

THE EFFECTIVENESS OF IMPLEMENTING THE DISCOVERY LEARNING MODEL ON STUDENT'S ACTIVE PARTICIPATION IN INDONESIAN LANGUAGE LEARNING

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Abstract

This study aims to examine students' active participation in Indonesian language learning, the implementation of the discovery learning model, and its effectiveness in encouraging active participation among fifth-grade students at SD Negeri 5 Mattiropole, Lalabata Subdistrict, Soppeng Regency. This study employs a quantitative approach with a single-group pretest-posttest experimental design, utilizing data collection techniques such as observation and questionnaires. The study population consisted of 41 fourth- and fifth-grade students, with a sample of 15 fifth-grade students selected through random sampling. The results showed that the level of implementation of the model increased from 80% to 93.3%, and eventually reached 100% in the third session. Students' active participation increased gradually from the "less active" category (40.8%) to "moderately active" (49.8%), and finally to "very active" (92.2%), accompanied by an improvement in learning outcomes from 26% to 53.3%, ultimately reaching 100% mastery. The t-test for samples showed a significant value of 0.000 (<0.05), proving a significant difference between the pretest and posttest. It was concluded that the implementation of the discovery learning model effectively increased students' active participation in Indonesian language learning at SD Negeri 5 Mattiropole.

Keywords: Discovery Learning; Active Student Participation; Indonesian Language Learning

INTRODUCTION

Education in Indonesia is designed to actively develop students' potential so that they can think critically, creatively, and independently. However, in practice, learning in elementary schools is still often dominated by conventional, teacher-centered methods, resulting in students tending to be passive—even in Indonesian language classes, which require active engagement in communication, thinking, and self-expression (Fitri et al.,

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2023). This situation contradicts the policy direction of the Ministry of Education and Culture (2017), which explicitly recommends the discovery learning model as one of the student-centered learning strategies to encourage active engagement in the learning process. Low student engagement in Indonesian language learning is one of the main factors leading to suboptimal learning outcomes, partly due to the limited use of learning models that encourage students to discover and understand concepts independently (Lubis & Hermawan, 2025). Student engagement has also been shown to influence improved learning outcomes because students are directly involved in the process of understanding the material (Mariah et al., 2023).

Conceptually, active student participation can be understood through the framework of student engagement, which encompasses three main dimensions: behavioral engagement, cognitive engagement, and emotional engagement in the learning process (Fredricks et al., 2016). These three dimensions are interrelated and determine the extent to which students are fully engaged in learning activities, rather than merely being physically present in the classroom (Kahu & Nelson, 2018). In the context of Indonesian language learning, behavioral engagement is evident in students' willingness to ask questions and participate in discussions; cognitive engagement is reflected in their ability to understand and analyze the material; and emotional engagement is evident in students' enthusiasm and dedication to the learning process. Low levels of active student participation can be interpreted as a weakness in one or all three of these dimensions of engagement, thus necessitating a learning model capable of activating all three simultaneously.

Observations conducted during fieldwork at SD Negeri 5 Mattiropole in Lalabata Subdistrict, Soppeng Regency—specifically in fifth-grade classes—show that students' active participation in Indonesian language learning remains low. Students rarely ask questions, are not very active in discussions, and only a small fraction dare to express their opinions; the majority of students prefer to remain silent even though the teacher has provided opportunities to ask questions or respond to their classmates' questions. Learning outcome data show that only about 60% of students achieved the minimum passing score (75), while the other 40% did not meet the standard. This situation indicates a direct correlation between low active participation and student learning outcomes. These findings are consistent with research showing that the implementation of the discovery learning model can significantly increase student engagement (Imran et al., 2023).

Active participation in Indonesian language learning holds a unique position compared to other subjects, as language proficiency is fundamentally productive in nature and can only develop through direct practice—such as speaking, asking questions, responding, and expressing ideas both orally and in writing. Students who are passive in Indonesian language learning not only miss the opportunity to understand the material but also miss the opportunity to practice language skills themselves; thus, the impact of low active participation in this subject tends to be more complex than in

subjects that are more receptive in nature. It is this situation that underscores the importance of selecting instructional models specifically designed to elicit active student engagement, rather than merely delivering material in a one-way manner.

