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Analysis of Activities and Learning Outcomes Reviewed from the Learning Typology of Class VIII Students at Sultan Agung Puger Middle School School in Mathematics Learning

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Abstract

Learning typology is the type of learning or appropriate method students use to facilitate the learning process so that they find it easy to receive and process information. This research describes activities and learning outcomes regarding student learning typologies in mathematics learning. This type of research is descriptive qualitative research. The research subjects were class VIII students at Sultan Agung Puger Middle School. The instruments used in this research were observation, questionnaires, and practice questions. The results obtained are student learning activities based on their learning typology. Class VIII students at Sultan Agung Puger Middle School have a visual and kinesthetic learning typology with a percentage of visual typology of 24.5% and kinesthetic typology of 57.5%. This is based on an analysis of the three instruments used. As a result of learning activities, students become more active, and learning results are maximum or above average because students learn based on their respective typologies.

INTRODUCTION

Education as a medium influences determining the direction of success. The growth and development of students are based on two elements that influence each other, namely, the student's talent since birth and the environment that affects this talent development. Mathematics education is also an exact branch of science because it cannot be separated from people's lives. In reality, mathematics needs special attention because many people think that mathematics is a complex, scary, and dull subject. Therefore, as a teacher, you must be able to attract students' interest so they are happy and enthusiastic about participating in mathematics learning activities. One of them is providing a positive attitude to students that mathematics is easy to understand and fun so that the learning process can take place effectively with this positive attitude. The learning process can be effective if students play an active role—efforts to make it happen. Suppose the learning process is effective and efficient. In that case, a teacher should be able to realize the learning process appropriately based on each individual's learning abilities to create

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conducive learning interactions.

According to Oemar Hamalik (2013), learning activities are activities carried out by students in the implementation of the learning process, where students work or play a more active role in learning, thereby gaining knowledge, understanding, experience, and other aspects of what students have done. Learning activities often carried out by students during the learning process are listening, looking, writing or taking notes, and reading (Rohmalina Wahab, 2016).

Learning typology can be interpreted as a fast, precise, and easy way for students to absorb and understand, especially in learning mathematics. The learning typology significantly influences the students' high and low learning outcomes. So, it can be concluded that without a good learning typology, it is also challenging to get good results; students will also face difficulties in learning more often because, in learning, they should know in advance what kind of learning typology they have so that students will be more understand and absorb the lessons given by the teacher.

According to initial observations from researchers in class VIII of Sultan Agung Puger Middle School and complaints from class VIII mathematics teachers regarding activities that were less effective and learning outcomes, the majority did not complete the KKM (Minimum Graduation Criteria). Students are more silent during the learning process, and when groups are formed, several groups wait for answers from other groups; when given assignments, some complain about the questions given being difficult, and most students are confused.

Determine the formula and steps to solve it; some are embarrassed to ask if there is material they don't understand, some are given notes they don't want to write, and some are joking while the learning process is taking place. So, student activities during the learning process have not been carried out well. Meanwhile, the results show very different percentages of students who completed the KKM and those who did not meet the KKM. The researchers knew from initial observations, namely interviews with class VIII mathematics teachers, that only five students scored more than 70, and 35 students scored less than 70. So it can be concluded that fewer students have completed the KKM than those who have not completed the KKM, namely 12.50% of students who have completed the KKM while 87.50% of students who have not completed the KKM.

Based on the description above, it can be seen that each student has different abilities and ways of learning. The desired learning outcomes will be achieved if a teacher knows how students want to learn. For the problem above, the researcher has a solution to solve the existing situation, namely analyzing activities and learning outcomes based on student learning typologies so that learning is effective and results are above average by the expected goals.

METHOD

This research uses descriptive research methods. This type of descriptive research is intended to collect information about an existing phenomenon, namely the state of everything as it is during the learning process. The approach used in this research is

qualitative because the data obtained is in the form of field notes, documentation, and respondents' actions, which are then presented in sentence form. The subjects of this research were class VIII students at Sultan Agung Puger Middle School. The data collection techniques used in this research were observation, questionnaires, and tests. The comments made in this research were observing the activities of Class VIII students at Sultan Agung Puger Middle School in learning mathematics; namely, students were given a problems were resolved by discussion with their group friends; a questionnaire was carried out to determine student learning typology. The questionnaire sheet consisted of 3 indicators, namely visual, auditory, and kinesthetic learning typology indicators; each student filled out a questionnaire sheet according to their respective circumstances in learning activities mathematics, while tests were carried out to determine student learning outcomes, namely, students are given questions and solve them using the teaching aids that have been provided. The questionnaire comprises 24 statements, eight visual typology questions, eight auditory typology questions, and eight kinesthetic questions. Meanwhile, the test questions consist of 4 questions describing spatial construction material. The results of observations, questionnaires, and tests are described descriptively, and then conclusions are drawn.

