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IDENTIFICATION OF LEARNING DIFFICULTIES IN JUNIOR HIGH SCHOOL PHYSICS IN LANGKAT REGENCY

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Abstract

This research was conducted to map the factors that became the source of student learning difficulties in terms of the learning process and the difficulties experienced in solving Newton's style and law problems. The population of this descriptive study was all students of class VIII in Langkat Regency, while the schools that were the samples in this were students of class VIII in three schools, namely SMP Negeri 2 Stabat, SMP Seri Langkat, and SMP Negeri 3 Satu Atap. Data collection in this study was conducted using student questionnaire instruments, teacher questionnaires, learning activity observation sheets, student activity assessment sheets and essay questions. The analysis of the research results found that the factors that influence the learning difficulties of junior high school students in Langkat Regency are the weak of Utilization of Learning Resources / Learning Media, the inadequate learning which can trigger and maintain student engagement and the low ability of students to solve problems coherently.

Keywords: Learning Difficulties, Deceptive Study, Observation Sheet

Learning difficulties are a condition in a learning process that is marked by certain obstacles to achieving learning outcomes. These obstacles may or may not be realized by the person experiencing them, and can be sociological, psychological, or physiological in the whole learning process (Mulyadi, 2008). Due to the nature of obstacles that are difficult for students to realize, it is the duty of a teacher to help students to overcome problems that arise in the learning process. For this reason, it is necessary to identify and diagnose learning difficulties.

One of the most common indicators that shows students experiencing learning barriers in a subject is marked by low learning outcomes. According to the results of preliminary observations, the researcher found that the low learning outcomes of junior high school students in Langkat Regency had a tendency to be evenly distributed for each student. according to statistical data on the national exam scores for SMP in Langkat Regency in 2011, the average science score was in the lowest order, namely 7.85.

However, failure to achieve good learning outcomes does not depend on only one factor, but several factors involved in the learning process. According to Slameto (2003) there are many types of factors that affect learning, but in general they are classified into two, namely internal factors and external factors. Internal factors are factors that exist within the individual who learns, while external factors are factors that exist outside the individual. These factors are interrelated and

influence one another. Based on the description of the problem above, the researcher is interested in studying and further researching the factors and problems faced by students in the Science-Physics subject in Langkat Regency.

METHOD

This research was conducted in January 2012 with the population of this study were all students of class VII SMP in Langkat Regency. Samples in this were students of class VIII in three schools, namely SMP Negeri 2 Stabat, SMP Seri Langkat, and SMP Negeri 3 Satu Atap. The sample was determined by the stratified random sampling method.

This descriptive study used several data collection techniques, namely, (1) student questionnaire instruments in the form of 19 open questions with yes or no choices, (2) teacher questionnaires in the form of 23 open questions with a choice of yes or no, (3) learning activity observation sheets in the form of 23 observation indicators. using a scale of 1-5, (4) learning activity observation sheets in the form of 7 assessment indicators on a scale of 1-4, (5) essay questions with 6 item questions. Except for essay questions, all instruments are adapted from KTSP SMA supervision report.

RESULT AND DISCUSSION

Research Result

In this study, the items of the questionnaire instruments and observation sheets were then distributed by considering their suitability with the predetermined indicators of learning activities. Comprehensively, it can be compared from each indicator instrument which is the source of student learning difficulties in school. The results of the instruments were analyzed descriptively with the percentage method. The percentage results are then analyzed using the score interpretation criteria (Riduwan 2010) as shown in Table 1 below.

Table 1. Score Interpretation Criteria

Percentage	Score Interpretation
0% - 20%	Very Weak (VW)
21% - 40%	Weak (W)
41% - 60%	Sufficient (Suf)
61% - 80%	Strong (S)
81% - 100%	Very Strong (V-S)

Table 2 below presents the results of the analysis of the instrument that has been summarized from the three schools that expressed in the average score.

Table 2. Percentage of Results for Student Questionnaires, Teacher Questionnaires, and Learning Activity Observation

No	Indicator	Student Questionnaire		Teacher Questionnaire		Learning Activity Observation		Total avg. Score	Int
		avg. Score	Int.	avg. Score	Int.	avg. Score	Int.		
1	Motive	95.09	V-S	-	-	-	-	95.09	V-S
2.	School Discipline	95.59	V-S	-	-	-	-	95.59	V-S
3.	Learning Activity								
3.1	Preparation Phase	-	-	100.00	V-S	-	-	100.00	V-S
	Pre Learning	-	-	88.89	V-S	73.33	S	81.11	V-S
3.2	Core learning activities Phase								
	a. Material Mastery	98.10	V-S	100.00	V-S	78.33	S	92.14	V-S
	b. Learning Approach / Strategy	87.77	V-S	100.00	V-S	76.67	S	88.15	V-S
	c. Utilization of Learning Resources / Learning Media	32.85	W	83.33	V-S	51.11	Suf	55.76	Suf
	d. Learning that triggers and maintains engagement	70.15	S	44.22	Suf	82.22	V-S	65.53	V-S
	e. Assessment Process and learning outcomes	85.96	V-S	94.44	V-S	74.45	S	84.95	V-S
	f. Use of Language					82.22	V-S	82.22	V-S
3.3	Closing Activities Phase	82.88	V-S	83.33	V-S	62.22	S	76.14	S
					Overall Average Score			**83.33**	**V-S**

From the table above, it is found that in general the learning process goes very well, seen from the total average score. However, there are some indicators that concern, namely indicator 3.2.c with the overall average of the instrument with enough value. Apart from that from the analysis of the student questionnaire instrument on indicator 3.2.d. obtained mean values with sufficient interpretation. These two indicators will be further reviewed through the results of the analysis of the student activity observation instruments in learning activities as in table 3. Below.