Previous research by Fitri et al. (2023) showed that discovery learning can improve student learning outcomes in Indonesian language instruction, while Jewarut et al. (2024) concluded that this model is effective in increasing student activity and engagement. However, these studies generally focused on learning outcomes and have not specifically examined the effectiveness of discovery learning on students' active participation in Indonesian language learning, particularly by analyzing the three dimensions of engagement separately. Differences in student characteristics and learning environment conditions can lead to varying results; therefore, this study is important to provide a more specific picture of the relationship between the implementation of discovery learning and active student participation at the elementary school level, particularly in Indonesian language instruction, which requires direct communicative involvement from students.

This phenomenon of low active participation is not merely a local issue at Mattiropole Public Elementary School No. 5; rather, it reflects a broader pattern in Indonesian language instruction across various elementary schools. Therefore, the findings of this study are expected to contribute to a broader discourse on strategies for increasing student engagement at the elementary education level.

Based on the above discussion, this study aims to (1) examine students' active participation in Indonesian language learning, (2) examine the implementation of the discovery learning model, and (3) examine the effectiveness of the discovery learning model in fostering active participation among fifth-grade students at SD Negeri 5 Mattiropole in Lalabata Subdistrict, Soppeng Regency. The results of this study are expected to provide a theoretical contribution to the development of research on the active participation of elementary school students, while also providing a practical contribution to teachers in selecting and implementing learning models capable of optimally encouraging student engagement in Indonesian language learning.

Based on the above discussion, this study was conducted with the hypothesis that there is a significant difference between students' levels of active participation before and after the implementation of the discovery learning model in Indonesian language instruction (H_1), with (H_0) stating that there is no significant difference between the two. This hypothesis was then statistically tested using a paired samples t-test after the pretest and posttest data on students' active participation were collected.

RESEARCH METHOD

This study employed a quantitative approach using an experimental design in the form of a one-group pretest–posttest design, which compares students' active participation before (O_1) and after (O_2) the intervention (X)—specifically, the

implementation of the discovery learning model (Sugiyono, 2019). This design was chosen because the study was conducted on a single group of subjects without a control group; thus, the effectiveness of the treatment was measured by comparing students' active participation scores before and after the intervention. The treatment—the implementation of the discovery learning model—was conducted over three sessions, with each session following the six stages of the discovery learning syntax: stimulation, problem statement, data collection, data processing, verification, and generalization.

The study population consisted of 41 fourth- and fifth-grade students at Mattiropole Public Elementary School No. 5 in Lalabata Subdistrict, Soppeng Regency, during the 2025/2026 school year. The research sample was determined using random sampling, comprising 15 fifth-grade students (7 boys and 8 girls), selected so that every member of the population had an equal chance of being chosen, thereby ensuring the sample was representative. The selection of fifth grade as the research subject was based on the consideration that students at this level have entered the concrete operational stage according to cognitive development theory, making them psychologically ready to actively engage in the process of concept discovery through the discovery learning model. A sample size of 15 students was also deemed adequate for a single-group, class-scale experimental design, given that this study is a case study of a single class.

Data collection was conducted using two techniques: observation and a questionnaire. Observation was used to directly observe the implementation of the discovery learning model and the level of students' active participation during three sessions (Arikunto, 2018), using an observation sheet that included the six syntactic stages of discovery learning as indicators of the model's implementation. Meanwhile, a Likert-scale questionnaire (1–5) was used to measure students' active participation before and after the intervention based on five indicators: (1) confidence in asking questions, (2) ability to answer or respond to questions, (3) involvement in group discussions, (4) participation in reading or presentations, and (5) diligence in completing assignments. Each indicator was broken down into several items that reflected students' concrete behaviors during the learning process, so that the total questionnaire score could illustrate the overall level of students' active participation. The questionnaire was administered at two measurement points: before the intervention (pretest) and after three intervention sessions (posttest).

