responsibility in learning, trying new things, focus on learning material) and active learning 34.33%–41.79% (visual engagement, verbal participation, active listening, note-taking and summarizing). With Cycle II, all indicators increased significantly due to the Peer Lesson Strategy, with independent learning 80.6%–86.57% and active learning 80.6%–88.06%, thus confirming the PLS effectiveness in promoting autonomy and active participation.

Conclusion. The Peer Lesson Strategy (PLS) contributes to independent learning by enhancing creativity, responsibility, initiative, and focus, while fostering learning through participation, attentive listening, note-taking, and summarizing. In this context, PLS applies an educational practice that is centered on the learner's autonomy and participation in the learning process during the lesson.

1. Introduction

In higher education, encouraging learner autonomy is vital for sparking sustained, in-depth engagement with academic material. Students should do more than sit in lectures and jot down notes; they must take part in lively discussions, testing ideas, and working with peers to sharpen their understanding through critical questioning and shared exploration (Draper & Fisher, 2020; Fox & Docherty, 2019).

Nevertheless, a spate of recent investigations has drawn attention to troubling trends. First, numerous college students take part in class learning only half-heartedly (Gebeyehu & Regasa, 2016; Konopka et al., 2015; Metzger & Langley, 2020; Mundt & Hänze, 2023). It is common to observe passive habits, such as being present in lecture hall seats yet failing to raise questions or share ideas. Second, student autonomy in learning remains low; students consistently rely on others (Bundela Gupta & Gupta, 2023; Hermawan et al., 2024). Third, peer-to-peer discussions about course material occur rarely, and this limitation blocks long-term memory and deep understanding (Chou & Lin, 2015; Preszler, 2009).

Within Indonesian universities, teacher-centred lecturing still dominates, a reality that keeps many learners on the sidelines and slows the cultivation of self-directed study skills. Research shows that such conventional approaches harm both grades and levels of active involvement (Bahar et al., 2020; Namira et al., 2023).

To counter these shortcomings, the present study trials the Peer Lesson Strategy (PLS), a cooperative framework in which students work in structured teams, lead brief sessions, and discuss tasks with one another. This approach seeks not only to broaden students' grasp of course material but also to encourage them to take an active role in their own learning (M. Silberman, 1996). Evidence from earlier studies shows that peer-teaching formats can raise achievement (Erni Yuliati, 2020; Nuralam & Juslinda, 2019), classroom involvement (Isaleha et al., 2021; Suketi, 2019), and foster vital interpersonal skills (Maharani et al., 2018).

Many higher education institutions are still dominated by lecture-based practices, which tend to deprive students of opportunities to practice autonomy and sustained participation. Addressing this issue calls for learner-constructivist practice frameworks for problem-centric skill acquisition. This study explores these peer lesson strategies to increase student independence and activity during instructional periods. How can Peer Lesson Study increase students' autonomy and engagement during higher education learning?

2. Literature Review

2.1. Peer Lesson Strategy (PLS)

The Peer Lesson Strategy (PLS) is an instructional model based on Vygotsky's Sociocultural Theory (1978), Piagetian constructivism (Saravanan & Murphy, 2023), and cognitive apprenticeship (Collins et al., 2018). Under this approach, students typically organize in groups to plan and teach lessons to their peers. As a result of this strategy, they assume the dual role of learners and knowledge facilitators. This encourages them to systematically integrate subject matter synthesis with appropriate pedagogical development and reflective teaching.

Unlike traditional lecture formats, where college students are treated as passive information receptacles (Wing-yi Cheng et al., 2008), PLS offers students opportunities for active engagement with their peers, fostering more lively interaction. When college students participate in peer teaching, the learning experience becomes interactive, and student driven. This approach incites dialogue as well as critical and collaborative thinking, which deepens understanding while building community and ownership of the learning process (Bovill, 2020; Dwijayanti & Pathoni, 2016; Rianita, 2022).