RESULTS AND DISCUSSION

Description and Analysis of Student Learning Activity Observation Sheets

Data analysis of student learning outcomes is carried out using learning outcomes tests and quiz question tests. This data is to see the completeness of student learning. The following are the results of observations of the learning activities of class VIII students at Sultan Agung Puger Middle School during the learning process:

Table 1. Observation Results Regarding Student Learning Activities

No	Activity Study	Amount Student
1.	Students pay attention to the teacher's explanation	36 students
2.	Students ask questions if any which is not yet understood	25 students
3.	Students dare to express opinions	Nine students
4.	Students work on practice questions	40 students
5.	Students note down important information from teacher's explanation	16 students
6.	Discuss	40 students
	Average Percentage	26.6%

a. Activity of Paying Attention to the Teacher's Explanation

Based on the results of the observation sheet in the learning process, when the teacher explains the subject matter, almost all students are very enthusiastic in paying attention to the teacher's explanation. This can be seen in the table above; 90% pay attention to the teacher's description.

b. Activities: Ask questions if there is something you don't understand.

Based on the results of observations, those who were initially afraid and embarrassed to ask students become active in asking questions if they don't understand something. This can be seen in the table above, namely 62.5%.

c. Daring Activities to Express Opinions

When a teacher has finished explaining the subject matter and there are no more questions, the teacher occasionally asks students questions. This is done to help restore and increase student learning concentration. Based on the results of observations, the activity of daring to express an opinion has a low percentage; the reason students do not dare to say an idea is that they are afraid of answering incorrectly, but not all students have the courage to express an opinion. This can be seen in the table above, namely 22.5%.

d. Activities for working on practice questions

Based on the observation results, it can be seen that student activity in working on approach questions is high, namely 100%, where all students are enthusiastic about working on approach questions. Students enjoy learning using pictures and props, making practicing questions easier. It's just that some students can solve the questions practice is faster, but some students slowly complete the method questions.

e. Activity of recording important information from the teacher's explanation based on the results of observations after the teacher explained

Lesson material and wrote it on the blackboard; there were only a few who took notes in their books, others who didn't take notes because it was already in the student worksheet book. And those who don't take notes are just busy chatting with their desk mates. Where recording activity can be seen in the table above is only 40%.

f. Discussion Activities

Discussions in class are usually carried out when students are faced with a problem and are required to solve it. This is done to train students to dare to express opinions. Based on the observation results, discussion activities have a high percentage, namely 100% of students enthusiastic about discussing because the discussions are only when students are working on questions or exercises. They are talking about it with colleagues of their choosing.

The following is the documentation of students in each group discussing solving the problems that have been given.

Description and Analysis of Student Learning Typology Questionnaire Sheet

The subjects of this research involved all 40 class VIII students at Sultan Agung Puger Middle School to fill out a questionnaire. Questionnaire sheets were distributed in class during learning. Filling in the questionnaire sheet is carried out within 5 minutes after the questionnaire sheet is distributed. Meanwhile, students are also asked to independently complete a questionnaire sheet according to each individual's circumstances.

The following data collected can be seen in table form and percentages below. The questionnaire consists of 8 questions, each with answers a, b, and c. Answer "a" indicates the visual learning type, and solution "b" indicates the auditory learning typology. In contrast, answer "c" shows the kinesthetic learning typology. Suppose students answer point "a" more than the eight questions that have been presented. In that case, it can be concluded that the student's learning typology is visual. If students answer more points "b," then it can be concluded that the student's learning typology is auditory; likewise, if students answer more points "c," it is concluded that the student's learning typology is kinesthetic.