Before use, the instrument was tested for validity and reliability. The validity test was conducted through expert judgment to ensure that the questionnaire's content aligned with the measured indicators of active participation, followed by an item validity test using the product-moment correlation technique. The instrument's reliability was assessed using Cronbach's alpha to ensure the questionnaire's internal consistency. The instrument was deemed valid and reliable after meeting the established criteria, making it suitable for collecting research data.

Data analysis was conducted in two stages. First, descriptive statistical analysis was used to calculate the percentage of model implementation and the level of active student

participation using the percentage formula (Arikunto, 2018), which was categorized into five levels: very good (81–100%), good (61–80%), fair (41–60%), poor (21–40%), and very poor (0–20%). The same categories were also used to classify the level of students' active participation into five categories: very active, active, fairly active, less active, and very less active. Second, inferential statistical analysis used a paired samples t-test with the aid of SPSS version 26 to test the hypotheses, preceded by prerequisite tests in the form of a normality test (Shapiro-Wilk) and a homogeneity test (Levene's test). The paired-samples t-test was chosen because the pretest and posttest data came from the same subjects, making it appropriate for testing differences in mean scores before and after the intervention.

RESULT AND DISCUSSION

Findings

Student Active Participation and Learning Outcomes

The results of the observations showed a gradual increase in students' active participation over the course of three sessions, which also had an impact on their learning outcomes. During the first session, most students still appeared passive; they tended to remain silent when given the opportunity to ask questions, rarely responded to the teacher's explanations, and were not yet accustomed to working together in groups because discovery learning was a new experience for them. This situation was reflected in the active participation category, which remained at the "less active" level (40.8%), with learning achievement reaching only 26%.

By the second session, students began to show the courage to ask questions and engage in group discussions, although not all students were participating equally. Teachers also became more skilled at guiding students through the problem statement and data collection stages, so that students became more accustomed to exploring problems independently before discussing them with their groups. This improvement was reflected in the "active participation" category, which rose to "fairly active" (49.8%), accompanied by an increase in learning achievement to 53.3%.

By the third session, student participation had increased significantly, reaching the "very active" category (92.2%). Nearly all students were confident enough to ask questions, actively participate in discussions, and present their group work in front of the class. Students also appeared more committed to completing both individual and group assignments. This increase in active participation aligns with a 100% learning achievement rate, indicating that all students scored above the minimum passing grade.

Table 1. Increased Active Participation and Student Learning Outcomes

Session	Active Participation	Category	Average Score	Learning Achievement
I	40.8%	Not very active	66.00	26%
II	49.8%	Moderately active	76.53	53.33%

II	92.2%	Very active	86.93	100%
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Source: *Research findings, 2026*

The data in Table 1 show that an increase in students' active participation correlates with an increase in learning achievement, from 26% in the first session to 100% in the third session. The consistent upward trend in both of these variables indicates that active participation not only leads to a more lively classroom atmosphere but also contributes directly to students' learning outcomes.

Based on the five indicators of active participation measured through the questionnaire—namely, the willingness to ask questions, the ability to answer or respond to questions, involvement in group discussions, participation in reading or presentations, and diligence in completing assignments—all indicators showed a consistent upward trend from the first session to the third session. The indicators of confidence in asking questions and involvement in group discussions showed the most noticeable qualitative changes, as in the first session only a small portion of students were active, whereas in the third session nearly all students were actively involved in both aspects. The indicator of diligence in completing assignments also increased as students' confidence in their ability to find answers to the given problems on their own grew.

Implementation of the Discovery Learning Model

The implementation of the discovery learning model is observed through six stages: stimulation, problem statement, data collection, data processing, verification, and generalization.

Table 2. Implementation of the Discovery Learning Model

Session	Implementation Percentage	Category
I	80%	Good
II	93.3%	Very good
II	100%	Very good

Source: *Observation sheet on the implementation of the discovery learning model, 2026*

The implementation was not yet optimal during the first session because the teacher was still adjusting the learning flow and time management, particularly during the data collection and data processing stages, which took longer because the students were not yet accustomed to working independently in groups. In the second session, the teacher was more skilled at allocating time for each stage, resulting in an increase in implementation to 93.3%. In the third session, all stages were carried out according to the lesson plan, from providing the stimulus at the beginning of the lesson to the students being able to draw conclusions independently during the generalization stage.