Studies substantiate the claims made that PLS helps improve the engagement as well as the independent learning of a college student in different educational contexts. Students' involvement with their lessons motivates them to think critically, enhances intrinsic motivation, and fosters a sense of accountability. Serving as peer instructors requires college students to plan, conduct research, organize, and present the required material. This process promotes autonomy, self-regulation, and metacognitive awareness, which are essential traits of lifelong learners (Blaschke, 2012; Panadero et al., 2015). Having students take on the role of instructor enables them to own their learning actively during lesson preparation and delivery, which enables deep engagement and critical thinking.

The implementation model proposed by Zaini (2009) suggests assigning college students into small groups, each tasked with teaching an interrelated lecture material collectively. These groups must learn their assigned topic independently and prepare to teach it to their peers, where they can employ various creative instructional techniques, unlike traditional lecturing. Students are given ample time both inside and outside the classroom for preparation. In the instructional phase, each group presents their topic to the class, which allows for peer teaching. After all presentations are completed, the instructor integrates the main ideas and clears up any misconceptions to ensure that learners have achieved a holistic understanding. To improve the effectiveness of PLS, it is suggested that PLS be supplemented with visual aids and relevant teaching media, real-life examples, and active components like discussion, games, and quizzes. Also, a question-and-answer session during or after the presentation aids in fostering active engagement while helping to deepen understanding of concepts.

The PLS model aligns with Vygotsky, theory of social constructivism, particularly the concept of the Zone of Proximal Development (ZPD), wherein learners progress through social interaction with more knowledgeable peers. Peer instruction has been widely recognized in the literature as a pedagogical strategy that promotes higher-order thinking, collaborative learning, and metacognitive development (Boud & Cohen, 2014; Mazur, 2014; Topping, 2005).

2.2. Independent Learning

Learning is an evolving process during which a person acquires new insights and knowledge that often results in behavioral modification (Hergenhahn & Olson, 2012). This journey can occur at any time and in any place due to the interaction of the learner with their environment. Effective learning, therefore, necessitates independence, which is essential for the development of both skills and character.

Independent learning fosters initiative among students, allowing them to achieve their learning goals without instructor dependence (Sari & Zamroni, 2019; Tanjung, 2019). It is a self-managed endeavor where learners plan, monitor, and evaluate their activities. In this case, teaching aids facilitate rather than control understanding. Instruction designed to promote autonomy helps foster cognitive and emotional abilities as well as reflective thinking processes associated with learning (Meyer et al., 2008; Nuris & Istyaningputri, 2021; Sarsekeyeva et al., 2019). As espoused by Knowles (1975), independent learning is self-directed but collectively undertaken with guidance from instructors, mentors, tutors, or peers while learners take full responsibility for progress. The introduction of andragogy is important because it transitions from considering students as mere consumers of information to recognizing their engagement in the learning process. It focuses more on the learner and their experience, defining teaching as a guiding and not commanding task. Also, Kozma et al. (1978) make a difference between independent learning systems and individual learning systems. Independent learning systems grant learners the ability to create experiences based on their personal objectives, available resources, and other relevant factors. Individual learning systems tend to be more hierarchical in nature where teachers or policymakers set goals, materials, activities, and

everything else for the learners to follow passively. Both independent learning and pedagogy provide distinctive advantages. The method itself promotes confidence, self-efficacy and a host of other attributes essential for lifelong learning (Candy, 1991). Students engaged in independent learning interactions among students are reported to be more constructive, with improved attention during social interactions within collaborative and peer-assisted activities (Blaschke, 2012). The Independent learning strategies suggests implementing a peer lesson strategy as an effective tactic to augment independent learning. When college students are tasked with teaching their peers, they are compelled to take full ownership of their learning. This process requires them to organize, articulate, and communicate their understanding clearly, which in turn promotes deeper cognitive engagement and strengthens self-regulation skills. These experiences align with the well-established principle that teaching others reinforces one's own learning and autonomy (Lowe et al., 2023; Roy & Swargiary, 2024).

