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Science Learning: An Analysis Related to Student Learning Activities in Junior High Schools

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Abstract
Learning activities are all activities carried out by students during the learning process. The study aimed to determine student learning activities in science learning in junior high school. The research used a descriptive method with a survey technique of students in class VIII of SMPN 4 Siak Hulu for the 2023/2024 academic year. The sample was selected using a simple random sampling technique of 60 people. The instrument used a valid student learning activity questionnaire comprising 15 items. The data collection technique was carried out by distributing questionnaires via Google form and analyzed descriptively. The results showed that the average student learning activity was 72.65%, which was high. The highest activity carried out by students was in the visual activity indicator, while the lowest activity was found in the emotional activity indicator. The study concluded that students in class VIII of SMPN 4 Siak Hulu have high learning activity in science learning. Further research is expected to examine the factors that influence student learning activities.

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INTRODUCTION

Education is an important process in terms of realizing desired human resource competencies. An important activity in the educational process is the implementation of teaching and learning activities in class. Improving the quality of education through a good teaching and learning activity process will impact students' understanding of what has been given by the teacher. On the other hand, a student is one of the main actors in the learning process activities who will always be required to actively process the received information during the learning process (Umairah & Zulfah, 2020).

Learning only sometimes contains a definition of the subject matter because it involves many aspects. Learning is the most studied topic in psychology, so many experts have defined this term (Houwer *et al*., 2013). Learning involves stimulus and response relationships developed through functional environment interactions through the senses (Qvortrup *et al*., 2016). Learning is a stage of change in individual behavior resulting from interaction with the environment, which includes experience and cognitive processes (Rahmayumita & Hidayati, 2023). One indicator that shows the desire of students to learn is learning activities.

In the learning process, the activity of the student which leads to the learning goal is called learning activity. Learning activities are all activities or behaviors that occur during the learning process. The interaction process (between teachers and students) to achieve learning goals can also be interpreted as learning activities. Learning activities are needed for the learning process to take place properly (Pratama *et al*., 2023). The activities referred to in this learning are asking questions, submitting opinions, doing assignments, answering questions, collaborating, and being responsible for the tasks given. An active learning situation will be formed with student activity in the learning process (Masitoh, 2019; Samsiah & Zahara, 2019).

Learning activities are activities or physical and mental activities performed by individuals to develop their knowledge and skills in learning activities. Learning activities will create effective learning. In the learning process, teachers must not only impart knowledge and skills but also actively encourage students to learn (Adi *et al*., 2022).

Direct student involvement through planned activities is a characteristic of active learning (Jayadiningrat *et al.*, 2019; Nuraini *et al.*, 2018). Activities of asking, discussing, responding, analyzing, solving problems, drawing conclusions, conducting experiments, interviews, observing, and so on are always related to students' learning lives (Besare, 2020). Optimization of learning activities can be seen in students' enthusiasm when participating in learning activities (Burhan *et al*., 2022).

Learning activities directly and indirectly affect student learning outcomes. Good learning outcomes are the goal of student education throughout the learning process. Student activity during the learning process creates an active learning situation (Masitoh, 2019). The results of observations made by Haslinda (2023) showed that most of the students were found to be less active in the learning process as students rarely asked questions to the teacher and did not pay attention to the teacher's explanations about the material presented. Students consider the material to be theoretical, so they tend to memorize the material without understanding and relating it to everyday life (Alfrida, 2019). Lack of students' active participation in the learning process affects learning outcomes (Dewi *et al*., 2019).

Good learning activities are conditions when students are active in processing and responding to information conveyed by the teacher. Students who are active in class can be seen when they carry out learning activities such as listening to other people's opinions, discussing, working on assignment reports, helping friends with difficulties, and so on. Instructional activities designed to connect student experiences to real-world problems will further shift the focus of student learning. If students realize the importance of the connection between what they learn and the real world, their motivation and learning outcome will increase (Jayadiningrat *et al.*, 2019; Nuraini *et al.*, 2018).