Table 2. Students' preferred way of studying

Options	Answer	Frequency	Percentage
A	Students feel happy when learning by looking	4	10%
B	Students feel so glad when learning by just listening	25	62.5%
C	Students feel happy when learning by moving	11	27.5%
	Amount	40	100%

Based on Table 2. above, it can be seen that four students (10%) answered "A," namely feeling happy when learning using visual typology, and 25 students (62%) answered "B," namely feeling happy when They were learning by just listening, while 11 students (28%) answered "C," namely feeling happy when knowing by moving. The conclusion from Table 2 is that respondents answered more of the auditory learning typology indicators (students feel happy when they learn by listening only).

Table 3. Students' Likes in Learning

Options	Answer	Frequency	Percentage
A	Students like to write	17	42.5%
B	Students like discussions	8	20%
C	Students prefer practice	15	37.5%
	Amount	40	100%

Based on Table 3. above, it can be seen that 17 students (42.5%) answered "A," namely students like writing, and eight students (20%) responded "B," namely students like discussions. In comparison, 15 students (37.5%) answered "C," namely students who prefer practice.

The conclusion from Table 3 is that respondents answered more of the visual learning typology indicators (students preferred writing).

Table 4. Habits that Students Like in Studying

Options	Answer	Frequency	Percentage
A	Students like to tread alone rather than having it read by someone else	14	35%
B	Students like to listen to what other people say rather than having to read Alone	10	25%
C	Students love activities movement and group interaction	16	40%
	Amount	40	100%

Based on Table 4. above, it can be seen that 14 students (35%) answered "A," namely, they preferred to read themselves rather than having someone else read to them, and 10 students (25%) answered "B" namely they chose to listen to what was said. By other people rather than having to read alone, while 16 students (40%) answered "C," preferring moving activities and group interaction.

The conclusion from Table 4 is that respondents answered more of the kinesthetic learning typology indicators (students prefer moving activities and group interactions).

Table 5. Students Speaking Speed

Options	Answer	Frequency	Percentage
A	Fast	10	25%
B	Currently	24	60%
C	Slow	6	15%
	Amount	40	100%

Based on table 5. above, it can be seen that ten students (25%) answered "A," namely having a fast speed in speaking, and 24 students (60%) answered "B," namely having a medium speed in speaking, while six students (15 %) answered "C," namely having a slow pace in speaking.

The conclusion from Table 5 is that respondents answered more of the auditory learning typology indicators (students have a medium speed in speaking).

Table 6. Students Speaking Speed

Options	Answer	Frequency	Percentage
A	Students are not disturbed by it commotion	12	30%
B	Students are easily distracted by commotion	10	25%
C	Just normal,	18	45%
	Amount	40	100%

Based on Table 6. above, it can be seen that 12 students (30%) answered "A," namely when speaking they were not easily disturbed by noise, and 10 students (25%) answered "B," namely when saying they were quickly disturbed by noise. In comparison, 18 students (45%) answered "C" when speaking typically.

The conclusion from Table 6 is that respondents answered more of the kinesthetic learning typology indicators (students only usually speak).

Table 7. Habits that Students Do When Reading

Options	Answer	Frequency	Percentage
A	Students, when reading only focused on reading	11	27.5%
B	Students always read when they are removing lips, as well as pronounce the writing in the book	14	35%
C	Students always read when they read using fingers as reading instructions	15	37.5%
	Amount	40	100%

Based on Table 7. above, it can be seen that 11 students (27.5%) answered "A," namely when reading they only focused on the reading, and 14 students (35%) answered "B," namely when reading they permanently moved their lips and said writing in books. In comparison, 15 students (37.5%) answered "C" when reading; they always use their fingers as a reading guide.

The conclusion from Table 7 is that respondents answered more of the kinesthetic learning typology indicators (students, when reading, always use their fingers as a reading guide).

Table 8. Students Difficulties in Learning

Options	Answer	Frequency	Percentage
A	Students find it difficult to remember information given by the teacher orally	19	47.5%
B	Students find it challenging to write, however smart in opinion	3	7.5%
C	Students find it difficult to learn abstract things	18	45%
	Amount	40	100%

Based on Table 8. above, it can be seen that 19 students (47.5%) answered "A," namely, it was difficult to remember information given orally. Three students (7.5%) answered "B," namely, it was challenging to write but excellent at arguing, while 18 students (45%) answered "C," namely, it is difficult to learn abstract things (symbols).