The above description can also be examined further through the meaning of each observed stage of the discovery learning syntax. The stimulation stage serves to spark students' curiosity at the beginning of the learning process, for example, through trigger questions or the presentation of contextual Indonesian reading texts; in the first session, this stage was not yet fully successful in eliciting student responses, but in subsequent sessions, it began to effectively arouse students' curiosity. The problem statement stage

guides students in formulating questions or problems related to the text or material presented; this stage showed the most noticeable progress, as students' confidence in formulating questions increased significantly from the first session to the third.

The data collection and data processing stages require students to gather information independently or in groups, then process it into preliminary conclusions; these two stages initially require intensive guidance from the teacher, but students gradually become more independent in collaborating and sharing tasks within their groups. The verification stage provides an opportunity for students to present their findings and receive feedback from peers and teachers, thereby building their confidence in presenting their work in front of the class. The generalization stage marks the culmination of the entire process, during which students are trained to draw general conclusions from their verified findings—a higher-order thinking skill that, by the third session, students were able to perform independently with minimal guidance from the teacher.

Overall, the relationship between Table 1, Table 2, and Table 4 reveals a mutually reinforcing pattern: the higher the percentage of discovery learning syntax implementation in a session, the higher the level of active student participation and learning outcomes in that session. This pattern reinforces the assumption that the successful implementation of a learning model is inextricably linked to the teacher's consistency in fully carrying out each stage of the model's syntax, and that the quality of the learning process (model implementation) is directly proportional to the quality of the outcomes (students' active participation and learning achievements).

Prerequisite Tests and Hypothesis Tests

The Shapiro-Wilk normality test yielded significance values of 0.194 (pretest) and 0.998 (posttest), while Levene's test for homogeneity yielded values of 0.189 (pretest) and 0.800 (posttest). Both values are greater than 0.05, indicating that the data are normally distributed and homogeneous, thus meeting the requirements for a paired samples t-test.

Table 3. Results of the Paired Samples t-Test

Pairs	Mean	Standard Deviation	T	Df	Sig (2- tailed)
Pretest- Posttest	-47,067	21,625	-8,430	14	0,000

Source: IBM SPSS Version 26 output, 2026

A significance value of 0.000 (< 0.05) indicates a significant difference between students' active participation scores before and after the implementation of the discovery learning model; therefore, H_0 is rejected and H_1 is accepted. The mean value of -47.067 indicates a consistent direction of difference, namely that the posttest scores are higher than the pretest scores, suggesting that a significant increase in students' active participation occurred after the implementation of the discovery learning model and was not due to chance.

Table 4. Classification of Student Active Participation

Pretest	Category	Posttest
2 (13.33%)	Very active (81 % - 100%)	15 %
2 (13.33%)	Active (61% -80%)	0
3 (20%)	Moderately active (41% - 60%)	0
3 (20%)	Less active (21% -40%)	0
5 (33.33%)	Very inactive ($\leq$ 20%)	0

Before the intervention, student active participation was spread across various categories, with 33.33% of students falling into the “very inactive” category and only 13.33% falling into the “very active” category. This distribution indicates that before the implementation of discovery learning, student participation levels in the classroom tended to be heterogeneous and were dominated by students with low engagement. After the implementation of the discovery learning model, all students (100%) fell into the “very active” category, indicating that this model not only increased the overall average level of active participation but also succeeded in bringing students who were previously in the low-engagement category to actively participate in learning.

