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Analysis of the Lecture Method in Junior High School Science Learning on Students' Learning Motivation

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A B S T R ACT

This study was conducted to analyze how the lecture method in science learning at the junior high school level can affect several important aspects of the student learning process such as students' interest and enthusiasm for the lecture method, as well as how this method has an impact on students' focus and concentration during learning. This study also evaluates the level of students understanding of material delivered trough the lecture method, so that it can measure its effectiveness and participation in learning as an important indicator of overall student engagement. This study uses a quantitative descriptive research method. Data collection was carried out by providing instruments in the form of response questionnaires to all students. The subjects in this study are grade VIII students of SMPN 1 Kamal, Bangkalan Regency with a total of 32 students. The results of the study showed that the lecture method received a positive response to the indicators of student motivation and enthusiasm for learning with a score percentage of 75%. The indicator of student interest in the material taught was categorized as less positive with a score percentage of 67%. Indicators of student focus and concentration during learning were categorized as less positive with a score percentage of 68%. The indicator of understanding of the material presented was categorized as less positive with a score percentage of 66%. The indicators of student activity and participation during learning were categorized as less positive with a score percentage of 68%.

1. INTRODUCTION

Science learning at the junior high school level is expected to promote active student engagement through inquiry-based and student-centered approaches, including experimentation, collaborative discussion, and problem-solving activities (Anthony et al., 2021; Colosimo, 2025; Firdaus & Nurohman, 2025; Firdaus, 2025; Gomez, 2025). Such approaches are widely recognized as essential for fostering meaningful learning experiences, as they facilitate the development of higher-order thinking skills, including critical and creative thinking, while simultaneously enhancing students' intrinsic motivation. Active engagement in learning processes enables students to construct conceptual understanding more effectively and supports deeper cognitive processing (Rambe et al., 2024). In line with this perspective, Azka et al. (2020) demonstrated that the implementation of innovative instructional methods, particularly experimental approaches, significantly improves both students' learning motivation and academic achievement compared to conventional teacher-centered strategies, such as lecture-based instruction.

Despite the growing emphasis on student-centered learning, conventional methods particularly the lecture method remain widely implemented across various subjects and are often considered effective in certain educational contexts. The lecture method allows for

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structured and systematic content delivery, enabling teachers to efficiently communicate core concepts while maintaining classroom control. Empirical evidence suggests that this method can positively influence students' learning motivation and academic outcomes. For instance, W & Sulastri (2021) reported that lecture and dialog-based approaches significantly enhance students' motivation in Islamic Religious Education. Similarly, Sugianto (2020) found that the integration of lecture methods with assignments contributes to improved academic achievement in mathematics, while Adisel et al. (2022) highlighted its effectiveness in enhancing conceptual understanding and learning outcomes in social studies.

However, the applicability and effectiveness of the lecture method in science education remain contentious. Science as a discipline inherently requires experiential learning, inquiry processes, and hands-on activities to facilitate conceptual understanding and scientific literacy. The reliance on lecture-based instruction may limit opportunities for active engagement, exploration, and knowledge construction, which are critical components of effective science learning. Existing studies predominantly examine the effectiveness of lecture methods in non-science subjects, leaving a significant gap in understanding how this method performs within the context of science education, particularly at the junior high school level.

Furthermore, prior research tends to focus primarily on learning outcomes and motivation, with limited attention to other critical dimensions of the learning process, such as students' interest, engagement, focus, and participation during instruction. These aspects are essential indicators of meaningful learning and are closely linked to students' cognitive and affective development. The lack of comprehensive investigation into these variables highlights a clear research gap that warrants further exploration.

Therefore, this study aims to critically examine the effectiveness of the lecture method in junior high school science learning by analyzing its impact on multiple dimensions of student learning, including interest, enthusiasm, focus, concentration, conceptual understanding, and active participation. By adopting a more holistic perspective, this study seeks to provide empirical evidence regarding the suitability of lecture-based instruction in science education contexts. The novelty of this study lies in its comprehensive evaluation of the lecture method within science learning, integrating both cognitive and affective dimensions of student engagement, which have been insufficiently addressed in previous studies. The findings are expected to contribute to the existing body of knowledge by offering nuanced insights into instructional effectiveness and by providing practical guidance for educators in selecting appropriate teaching strategies to enhance student motivation and engagement in science classrooms.