The learning process can run well when students are active in exploring their knowledge, while the teacher who acts as a facilitator can organize students (Fadliah, 2022). Learning activities are conducted by students (teachers and students) to achieve maximum learning outcomes. Students' learning activities can be interpreted as an effort made by students by involving thinking or emotional activities that can lead to better changes in attitudes, values, and knowledge. Proper learning activities will also impact good learning achievement (Kaleka *et al*., 2023). Learning activities at the secondary education level are in various subjects, including science (Umairah & Zulfah, 2020; Yustini *et al*., 2021).

Science learning in junior high schools is carried out in an integrated manner incorporating the scientific fields of biology, physics, and chemistry into a complex curriculum (Muttaqin *et al*., 2022; Suryana *et al*., 2023). Science learning is related to everyday life to provide meaningful experiences for students (Af'idayani *et al*., 2018; Nasution & Nasution, 2021). Natural sciences is a field of science that studies events that occur in nature, relating to living and non-living objects. (Nurdyansyah & Amalia, 2018).

Jayadiningrat *et al*. (2019) argue that some students still needed to demonstrate learning activities as expected. Students consider the science material studied theoretical. As a result, they only memorize it without understanding and relating it to everyday life. Students must be actively involved in the learning process to ensure better learning outcomes (Dewi *et al*., 2019). According to Kalsum (2020), students' learning activity is still poor, and most students are not active in learning. Many students do not pay attention to the teacher and only a few students ask or respond to questions from the teacher. The students were passive because they only listened without responding or expressing their opinions.

Science learning that has been carried out so far is still mostly teacher-oriented (teacher-centered). Learning methods that only occur in one direction lead to poor students' learning activities less (Mutmainnah *et al*., 2021). Learning management that is not yet optimal and inappropiate teachers' teaching methods have an impact on poor students' learning activities. Teachers play an important role in attracting students' attention so that students will carry out better learning activities in the learning process and outcome (Lubis, 2019).

Based on the results of observations and interviews conducted at SMPN 4 Siak Hulu, teachers tend to be active in learning science in class. It means that learning is still teacher-centered. Teachers are used to using lecture, discussion, and question-and-answer methods in learning. So, they are less varied. The study aimed to determine the activities of students specializing in science learning at SMPN 4 Siak Hulu.

RESEARCH METHOD

The study used quantitative methods. The research design used a cross-sectional survey design, namely the collection of data obtained from a sample that is carried out at one-time and does not require a long time. The research design is presented in Figure 1.

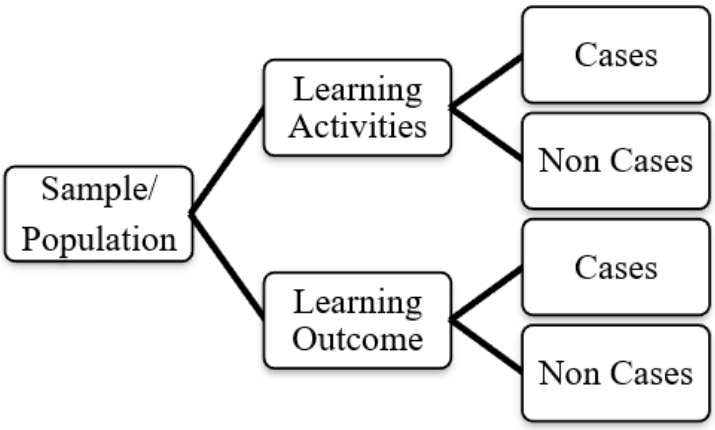

Figure 1. Cross Sectional Study Design

The data collection technique was a survey. Meanwhile, the instrument used a questionnaire. Quantitative data in this study were obtained by calculating scores based on the questionnaire answered by students. The study was conducted at SMPN 4 Siak Hulu during irregular semesters of the 2023/2024 academic year. A simple random sampling method was used to select the sample. The sample was 60 students.

The research begins with the preliminary stage, which is the process of obtaining permission from the school principal to conduct the study. Then, the students in class VIII of SMPN 4 Siak Hulu decide the study pattern. The data collection instrument was a questionnaire adapted from Aminah (2018). The questionnaire consists of 15 items with 4 alternative answers. Indicators of student learning activities include visual, oral, listening, writing, mental, and emotional activities.