Summary of Findings

In summary, the findings of this study can be summarized through the interrelationship of the four tables presented. Tables 1 and 2 together show that the increase in the implementation of the discovery learning model from 80% to 100% went hand in hand with an increase in students’ active participation from the “less active” category (40.8%) to “very active” (92.2%), followed by an increase in learning achievement from 26% to 100%. Table 3 provides statistical evidence confirming that these differences are not coincidental, with a t-value of -8.430 at 14 degrees of freedom (df) and a p-value of 0.000. This relatively large t-value in absolute terms indicates that the difference in means between the pretest and posttest scores is substantial relative to the data’s variability, thereby reinforcing the confidence that the observed changes are a genuine effect of the treatment administered, rather than mere random fluctuations among individuals.

Table 4 complements this picture by showing that the improvement occurred not only at the group average but also across the board at the individual level: all 15 students, who were previously spread across five categories of active participation, were all classified as “very active” after the intervention. The consistency among these four tables provides stronger support for the conclusion that the implementation of the discovery learning model effectively increased the active participation of fifth-grade students at SD Negeri 5 Mattiropole in Indonesian language learning, as seen in terms of the learning process, learning outcomes, and changes at the individual student level.

These changes at the individual level are also worth further examination. Before the intervention, there were five students (33.33%) in the “very inactive” category—a group of students who, in practice, often receive special attention from teachers due to their tendency to remain completely unengaged in the learning process. After three

sessions of discovery learning, all students in this group moved into the “very active” category along with their peers. This change indicates that a discovery-based learning structure—which places students in small groups and assigns concrete roles at each stage of the learning process—is capable of creating a more equitable space for participation compared to conventional learning, which tends to be dominated by students who are already active from the start.

The findings above—both quantitative (percentages, categories, and statistical test results) and qualitative (descriptions of student behavior during each session)—collectively provide a comprehensive picture of how the process of increasing students’ active participation unfolds over time, thereby answering not only “whether” discovery learning is effective but also “how” that effectiveness manifests in the classroom.

Analysis and Discussion

The increase in the implementation rate of the discovery learning model from 80% to 100% indicates that teachers are becoming more consistent in applying each stage of the learning process, from providing stimuli to drawing conclusions. According to Bruner’s theory, discovery learning allows students to construct their own knowledge, thereby making learning more meaningful (Novita & Irawati, 2018). This finding also reinforces the constructivist view that knowledge is actively constructed by students through direct experience, rather than passively received from the teacher (Azzahra et al., 2025). This approach encourages students to be more active because they not only receive information from the teacher but also participate in independently seeking, processing, and drawing conclusions from information—a learning pattern that is also relevant to the demands of active learning in today’s digital age (Habibi et al., 2025).

The shift in student participation from “less active” to “highly active” demonstrates that discovery learning effectively fosters student-centered learning. During the problem statement phase, students are encouraged to ask questions, thereby boosting their confidence to inquire; in the data collection and processing phases, they engage in group discussions and collaboration; the verification phase involves interpreting discussion outcomes and articulating peers’ viewpoints; and the generalization phase trains students to draw conclusions independently. Viewed through the student engagement framework (Fredricks et al., 2016), these stages simultaneously activate the behavioral engagement dimension (through questioning and interaction), the cognitive engagement dimension (through data processing and verification), and the emotional engagement dimension (through the confidence gained while documenting work). This simultaneous activation of all three engagement dimensions explains why the increase in active participation is comprehensive rather than limited to a single aspect (Kahu & Nelson, 2018). Each of these instructional stages contributes directly to enhancing indicators of active student participation, aligning with the view that active engagement encompasses behavioral, cognitive, and emotional dimensions (Pipit, 2024) and is closely linked to improved student concentration, motivation, and memory (Merla et al., 2025).

The results of the paired-samples t-test, with a significance level of 0.000 (< 0.05), statistically reinforce these findings, proving that the increase in students' active participation was not a coincidence but rather a tangible effect of implementing the discovery learning model. This finding is consistent with the results of the study by Rahmat et al. (2021), which showed that discovery learning fosters active student learning through independent discovery and inquiry, as well as the studies by Sugiyatmi et al. (2024) and Jewarut et al. (2024), which concluded that this model consistently enhances student engagement, understanding, and enthusiasm in Indonesian language learning. The finding regarding the shift of all students to the "very active" category in Table 4 also expands upon previous research findings, which generally reported an increase in average student engagement without examining in detail the shift in the distribution of students across categories.