2. METHOD

2.1 Research Design

This study employed a quantitative descriptive research design to systematically examine and characterize the observed phenomena using numerical data. Quantitative descriptive research is particularly appropriate for identifying patterns, trends, and distributions within a dataset without manipulating variables or establishing causal relationships. This approach enables researchers to provide an objective and structured representation of empirical data through statistical analysis.

According to Sudirman et al. (2023), quantitative descriptive research is used to describe, explain, and summarize data in the form of numerical or statistical representations, thereby facilitating a clearer understanding of data characteristics and supporting the identification of patterns within the sample. In this study, the design was selected to capture students' responses and learning-related variables in a measurable and analyzable form, ensuring that the findings accurately reflect the actual conditions of the learning process under investigation.

Furthermore, this design allows for the systematic analysis of multiple indicators, such as students' interest, motivation, focus, and participation, providing a comprehensive overview of the effectiveness of the instructional method being examined. By utilizing

statistical procedures, the study ensures the reliability and objectivity of the findings while maintaining alignment with the research objectives.

2.2 Research Subjects

The subjects of this study consisted of 32 eighth-grade students enrolled at SMPN 1 Kamal, Bangkalan Regency, Indonesia, who participated in science learning implemented through the lecture method. The selection of participants was based on a purposive sampling technique, considering that the class had been exposed to lecture-based instruction in science learning, making it relevant to the objectives of this study.

The participants represented a typical junior high school classroom context, allowing the study to capture authentic learning conditions. All students were actively involved in the learning process during the data collection period, ensuring that the data reflected their actual experiences with the instructional method. This sample size is considered adequate for descriptive quantitative analysis, as the study focuses on identifying patterns and tendencies in students' responses rather than generalizing findings to a broader population. Therefore, the selected subjects provide meaningful insights into the implementation and effectiveness of the lecture method in junior high school science learning.

2.3 Procedure and Data Collection Instruments

The procedure in this study consisted of three stages, namely: (1) the preparation stage, which included instrument development; (2) the implementation stage, in which the instrument that had been consulted with experts was used. The finalized instrument was then applied to collect data by distributing a response questionnaire to all students; (3) and the evaluation stage, in which the results of the questionnaire were analyzed, described, and used to illustrate the level of student responses.

The instrument used was a closed-ended student response questionnaire using a Likert scale with four assessment criteria, namely SS (Strongly Agree), S (Agree), and STS (Strongly Disagree). The student response questionnaire consisted of 25 statements, with 14 positive statements and 11 negative statements, and covered five indicators, namely: (1) interest in the material being taught; (2) focus and concentration during learning; (3) understanding of the material presented; (4) activeness and participation in learning; (5) motivation and learning enthusiasm.

Table 1. Questionnaire Assessment Criteria

Category	Positive Statements	Negative Statements
SS (Strongly Agree)	4	1
S (Agree)	3	2
TS (Disagree)	2	3
STS (Strongly Disagree)	1	4

2.4 Data Analysis Technique

The data obtained were analyzed using quantitative descriptive methods with the following formula:

$$RS = \frac{Score\ obtained}{Maximum\ score} \times 100\%$$

The results of the student response questionnaire are categorized based on the following criteria: if the student response (RS) ≥ 85%, then the response to the method is categorized as very positive; if 70% ≤ RS < 85%, it is categorized as positive; if 50% ≤ RS < 70%, it is categorized as less positive; and if RS ≤ 50%, it is categorized as not positive.

Table 2. Student Respont Category

Persentase	Category
RS ≥ 85%	Very Positive
70% ≤ RS < 85%	Positive
50% ≤ RS < 70%	Less Positive
RS ≤ 50%	Not Positive

3. RESULTS AND DISCUSSION

The results of the study indicate that the use of the lecture method in science learning at SMPN 1 Kamal has varied effects on students' learning motivation. The results of the student response questionnaire analysis can be seen in Table 3.

Table 3. Results of Student Response Questionnaire Analysis

No.	Indicator	%Score (P)	Score Category
1.	Interest in the material being taught	67%	Less Positive
2.	Focus and concentration during learning	68%	Less Positive
3.	Understanding of the material presented	66%	Less Positive
4.	Activeness and participation in learning	68%	Less Positive
5.	Learning motivation and enthusiasm	75%	Positive
	Total	69%	Less Positive

3.1 Students' Interest and Understanding

Table 3 shows that the indicator of students' interest in the material being taught is categorized as less positive with a percentage score of 67%. These results indicate the low attractiveness of the lecture method in science learning. In addition, the indicator of understanding of the material presented also falls into the less positive category with a percentage score of 66%. This shows that the lecture method is less effective in helping students understand the material in depth.