The next stage is the implementation of research. At this stage, a questionnaire was distributed to respondents via the google form, which was carried out in August 2023. The final step is evaluation. All received data is processed and sorted. Data from the questionnaire are in the form of questionnaire answer scores and were then analyzed quantitatively. After that, the results of this analysis are provided in a description. The percentage of students' learning activity is calculated with the formula by Sudijono (2008).

$$P = \frac{f}{n} \times 100\%$$

Description:
P = Percentage obtained
f = Frequency of questionnaire answers
n = Number of samples

Students' learning activities in science learning is presented in Table 1.

Table 1. Learning Activities Percentage Criteria

No.	Learning Activities Intervals	Category
1.	86% – 100%	Excellent
2.	71% – 85%	High
3.	56% – 70%	Medium
4.	41% – 55%	Low
5.	25% – 40%	Poor

Source: Yahya & Bakri (2020)

RESULT AND DISCUSSION

Activities are a must during the learning process in the classroom, ensuring the teaching and learning process runs well. Moreover, it must involve all aspects, physical and spiritual. Therefore, the study tries to understand students' learning activities, especially those related to science learning.

Students' learning activity in science learning can be observed through the results of the questionnaire survey. The results are presented in Table 2. It is based on a survey conducted by distributing a questionnaire containing 6 indicators and 15 statements to 60 students in the class VIII of SMPN 4 Siak Hulu School.

Table 2. Data Analysis of Student Learning Activities

No.	Indicator	Percentage (%)	Category
1	Visual Activities	77.08	High
2	Oral Activities	69.86	Medium
3	Listening Activities	75.63	High
4	Writing Activities	72.50	High
5	Mental Activities	71.53	High
6	Emotional Activities	69.31	Medium
	Average (%)	**72.65**	**High**

The data in Table 2 shows that the academic performance of students in the class VIII of SMPN 4 Siak Hulu is in the high category, with a score of 72.65%. The most increased activity is in the visual activities indicator, with a score of 77.08%. This indicator is higher than others because students show their attention during learning, such as paying attention to the teacher and reading the studied material. Visual learning is attractive to students because it is simple in the learning process (Fitriyana *et al*., 2020).

Students in front of the class received a high category because of the visual activities seen when paying attention to the teacher. Some students engage in learning better by paying attention to the explanations of teachers and peers. Focusing activities should be done by students so that they can understand the material presented by the teacher. If students understand and learn the material presented, then their learning outcomes will be affected. Therefore the learning process should include cooperation between teachers and students and between students and students (Anggreiny *et al*., 2020).

Fitriyana *et al*. (2020) stated in visual activities, students show their attention during learning, such as paying attention to the teacher and reading the material. Visual learning is attractive to students because it is not complicated in the learning process. If students want to participate in learning, they should not only receive material from the teacher but also try to explore and develop it themselves. Students need to read the provided information, either in textbooks or other learning sources (Agustin *et al*., 2017).

The lowest indicator in the medium category comes from emotional activities, although the percentage is similar to other indicators at 69.31%. This indicator is the weakest because some students need more interest or enthusiasm during learning. Then, asking questions requires courage and self-confidence. If students are required to ask questions, most of them feel embarrassment or do not courage to ask questions (Mawadati *et al*., 2023). Apart from that, students' interest in studying science also influences their enthusiasm for learning.

Wahyuni (2018) states that students' interest in science lessons still needs to be improved. Students feel unhappy with science learning because it is a complex subject. Emotional activities are influenced by learning activity factors, such as external factor, which is the way and method used by the teacher. Teachers who convey and motivate students correctly lead students enthusiastically to wait for the start of learning. Moreover, it is also influenced by internal factors, namely the psychology of students, such as student readiness (Anggreiny *et al*., 2020).

The next indicator is oral activities, which is also in the medium category, with a score of 69.86%. This is due to the need for more self-confidence of students. Students are not encouraged to ask and answer questions, and express opinions. When the teacher asks questions, students respond simultaneously (Sari *et al*., 2017). Oral activity is closely related to speaking activity. Speaking skills express the results of thoughts, ideas, and ideas to others verbally (Febiyanti *et al*., 2020).