Although peer learning is effective in promoting independent learning, there are some identifiable issues. Debbané et al. (2023) indicate that college students may struggle due to differing levels of preparedness or confidence, which can hinder the effectiveness of peer-led sessions. According to Kgwehane and Masimega (2023), it is essential to note that without sufficient instructional support, the demands of peer teaching can burden students and hinder their learning skills. Thus, the effectiveness of PLS hinges upon comprehensive scaffolding, thorough prep, sustained program support for teacher-students, and ongoing evaluation.

Independent forms of learning can be encouraged effectively in contexts beyond peer learning interactions. The ability to manage one's learning through self-directed plans, digital tools, or reflective activities is enhanced by self-regulation as well as intrinsic motivation and metacognition. Zimmerman's (2015) research emphasizes importance of self-regulating learning, in which students set goals, monitor progress, and independently adjust their strategies. According to Van der Spoel et al. (2020), assert that customized digital frameworks for study foster independence by granting students control over the timing, order and content of instruction made available to them.

2.3. Active Learning

The concept of active learning, derived from the works of Jean Piaget and Lev Vygotsky, views learning as an experience where students synthesize information through participatory interaction with the content, defining it as a social and mental initiative rather than simply listening to a lecture (Saravanan & Murphy, 2023). Constructivist strategies problem solving, discussion, and even peer instruction which foster independent critical thinking, have also been found effective on deeper understanding (Amaefuna & Ezeliora, 2021; Bashir, 2020; Deng, 2025; Maynes & Straub, 2024). There is research evidence regarding the efficacy of engagement, comprehension as well as performance enhancement with peer lesson strategies. For instance, first-year mathematics students reported better assessment outcomes using peer reasoning (Vozzo et al., 2024), while (Y. Zhang & Wang, 2024) reported increased participation in courses alongside a more profound understanding of peer lesson hardware courses. Through participating in online engineering courses, other students showed positive results with peer instructional team-based learning (Harvie et al., 2024).

Nonetheless, some research offers more critical or nuanced views. Fakoya et al. (2023) remarked that peer lesson strategy poses active learning benefits, however, it has some challenges like time limitations and instructor flexibility. As Knight et al. (2013) illustrates, peer instruction does not always promote higher academic achievement in the absence of well-designed questions and supportive classroom culture. These findings imply that although peer lesson strategy has great potential in propelling active learning, its impact will vary depending on the context in which it is applied and requires careful consideration.

Along these lines, Paul D. Dietrich puts forward eight categories of learning activities which reveal engagement from diverse angles: visual (reading, interpreting visuals), oral (speaking, presenting, questioning), listening (lectures, discussions), writing (essays, notes), drawing (graphs, diagrams), motor (experiments, model-making), mental (problem-solving, analysis), and emotional (affective responses such as curiosity or anxiety)(Prince, 2004). These all can enhance understanding of learner participation goes beyond attending class adding multiple levels to teaching requires more than one way to instruct students.

3. Methodology

3.1. Research Design

This research aimed to enhance the overall teaching and learning processes in the classroom through a Classroom Action Research (CAR) approach. CAR is a form of systematic reflection concerning practical teaching issues: it fosters autonomous learning, student engagement, and enhances educational (Elliot, 1993; Hopkins, 2014; Kemmis et al., 2014; McNiff, 2013). The research design was based on CAR as proposed by (Arikunto, 2021), which consists of four steps: Planning, Action, Observation and Reflection.