These findings are not consistent with the study conducted by Aisya et al. (2023), which showed that the use of the lecture method in Sociology resulted in positive outcomes, with students' understanding categorized as very high. The high level of understanding was influenced by clear material delivery, proper intonation, and the higher cognitive level of high school students. In addition, differences in subject matter also serve as a distinguishing factor, as science learning requires scientific processes and problem-solving skills that cannot be achieved solely through the lecture method, but need to be supported by direct practice to make learning more meaningful.

This finding is further supported by recent global evidence indicating that science learning requires the integration of diverse learning styles, conceptual engagement, and active instructional strategies to enhance students' understanding and interest. The 4MAT instructional model, for instance, emphasizes the importance of aligning teaching strategies with students' cognitive processes and learning preferences, which has been shown to improve conceptual understanding and engagement in science education contexts (Firdaus et al., 2025)

3.2 Students' Focus, Concentration, Activeness, and Participation

The indicator of students' focus and concentration during learning is categorized as less positive with a percentage score of 68%. The low level of focus is likely caused by the passive nature of the lecture method, which tends to be less engaging for students. As a result,

students are easily distracted and find it difficult to maintain concentration during the learning process.

These results are not in line with the study by Mufidah (2023), which showed that interactive lecture methods can improve students' concentration. This is due to the presence of interactions such as question-and-answer sessions and discussions that keep students engaged in the learning process. Based on interviews with teachers, the low concentration observed in this study is caused by students' boredom during the learning process.

For the indicator of activeness and participation, a percentage score of 68% was obtained, which falls into the less positive category. This indicates that the lecture method is less capable of encouraging active student involvement, such as asking questions or expressing opinions. These findings contradict the study by Rikawati & Sitinjak (2020), which states that interactive lecture methods can increase student participation through question-and-answer activities and discussions. This difference may be due to the lack of interaction and the minimal role of teachers in motivating students, for example through ice breaking, games, or triggering questions.

3.3 Learning Motivation and Instructional Implications

The indicator of learning motivation and enthusiasm is categorized as positive with a percentage score of 75%. This shows that the lecture method is still able to encourage students' learning enthusiasm. These findings are consistent with the study by W & Sulastri (2021), which states that the lecture method has a positive effect on students' learning motivation. This motivation is likely influenced by the structured and easy-to-understand delivery of the material.

However, overall, the questionnaire results indicate that the lecture method is less effective across most indicators. This method tends to be one-way, making students less active and easily bored (Sulandari, 2020). In science learning, the use of the lecture method without being supported by practical activities causes students to have difficulty understanding the material in depth. Therefore, more varied and interactive learning approaches are needed, such as discussions, question-and-answer sessions, or project-based learning (Nisa'i et al., 2022).

Innovative methods such as practicum, Project Based Learning (PjBL), and Problem Based Learning (PBL) can be solutions to improve students' motivation and learning outcomes. Practicum methods have been proven to improve learning achievement by providing direct experience to students (Sulfiyah & Cahyaningsih, 2021). In addition, PjBL can enhance learning effectiveness through the application of concepts in real life (A et al., 2025), while PBL helps students develop critical thinking skills through contextual problem-solving (Rifai, 2020). Thus, it can be concluded that the use of innovative learning methods that emphasize active student involvement can improve motivation, understanding, and learning outcomes in science education.

4. CONCLUSION

This method received a positive response in terms of students' learning motivation and enthusiasm, as evidenced by a student response score of 75%, which falls into the positive category. However, this study also reveals less positive impacts in several important aspects. Students showed a lack of interest in the material being taught, which has implications for their low focus and concentration during the learning process. In addition, students' understanding of the material delivered through the lecture method tends to be limited, which contributes to the low level of activeness and participation in learning. These findings indicate that although the lecture method can generally motivate students and is effective for other subjects, it is less effective in promoting deep student engagement with learning material in junior high school science.

Based on the results of this study, it is recommended that teachers combine the lecture method with more interactive learning approaches. These approaches include Problem Based Learning (PBL), experiments, or Project Based Learning (PjBL). This is intended to increase students' interest in the material, maximize their focus and concentration during learning, and deepen their understanding of the concepts being taught.

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