

Analysis Of Science Learning Problems At SMPN 1 Suwawa Timur

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Abstract

This study aims to thoroughly analyze the problems encountered in the Natural Science (IPA) learning process at SMPN 1 Suwawa Timur, considering the 21st-century curriculum demands that require the development of students' scientific attitudes and skills through direct experience. This research employs a descriptive qualitative approach, where data was collected through a closed questionnaire administered to 32 students of class IX A and in-depth interviews with the IPA subject teacher. The analysis results identified two major interconnected issues: (1) low student motivation and scientific attitude, and (2) sub-optimal utilization of school facilities and infrastructure. The low student learning motivation was confirmed by the teacher as a crucial obstacle, which ironically occurs despite the school having complete laboratory facilities. The root problem was found in the lack of teacher knowledge and professional competence in operating and utilizing laboratory equipment for practical activities. It is concluded that the minimal implementation of practical work due to limitations in teacher competence is the main factor contributing to low student motivation and learning achievement. Therefore, this study recommends the necessity of continuously enhancing teacher competence related to laboratory facility utilization to optimize the quality of the IPA learning process in the school.

Keyword: Learning Problems, Science Learning Process, Student Motivation, Facilities and Infrastructure.

INTRODUCTION

Education is a series of essential stages that students must go through to achieve balance and develop their superior potential, both in the affective, cognitive, and psychomotor aspects. One of the main indicators in assessing the quality of education is how the learning process is

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implemented (Muliawan et al., 2022). Quality learning will have a direct impact on improving the overall quality of education. Therefore, efforts to improve the quality of learning are crucial to realizing quality education. It is impossible to achieve quality education without first creating an effective and high-quality learning process (Haka et al., 2020). The quality of learning itself is influenced by various important interrelated factors, which can generally be divided into internal and external factors (Suhendra, 2020).

Essentially, learning is the process of arranging and organizing the learning environment to encourage students to actively learn. Learning also includes providing guidance by teachers to help students overcome differences in ability to understand the material. Because learning means "change," learning can be considered the "regulation" of that process. The learning process is characterized by planned educational interactions between teachers and students through the design, implementation, and evaluation stages. This effective interaction results in optimal learning (Pane & Darwis Dasopang, 2017).

Science is a field of study that focuses on the observation and analysis of natural objects and phenomena through scientific inquiry methods, which then produce various products such as facts, concepts, principles, laws, and theories (Salsabil et al., 2024). Furthermore, science is a systematic process for formulating, developing, and organizing knowledge about natural phenomena (Nasution et al., 2024). Supported by Noviyanto et al., (2021), curiosity is an attitude and action to find out in detail about something that is not yet known, becoming students' initial capital in undergoing the scientific learning process. This drive of curiosity encourages students to investigate and understand scientific phenomena consistently and systematically.

The essence of science learning lies in its ability to develop students' thinking skills through four main components. First, the attitude aspect, namely the emergence of curiosity about objects, natural phenomena, living things, and cause-and-effect relationships that can give rise to new problems and are open to further exploration. Second, the process aspect, which includes scientific steps in problem-solving, such as formulating conjectures (hypotheses), designing and conducting experiments, conducting evaluations and measurements, and concluding the results. Third, the product aspect, which includes scientific results in the form of facts, principles, theories, and laws. Fourth, the application aspect, namely the ability to use scientific methods and science concepts in everyday life (Indrawati, 2018; Jufrida et al., 2020).

Based on the description in the introduction, it can be concluded that the quality of education is greatly influenced by the quality of the learning process that takes place in schools. In the context of science learning (IPA), success is not only determined by mastery of concepts, but also by students' ability to develop scientific attitudes, curiosity, and critical thinking skills

through direct experience. However, in practice, the science learning process at SMPN 1 Suwawa Timur still faces various problems that have the potential to hinder the achievement of 21st-century learning objectives. Therefore, an analysis of the problems in science learning is important to identify factors causing low learning effectiveness, such as student motivation, teacher competence, and utilization of infrastructure, in order to formulate solutions that can improve the quality of learning as a whole.

METHOD

This research was conducted at SMP Negeri 1 Suwawa Timur, located in Tilangobula Village, Suwawa Timur District, Bone Bolango Regency, Gorontalo Province. The study population was all ninth-grade students at SMPN 1 Suwawa Timur. The sample consisted of 32 students from class IXA.

This study employed a descriptive qualitative method. The data collection instrument used a questionnaire to identify problems faced by students in learning science. This questionnaire had six indicators: teacher competency and strategies, student motivation and attitudes, learning facilities and infrastructure, learning methods and models, the learning environment, and learning evaluation. This questionnaire was a closed-ended questionnaire with a checklist format. The measurement scale used was a four-level Likert scale: 1) very good; 2) good; 3) sufficient; and 4) low.