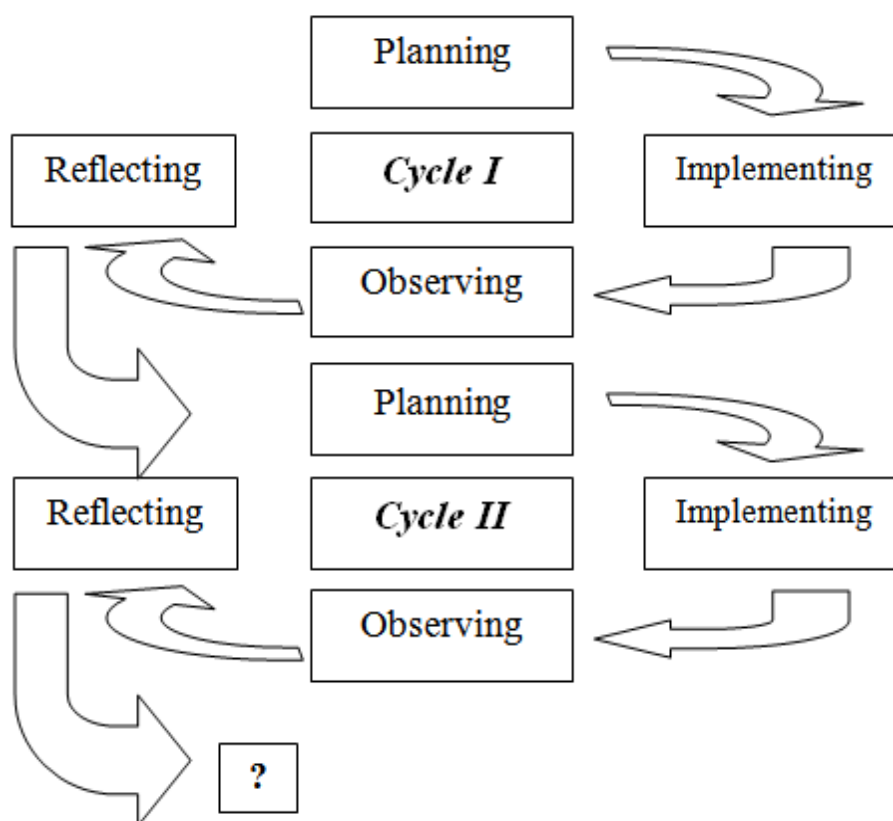


Figure 1. Model of Classroom Action Research

3.2. Cycle Steps

a. Planning

In this phase, the lecturer designed a comprehensive instructional outline that included learning objectives, teaching methods, materials, and assessment tools.

b. Action

The lesson plan was executed in class. The lecturer taught the class using strategy of learning along with appropriate teaching aids.

c. Observation

During class observations, pupil actions, progress, and difficulties encountered were documented.

d. Reflection

After conducting observations, the lecturer analyzed the results of the observation to evaluate what worked and what needed improvement. Such reflections are instrumental in guiding subsequent action cycles.

This research undertakes two cycles to achieve the set learning objectives. In the first cycle, instruction was still dominated by a lecture-based model, which positioned students as passive recipients of knowledge. As a result, fewer than 75 percent of students had not yet reached satisfactory levels of independence and active participation. This indicates that the success criteria were not met. In response to this, the second cycle incorporated the Peer Lesson Strategy (PLS) where students took the roles of peer instructors, facilitated discussions, and participated in group work. This approach greatly enhanced learning, with majority of students meeting the anticipated targets for independent and active learning.

3.3. Participants

The sample of this study consisted of 67 students enrolled in the Economics Education Program at Sebelas Maret University, comprising 28 males and 39 females. The students were drawn from a class that displayed very low independent learning skills and low engagement in the classroom. The following are criteria. 1. The participant must be a sophomore in the active status of the Economics Education Program. 2. The participant must have an attendance of at least 75%. 3. The participant must be willing to assist in implementing the peer teaching sessions. 4. The participant must have no record of formal teaching training. Despite these challenges, most students had a GPA above 3.0.

3.4. Data Collection

Data were collected through two main instruments to systematically capture students' behaviors and performance during the peer lesson activities.

a. Observation Form (Checklist and Rubric)

A structured observation form was designed to document independent and active learning indicators. Each indicator was assessed using a 4-level rating scale (Very Good, Good, Fair, Poor). Independent learning indicators included exploration, creativity, responsibility, persistence, and focus on tasks, while active learning indicators consisted of visual engagement, verbal participation, active listening, note-taking, and summarizing. This instrument enabled the researcher to transform classroom observations into quantifiable data for analysis.