These findings also provide empirical evidence supporting the policy direction of the Ministry of Education and Culture (2017), which recommends discovery learning as one of the student-centered learning models. The consistency between policy recommendations and empirical evidence in the field indicates that this model is not merely a normative suggestion but a strategy that elementary school teachers can effectively implement to address the issue of low student engagement, even with limited resources at outlying schools such as SD Negeri 5 Mattiropole.

From the perspective of teachers' professional development, the finding that the model's implementation during the first session reached only 80% indicates a learning curve for teachers in adopting new instructional models. This underscores the importance of ongoing training and mentoring for elementary school teachers in implementing innovative learning models, as suboptimal mastery of the model's syntax in the early stages has the potential to hinder the model's effectiveness in enhancing students' active participation. Such mentoring is particularly relevant for teachers in areas with limited access to ongoing professional development.

Furthermore, the shift of all students toward the "very active" category after three sessions also indicates that discovery learning has the potential to be an effective strategy for reducing the participation gap between students who were initially very passive and those who were already active from the start. Before the intervention, one-third of the students were in the "very inactive" category; however, after the intervention, no students remained in the "low" category. These findings provide preliminary evidence that discovery learning is not only effective on average but also inclusive in reaching students with varying initial levels of participation, although this conclusion still needs to be further tested on a larger and more diverse sample.

In practical terms, these findings indicate that the implementation of discovery learning transforms Indonesian language instruction from a teacher-centered approach to one that actively engages students in asking questions, answering, discussing, presenting their work, and completing tasks independently, thereby also having a positive impact on students' achievement of learning mastery. Another practical implication of these findings

is the importance of teachers allowing time for adjustment during the initial sessions, given that the implementation of the model in the first session was not yet optimal (80%) before eventually reaching the “very good” category in subsequent sessions. Teachers need to ensure that each stage of the process is carried out in its entirety, as the success of one stage influences the smooth progression of the next.

Compared to the study by Imran et al. (2023), which also examined student engagement in Indonesian language learning through discovery learning, this study offers additional insights by analyzing changes in the distribution of students across participation categories, rather than merely changes in group average scores. This nuance is important because teachers in the field often need more information about how learning models affect students with varying levels of engagement, rather than simply knowing that the average class engagement has increased. Thus, the findings of this study can serve as an additional reference for teachers in designing lessons that not only increase student engagement overall but also reach students who have tended to be passive in class.

This study is not without a number of limitations. The one-group pretest-posttest design without a control group cannot fully eliminate the possibility of external variables, such as the maturation effect or students’ familiarity with the researcher, influencing the results during the learning process. The limited sample size—restricted to a single class—also limits the generalizability of the findings to other school contexts with different student characteristics. Therefore, future research is recommended to use an experimental design with a control group and to expand the sample scope to include several elementary schools, so that the effectiveness of discovery learning on students’ active participation can be tested more comprehensively.

Overall, the findings of this study confirm that the effectiveness of a learning model cannot be separated from three interrelated factors: teachers’ adherence to the model’s syntax in its entirety, the model’s alignment with students’ cognitive developmental characteristics, and the consistent application of the model over a sufficient period of time to establish new learning habits.

CONCLUSION

Based on the research findings, it can be concluded that: (1) the active participation of fifth-grade students at SD Negeri 5 Mattiropole improved from the “less active” category to the “very active” category after the implementation of the discovery learning model; (2) the implementation of the discovery learning model improved from the “good” category (80%) to “very good” (100%) over the course of three sessions; and (3) the discovery learning model is effective in promoting students’ active participation in Indonesian language learning, as evidenced by a significance value of 0.000 (< 0.05) in the paired-samples t-test. These findings reinforce the conceptual foundation that student-centered learning encourages active engagement in learning, while also serving as a basis for teachers to consider adopting the discovery learning model as an alternative strategy for teaching Indonesian in elementary schools.

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