The conclusion from Table 8 is that respondents answered more of the visual learning typology indicators (students find it difficult to remember information given orally).

Table 9. Preferred Learning Aids

Options	Answer	Frequency	Percentage
A	Students in learning prefer using images	17	42.5%
B	Students in learning prefer using voice recording	3	7.5%
C	Students in learning prefer using fundamental learning tools such as teaching aids	20	50%
	Amount	40	100%

Based on Table 9. above, it can be seen that 17 students (42.5%) answered "A," namely that students prefer to use pictures when studying, and three students (7.5%) answered "B," namely that students choose to look using photographs Like to use sound recordings, while 20 students (50%) answered "C," namely that students prefer to use fundamental learning tools (visual aids) in learning.

The conclusion from Table 9 is that respondents answered more of the kinesthetic

learning typology indicators (students in learning prefer to use fundamental learning tools such as teaching aids).

The questionnaire sheet above can be analyzed and presented as a percentage based on the learning typology that each student has filled in, so it can be concluded that those with a visual learning typology are 24.5%, and an auditory typology is 18%. A kinesthetic typology is 57.5%, so most class students at VIII Sultan Agung Puger Middle School have a kinesthetic learning type, preferring to use fundamental tools or objects in mathematics learning, such as teaching aids.

Description and Analysis of Student Learning Results Test Questions

The following are the results of class VIII students' work in solving the questions