b. Peer Lesson Performance Rubric

A performance rubric was employed to evaluate students' effectiveness as peer teachers. The rubric covered criteria such as preparation quality, clarity of explanation, ability to engage peers, interaction management, and the use of teaching aids. Scores derived from the categories (Very Good, Good, Fair, Poor) provided evidence of students' success in implementing the peer lesson strategy and offered insights into their capacity to take responsibility for the learning process. were collected through participatory observation. The researcher actively participated in classroom activities and observed student behavior across two learning cycles. The focus was on two main variables: independent learning, characterized by indicators of explorative and creative thinking, responsibility in learning, the ability to try new things, and a focus on learning material. Next variable of active learning with indicators: visual engagement, verbal participation, active listening, note-

taking, and summarizing as indicators. These indicators helped measure how well the peer lesson strategy supported active and independent learning.

4. Results

4.1. Cycle 1

For this phase, the instructional approach selected was the lecture method, which comprises an explanation and a dialogue through questions with students. The steps undertaken in this first cycle are detailed as follows:

a. Planning of Activities

During the lecture method type scenario design phase, the following elements were incorporated within the framework of learning goals construction: 1) The lecturer successfully covered course material using structured lectures. 2) Students were given opportunities to ask questions and discuss content that had been unclear to them. 3) At the end of each session, key points were summarized by the lecturer for every course material presented. 4) Formative evaluations were administered to measure understanding of the material presented.

b. Implementation of Planned Actions

At this stage, teaching activities began. Students were taught using learning scenarios prepared in advance, where lessons were delivered through PowerPoint presentations aided by LCD projectors. Each session included allocated time for interactive question-and-answer activities to encourage student engagement.

c. Observation

To ensure that the instructional process was executed according to plan and to establish its effectiveness, observations were carried out using a structured observation sheet prepared during the planning stage. Using this tool, the researchers were able to document college students' independent learning as well as their participation during the class sessions.

e. Reflection

After completing Cycle 1, observational data collection followed with an analysis and evaluation phase to determine if strategies in learning within this cycle were effective. Results showed that there are attempts to achieve the goals set for fostering learning independence and engagement, which, from classroom observations, did not seem successful. Specifically, less than 75% of students demonstrated less satisfactory performance in independent learning, and a similar proportion fell short in terms of active participation. These results indicate that a traditional lecture-based structure is likely to impede both autonomy and engagement among learners. Detailed findings pertaining to different facets of student learning independence are given in the next section.

Table 1. Assessing Students' Independent Learning in Cycle 1

Elements of Independent Learning	Very Good	Good	Fair	Poor
• Explorative and creative	16.42%	19.40%	34.33%	29.85%
• Responsibility in learning	11.94%	14.93%	40.30%	32.84%
• Ability to try new things	10.45%	20.90%	32.84%	35.82%
• Focus on Learning Material	19.40%	22.39%	38.81%	19.40%

The outcomes of Cycle 1 suggest that the students' independent learning skills remained under the required benchmark of 75 percent. In detail, the combined average score for explorative and creative abilities was merely 35.82%. Responsibility in learning accounted for 26.87%, trying new things earned 31.35%, and focusing on learning material outperformed all other components at 41.79%. These results highlight the need for teaching strategies that support greater independence in college students' self-directed learning.

Table 2. Measurement of Students' Activity of Learning on Cycle 1

Aspects of Active Learning	Very Good	Good	Fair	Poor
• Visual Engagement	13.42%	22.39%	34.33%	29.85%
• Verbal Participation	17.91%	17.91%	31.34%	32.84%
• Active Listening	13.43%	20.90%	37.31%	28.36%
• Note-taking and Summarizing	19.40%	22.39%	34.33%	23.88%

Participants' engagement during Cycle 1 was still further off the mark. Visual engagement scored a combined total of 35.81%, while verbal participation, which includes questioning and discussion participation, registered at 35.82%. Active listening registered at 34.33% while note-taking and summarizing, which is a subset of active participation, had the highest score at 41.79%. These figures demonstrate an absence of both participation and interaction. This further illustrates the need for more effective teaching strategies designed to enhance student engagement.

f. Overall Conclusion from the Tables

These tables conclude that the lecture-centered approach used in Cycle 1 did not encourage independent or active learning. Most students remained passive, taking little initiative, responsibility, or effort. These results highlight the requirement of more pedagogically constructive strategies that are designed to be student-centered and focused on active participation. Hence, an instructional adjustment was made in Cycle II with the introduction of Peer Lesson Strategy (PLS) to improve autonomy and participation.