This study also used an interview instrument to gain a deeper understanding of the problems encountered during the science learning process at SMPN 1 Suwawa Timur. The data analysis technique used was interactive model analysis, which consists of three stages: data reduction, data presentation, and conclusion drawing.

RESULTS AND DISKUSION

Results

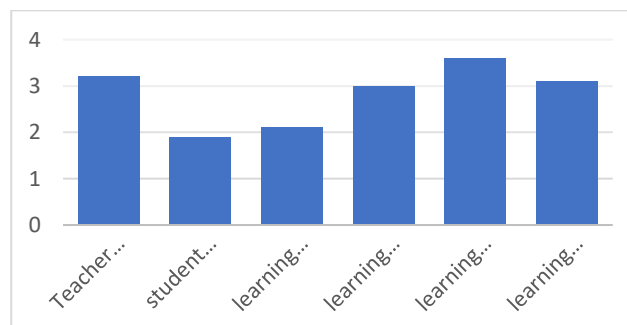


Figure 1. *Graph of Student Questionnaire Results*



Based on the student questionnaire results (Figure 1), it was found that the main problem in the science learning process was low student motivation and attitudes. Furthermore, students also rated learning facilities and infrastructure low.

These findings align with interviews with science teachers. Teachers confirmed that the main obstacle frequently encountered was a lack of student interest and motivation. This resulted in a lack of student engagement in developing scientific thinking and problem-solving skills. Regarding facilities and infrastructure, informants revealed that laboratory facilities are actually complete. However, they are not optimally utilized and are rarely used. Teachers attributed this to a lack of knowledge in using these tools, despite recognizing that their use can help students visualize abstract concepts.

DISCUSSION

This study aims to analyze the problems faced in the science learning process at SMPN 1 Suwawa Timur. Based on the research results obtained from student questionnaires and teacher interviews, two main interrelated problems were identified, namely (1) low student motivation and attitudes, and (2) less than optimal utilization of facilities and infrastructure.

The first and most significant finding was students' low motivation and attitudes toward science learning. Questionnaire data indicating a low score in this aspect was reinforced by teachers' statements that considered it a major obstacle. This problem is crucial because motivation is the primary internal driver for students to learn. Without adequate motivation, the demands of 21st-century education, which expects students to actively construct knowledge independently, are difficult to achieve. Interview results also confirmed the direct impact of this low motivation, namely a lack of student engagement in developing scientific thinking and problem-solving skills. Ideally, science learning requires creativity and high motivation to achieve mastery of scientific skills and attitudes.

The second major issue concerns facilities and infrastructure. Interview findings provide more in-depth clarification than questionnaire data. Although students perceive facilities and infrastructure as "inadequate," teachers clarified that core facilities, such as laboratories, are actually complete. The real problem lies not in availability, but rather in suboptimal utilization.

Teachers acknowledged that these facilities are rarely used due to a lack of knowledge in operating laboratory equipment. This is a significant gap, as science is essentially a discipline focused on observing and investigating natural phenomena. Scientific processes such as designing experiments and conducting measurements are at the heart of science learning. When laboratories are not properly utilized, science learning runs the risk of becoming overly





theoretical, abstract, and focused solely on memorizing concepts, far from the essence of science as a process of discovery.

These two problems are strongly suspected to influence each other. Teachers themselves recognize that utilizing resources can increase student interest and help visualize abstract concepts. It can be concluded that learning that rarely uses practical work or demonstrations contributes to low student motivation and interest. Conversely, unmotivated students make teachers less likely to implement more complex learning activities such as practical work.

This finding contrasts with a previous study at the same location by Halubangga et al., (2024), which showed that the application of innovative models such as Problem Based Learning (PBL) on Newton's Laws material proved very effective in improving student learning outcomes (high N-Gain category 0.77). The success of this study indicates that students at SMPN 1 Suwawa Timur actually have potential and respond well when faced with active and contextual learning methods. However, the findings of this study, especially related to low motivation and the non-use of laboratories due to limited teacher knowledge, indicate that these innovative learning practices may not have been implemented consistently or evenly in the daily science learning process at the school.

CONCLUSION

Based on the research results, it can be concluded that the main problems in the science learning process at SMPN 1 Suwawa Timur consist of two interrelated issues: low student motivation and attitudes and the suboptimal utilization of facilities and infrastructure. The results of the student questionnaire indicated low student motivation and attitudes, a finding confirmed by teachers as the main obstacle causing a lack of student engagement in developing scientific thinking skills. Although complete laboratory facilities are available, their utilization is not optimal and rarely used because teachers face obstacles such as a lack of knowledge in operating the equipment. This gap causes the learning to be at risk of becoming too theoretical and focused on memorization, far from the essence of science as a science that requires observation and investigation. Thus, the lack of utilization of practicums due to teachers' limited knowledge contributes to low student motivation and interest, even though students at the school have potential and respond well to active and innovative learning methods.

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