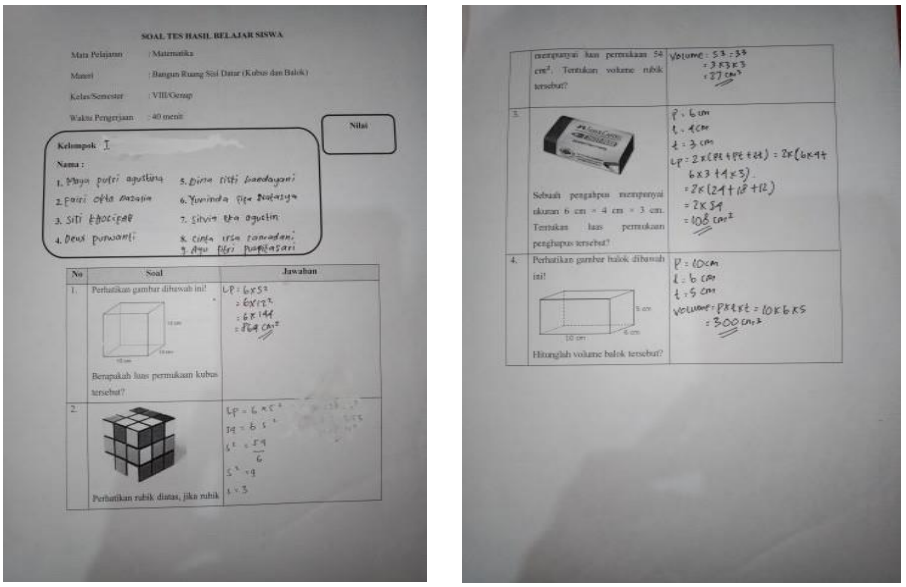

Figure 1 Results of group 1 discussion in solving the questions

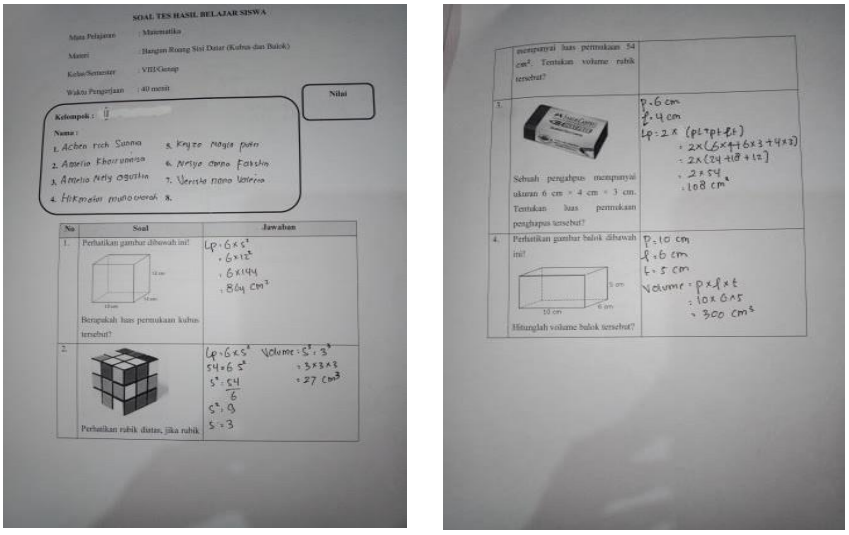

Figure 2 Results of group 2 discussion in solving the questions

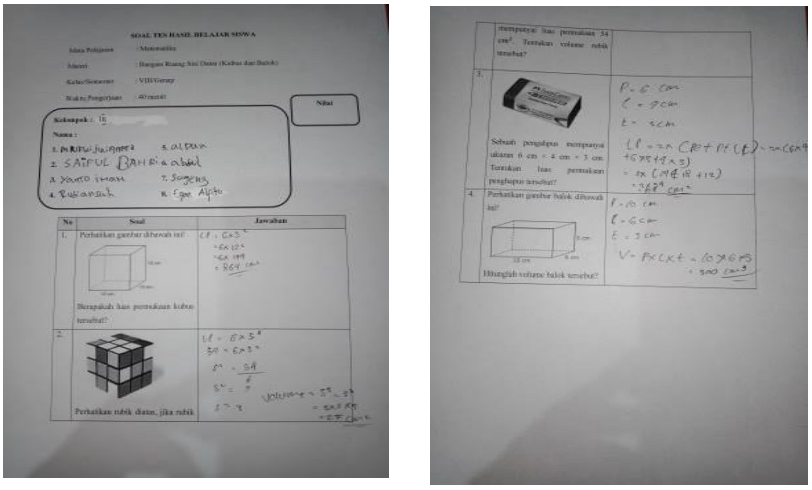

Figure 3 Results of group 3 discussion in solving the questions

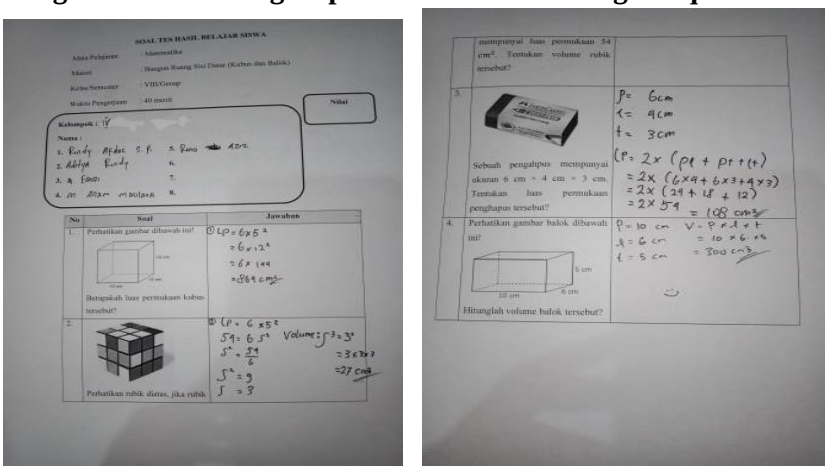

Figure 4 Group 4 discusses solving problems

Based on the picture above, it can be concluded that groups 1, 2, 3, and Four actively discuss and work on test questions because the test questions use pictures and natural objects as in the test questions above, namely, using a Rubik's cube and an eraser. So, class VIII students at Sultan Agung Puger Middle School were very enthusiastic about discussing and working on questions if pictures and learning tools accompanied the questions. Therefore, there has been an increase in class VIII students who have completed the KKM.

CONCLUSION

Based on the results of the analysis that has been carried out, it can be concluded that class VIII students at Sultan Agung Puger Middle School have different learning typologies. From the observation sheet, it can be supposed that most class VIII students have played an active role in learning mathematics, such as paying attention to the teacher's explanations, discussing, and working on practice questions. Meanwhile, on the questionnaire sheet, most class VIII students have a visual and kinesthetic typology with a visible percentage of 24.5% and kinesthetic 57.5%. For the activity of working on test

questions, class VIII students were also very enthusiastic because there were pictures and learning tools that were considered to make it easier to solve the questions given. And for the results obtained, too

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