4.2. Implementation Of Cycle 2

Unlike Cycle 1, where purely lectures were given to students, in Cycle 2 students learned through PLS. This Shift also focused on group work, where students became presenters of assigned materials based on topics given to them beforehand. steps taken during Cycle 2 were as follows:

a. Planning Stage

In this second stage, planning is carried out with the following steps: 1) The instructor divided the class into ten groups, each containing six to seven students, for a total of sixty-seven participants. 2) Every group received a related topic from the syllabus and was asked to prepare a presentation that would teach the rest of the class. 3) Students were urged to be creative with their teaching, inventing new methods that moved away from standard lectures and focused on clear and open peer talk. 4) Observation sheets were prepared so that the lecturer could record each student's level of independence and overall engagement during the lesson. 5) Groups were given more time for discussion in order to strengthen collaboration and to create more opportunities for students to talk with one another.

b. Implementation of Action

PLS unfolded as planned. Groups presented their material using varied, student-centered techniques that creating a dynamic and participatory classroom environment

c. Observation

Throughout the presentations, observers filled out the rating sheets, noting markers such as creativity, sense of responsibility, and overall participation.

d. Reflection

A preliminary review of the recorded data showed a clear upward trend in both independent learning and active involvement during class activities. The outcomes are summarized below:

Table 3. Assessing Students' Independent Learning in Cycle 2

Independent Learning Elements	Very Good	Good	Fair	Poor
• Explorative and Creative	38.81%	41.79%	11.94%	7.46%
• Responsibility in Learning	44.78%	41.79%	7.46%	5.97%
• Ability to Try New Things	43.28%	38.81%	10.45%	7.46%
• Focus on Learning Material	46.27%	40.30%	8.96%	4.48%

The collective data indicate clear and meaningful gains in indicators of independent learning. For instance, 80.6 percent of students now fall into the very good or good categories for exploratory and creative thinking, showing deep engagement with innovative problem-solving tasks. The measure of responsibility in learning climbed as well, with 86.57 percent of learners taking a high degree of ownership over their progress. Equally, 82.09 percent expressed ability to try new thing study. Focus on learning material showed the greatest leap, as 86.57 percent received top marks-a clear sign of sharper focus and alertness in class. Together, these trends validate the peer-lesson strategy approach as an effective way to foster autonomous, engaged learners.

Table 4. Assessing Students' Active Learning in Cycle 2

Active Learning Aspects	Very Good	Good	Fair	Poor
• Visual Engagement	35.82%	44.78%	8.96%	10.45%
• Verbal Participation	40.30%	46.27%	7.46%	5.97%
• Active Listening	38.81%	43.28%	4.46%	10.45%
• Note-taking and summarizing	47.76%	40.30%	5,97%	5.97%

The observation results in Cycle II indicate a significant increase in student engagement across all aspects of active learning. In terms of visual engagement, 80.60% of students showed consistent attention to the learning process, reflecting stronger concentration during peer lesson activities. Verbal participation also improved markedly, with 86.57% actively interacting through discussions, questioning, and sharing perspectives. The dimension of active listening reached 82.09%, signifying that majority of students were attentive and responsive to their peers' explanations. The most remarkable progress was recorded in notetaking and summarizing, with 88.06% of students effectively capturing and organizing essential ideas presented in class.