Oral activities are supported by various factors. First, internal factors are from within the student, such as the student's psychology (readiness to learn), which can influence learning activities. An example of student's psychology is student readiness, namely if students understand the learning material, students will understand what the teacher is asking. When the student does not understand a thing, the student will immediately ask the teacher (Anggreiny *et al*., 2020).

According to Sari *et al*. (2017), students' lack of self-confidence makes them not encouraged to ask and answer questions, and express opinions. When the teacher asks a question, students tend to answer simultaneously. There needs to be encouragement or input from the teacher so that students are confident in their answers and dare to present the results of their assignments (Mandasari, 2021). Students' activeness in asking questions is crucial to determine the level of students'

understanding of receiving learning material (Manurung *et al*., 2020; Mawadati *et al*., 2023).

The listening activity indicator is in the high category with a score of 75.63% because almost all students are not only good at paying attention, but students are also good at listening. Generally, students listen to the material presented by the teacher and their peers' opinions. Listening activities are measured during learning in class through observation sheets. During the learning process, the teacher plays more of a role in explaining the learning material. As a result, listening activities get a high percentage. Teachers who explain more make most students listen to the teacher's explanation during the learning process.

Listening is a needed learning activity, aiming for the material can be accepted well by students (Nurfatimah *et al*., 2020). Andriani & Simatupang (2017) found that students have habit to learn only by listening to information from teachers, without knowing the conditions that occur in everyday life. The teacher's teaching method can increase student learning activities, as proved by the listening activity that will appear after the teacher explains the learning material, and students will listen to the teacher's explanation (Anggreiny *et al*., 2020).

Then, the writing activity indicator is in the high category with a score of 72.50% because students write the material from the teacher's explanation. Teachers have accustomed students to write the learning material. Each material that has been explained and discussed together will be wriiten by the students in their notebooks. And, these notes will be assessed by the teacher. According to Anggreiny *et al*. (2020), writing activities train students to use their brains and senses to work together. When students write, their brains come up with ideas, and their fingers write those ideas.

Writing material explained by the teacher, and used as material for notes or summaries in material points can be used to study for the exams (Rikawati & Sitinjak, 2020). Students have habit of taking notes on important material after the teacher explains. Also, students have the opportunity to take notes so they can recall or repeat the learning material. Writing is an important activity because it helps students develop social creativity and improve critical thinking skills (Sari *et al*., 2017).

The last indicator is mental activities. This indicator is in the high category with a score of 71.53%. Students can solve problems, discuss, remember, and make decisions. Mental activity occurs due to interaction with the environment. Internal factors from learning activities influence mental activity. Student psychology of internal factors is intelligence. Mental activity occurs due to interaction with the environment (Harefa, 2020). The high indicator of mental activities is that some students have the courage to respond to opinions during the learning process. Besides that, it is also influenced by internal factors from learning activities in the form of student psychology, namely student intelligence, and influence mental activity.

According to Anggreiny *et al*. (2020), there are several things that students can do related to mental activity, for example, students can listen to the teacher's explanation, students can discuss answers to questions, collaborate with friends, ask about material they don't understand, respond to the work of friends who can answer questions, immediately respond to questions that arise, and conclude teaching material.

Overall, students have shown their activity well. So, the major activities done by the students have been limited to taking listening notes and answering the questions asked by the teacher. This type of learning process does not encourage students to think and be active. Efforts are needed to improve students' understanding of learning science. Therefore, student learning activities must also be further enhanced, not only listening, noting, and memorizing. So, learning objectives will be achieved by increasing student learning activities, namely the changes in the students' expectations.

CONCLUSION

The teaching and learning process will only take place with learning activities. The learning activities of students in class VIII of SMPN 4 Siak Hulu are in the high category, with a score of 72.65%. However, individually, there are still students whose learning activities are below average. It becomes a particular concern for teachers, especially in the emotional activity indicator, with a score of 69.31%. Further research can be conducted by observing each individual and examining the factors influencing student learning activities.

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