5. Discussion

The findings of Cycle 2 confirm that the Peer Lesson Strategy (PLS) effectively improves independent learning across four indicators. Firstly, the peer lesson atmosphere fostered both explorative and creative learning because students attempted to invent and prepare games, videos, and other creative ways to teach their colleagues, and they actively tried to teach. This follows Vygotsky (1978) sociocultural theory on learning, which puts emphasis on the importance of dialogue on one's development, and is also supported by peer lesson studies which state that peer lessons positively aid in critical and creative thinking in psychologically safe environments (Laal & Ghodsi, 2012; van Leeuwen & Janssen, 2019). Creativity was particularly evident when learners combined goal-orientation with autonomy, confirming earlier findings that hands-on, student-centered activities enhance creative thinking (Beghetto & Kaufman, 2014; Heldanita, 2019; Hidayati & Sarumaha, 2024). Also, a peer teaching session encouraged students to take responsibility for their learning. In the student's role as a teacher, they created lessons and materials, asked questions, and ensured their peers would grasp the content. This fostered independent learning by developing the capacity for accountability and self-regulation (Zimmerman, 2002). Furthermore, there is existing research demonstrating that peer teaching fosters autonomy, professional competence, and self-efficacy (Dewantono & Murtisari, 2023; Peets et al., 2009).

Furthermore, PLS enhanced students' ability to try new things, particularly through the use of different teaching tools, as well as digital and varied teaching methods. The need to create engaging peer lessons stimulated and nurtured curiosity and exploration, essential components of independent and active learning (Prince, 2004). Through providing safe spaces to experiment, peer lessons encouraged autonomy and creative problem-solving (Silberman, 1996; Stigmar, 2016). Finally, students' focus on learning material increased as they assumed dual roles as teachers and learners, requiring thorough preparation, critical engagement, and participation in debates. This not only enhanced mastery and retention (Gillies, 2016), but also illustrated the impact of peer lesson on attention and ownership in learning, which empowered learners to set milestones and devise self-determined, actionable plans to reach those milestones and strategies (Njoku & Nwagbo, 2020; Pechinthorn et al., 2020; Shrivastava et al., 2023). Altogether, these results validate the conclusion that the Peer Lesson Strategy fosters autonomy, engagement, and independent learning by nurturing self-determined, creative, responsible, and focused learning.

The Peer Lesson Strategy (PLS) augments active learning in multiple ways. Visual engagement attention is gained during peer teaching with the use of diagrams, color coding, and other relevant materials, leading to better understanding, retention, and motivation (Fiorella & Mayer, 2015; Mayer, 2017). This is in agreement with the multimodal learning theory which claims that the incorporation of verbal and visual components is more effective (Moreno & Mayer, 2007). Moreover, PLS fosters verbal participation by engaging students in 'teacher' and 'learner' roles. This motivates them to talk, to express and exchange ideas, and to ask questions, resulting in a more interactive and relaxed classroom. Prior research confirms peer teaching enhances participation and verbal confidence, especially in mathematics (Vozzo et al., 2024), language learning (Chen & Lin, 2021), and health education (H. Zhang et al., 2022). PLS improves active listening since students participate more due to the roles they assume, which aids attention, information processing, and participation. These outcomes are consistent with other literature that supports peer teaching improves communication and responsibility skills (Gillies, 2016; Topping, 2005). Lastly, PLS positively influences the skills of summarizing and note-taking. Focus enhances as students gear up to "teach" their peers. Attention is focused, and notes taken are systematic and precise. More importantly, students exhibit mastery of the material, perform better on standardized and unit tests, and show improved academic standing overall (Crouch & Mazur, 2001; Topping, 2005b; Vickrey et al., 2015).

5.1. Study Contribution and Implications

This study contributes to the growing body of literature by showing how the Peer Lesson Strategy (PLS) improves both independent and active learning in a variety of ways, integrating the comprehensive approach that previous studies have overlooked by focusing on the more disparate facets of the learning process. Using Vygotsky's sociocultural theory along with the theory of multimodal learning, the study advances understanding of the creative, autonomous, responsible, and engaged roles that learners actively and willingly assume in peer-supported learning environments. More importantly, the findings have adapted the concept of peer teaching for Indonesian higher education, demonstrating its use not only for enhancing academic achievement, but for developing critically important skills of the twenty-first century, which include: thinking, communication, collaboration, and learning throughout one's life. These findings argue that PLS has the potential to act as an instructional framework for higher education institutions that aim to promote learning and teaching for active and student-centered education. At the same time, the impact of the study is not limited to the region, as its findings can be applied to address other issues in education around the world.

6. Conclusion

The findings from the current study revealed the extent to which the Peer Lesson Strategy (PLS) promotes active and independent learning among students. Four specific aspects of independent learning were clearly visible. Firstly, students demonstrated creativity by designing learning games and videos and developing learning resources to assist peers and facilitate learning. This type of creativity demonstrated the ability to generate knowledge autonomously. Secondly, students' ownership of learning increased as they prepared, taught, and ensured mastery of the lesson content to their peers. Thirdly, increased student engagement and motivation were demonstrated when learners actively used different teaching skills and materials to involve students. Fourthly, students could concentrate and focus on learning materials, especially during the teacher and learner interaction, more than ever. This was evidenced by the mastery of content to be learnt, the preparation required, and the focus needed to endure the learning activities actively.

In PLS, certain aspects of active learning occurred simultaneously. Students created diagrams and color-coded notes, which enhanced visual learning and the construction of significant learning outcomes. Students' verbal participation increased as they assumed dual-role responsibilities, which encouraged them to ask, contribute, and discuss with their peers. In addition, active listening improved as students attended, processed, and responded to peer-led lessons taught in class. Students also learned advanced note-taking techniques. Their notes were shorter and more structured, and the material was better understood and remembered.

In short, the results support the effectiveness of the Peer Lesson Strategy in reinforcing independent and dependent learned indicators, including creativity, exploration, and learning responsibility, trying new things, and concentrating on the taught material, as well as active visual and verbal participation, listening, summarizing, and note-taking. These outcomes and behaviors combined show the effectiveness of the Peer Lesson Strategy as a learner-centered approach in which students gain more autonomy and deeper involvement in classroom activities.

7. Suggestion

Future researchers may look-into different important aspects apart from independent and active learning while implementing PLS. They can investigate the impact of the strategy on students' collaboration, problem-solving, and communication abilities. According to various studies, this technique not only enhances learners' self-efficacy and learning motivation but also improves their capacity to monitor their learning process (metacognitive awareness). Focusing on these variables

will enable us to obtain a complete picture of how peer lesson contributes to student development in various aspects.

Peer Lesson Strategy is one of the techniques that pre-service teachers are trained in and encouraged to employ during their Teaching Practicum. They exercise learner autonomy, creativity, and classroom management, though autonomy-supportive approaches still predominate. The PLS is likely to foster further comfort around learner-centered techniques. Early targeting of this skill helps them professionally practice as reflective and innovative educators.

For practicing teachers, using PLS is integrated into the daily teaching schedule to promote learner independence, engagement, and collaboration. PLS works best when integrated into multiple lesson plans, allowing learners to master the technique and its application with various learners. PLS is considered one of the frameworks in professional development training, focusing on learner-centered teaching and PLS, so teachers gain the necessary training to practice learner-centered teaching.

Lecturers at the tertiary level, particularly in education departments, are urged to incorporate PLS into their instructional design. Adopting this strategy enhances the degree of engagement and learning and models exemplary teaching practices for student teachers. Support in the form of institutional policies, workshops, and materials is required to enable teachers to apply PLS practices thoroughly and consistently over time.

8. Research Limitations

This study has several limitations. First, it was carried out with a certain sample and one educational context, which might be a reason to constrain the generalizability of the study. Second, the study's limited duration meant that it was not possible to analyze the long-term impact of PLS on student learning. Lastly, the issues regarding the preparedness of the teachers, the available time, and the institutional support have not yet been investigated in depth. However, these variables might influence the sustainability of PLS in practice.

Declarations

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Conflicts of Interest. The authors declare no conflict of interest.

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Ethical Approval and Data Availability Statement. The Institutional Review Board reviewed and approved all steps for collecting and storing data, classifying the work as an exempt study meant only for program improvement. To protect privacy, we stripped away any identifiers that could link responses back to individual participants.

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