Tabel 3. Student's Learning Activity Observation Sheets

No.	Indicator	SMP Negeri 2 Sabat	SMP Seri Langkat	SMP Negeri 3 Satu Atap	Average Score	Interpretation
1.	Students are enthusiastic in following lessons	83,33%	58,33%	91,67%	77,78%	*Strong*
2.	Students listen when the teacher gives lessons	83,33%	58,33%	91,67%	77,78%	*Strong*
3.	Students ask questions at the right time	75,00%	75,00%	75,00%	75,00%	*Strong*
4.	Students are not awkward asking questions or giving opinions	83,33%	83,33%	83,33%	83,33%	*Very Strong*
5.	Students carry out activities in accordance with the planned learning experience	66,67%	66,67%	91,67%	75,00%	*Strong*
6.	Students show a desire to master the learning material	75,00%	50,00%	75,00%	66,67%	*Strong*
7.	Students speak properly and correctly	91,67%	66,67%	75,00%	77,78%	*Strong*
				Overall Average Score	**76,19%**	***Strong***

From Table 3 above, there is no significant problem associated with student activities in learning activities. This can be seen from the results of the total average student learning activity instrument with a percentage value of 76.19% with a strong category.

The essay question in this study aims to determine the extent of the student's ability to solve problems. Six items were analyzed using the problem-solving scoring technique by Polya (in Saragih, 1999). With this scoring technique, it is hoped that the source of the students' difficulties in solving problems in the material of Force and Newton's and law is expected. The results of the essay test instrument can be seen in table 4.

Tabel 4. Percentage of Student Answers on Essay Questions

No.	Indicator	SMP Negeri 2 Sabat	SMP Seri Langkat	SMP Negeri 3 Satu Atap	Average Score	Interpretation
1.	Knowledge / Remembering	79,40%	73,78%	85,00%	79,39%	*Strong*
2.	Understanding the Problem	51,87%	480,31%	80,21%	60,13%	*Sufficient*
3.	Planning	46,39%	54,50%	75,23%	58,71%	*Sufficient*
4.	Mathematical Operations	45,15%	47,52%	66,44%	53,04%	*Sufficient*
5.	Evaluation	15,30%	6,42%	52,78%	24,83%	*Weak*
				Overall Average Score	**55,22%**	***Sufficient***

From the percentage table above, it is found that the indicator that has a strong score interpretation is the category of knowledge / remembering, meaning that students have no difficulty in constructing the knowledge needed to solve the questions. In addition, the indicators of Understanding the Problem, Planning, Mathematical Operations are in the sufficient category, this means that students have difficulty utilizing the construction of knowledge they have in the form of solving mathematical physics problems. Furthermore, the evaluation indicator from the table shows a weak category, this reflects that students are not used to formulating mathematical statements into physics statements.

Discussion

Based on the table of the results of the questionnaire instruments given to students and teachers and the observation instruments of learning activities in class, there are two indicators that have anomalies when compared to other indicators, namely the Utilization of Learning Resources / Learning Media indicator and the Learning that triggers and maintains engagement indicator. In the Utilization of Learning Resources / Learning Media indicator, these results may arise because of the unequal number of questions on the indicator. The difference in the number of questions or statements can distinguish the depth of the purpose referred to in the indicator. The distribution of questions on this indicator can be seen in table 5 below.

Table 5. List of Questions/statements In the Utilization of Learning Resources / Learning Media indicator

Student Questionnaire	Teacher Questionnaire	Learning Activity Observation Sheet
Do teachers use media in learning activities (OHP, LCD, slide projectors, etc)?	Do you use media in learning activities?	The teacher uses the media effectively and efficiently.
Does the teacher suggest that you use information technology (computer, internet) to support learning activities?	Do you suggest the student to use information technology to support learning activities?	The teacher produces interesting messages in learning activities.
	Do you give assignments to students to use the library as a learning resource?	The teacher engages students in the use of media.
	Do you use the school library as a learning resource??	

However, the results of the interpretation of the instrument with a different number of questions make sense when compared with the observation notes made by the researcher. From

the observation note, there are at least two factors that support the above results. The first factor is the lack of availability of learning resources and media that can support learning activities such as textbooks and worksheets. This is illustrated when the observation activity was carried out that a textbook was used by two people and students were not allowed to bring the book home. Indirectly, students do not have reference books to repeat lessons back at home. The second factor is the lack of use of learning resources and learning media by teachers. This can be seen during observation activities, the teacher only uses the blackboard as a medium for delivering material without being supported by other learning media. This can be a reflection for education stakeholders to increase the availability of learning resources and learning media.

Furthermore, for the Learning that triggers and maintains engagement indicators, the result of the observation notes made by researchers, this indicator is not achieved optimally because learning is still centered on the teacher (Teacher Centered Learning). The teacher acts as the main source of learning activities. The learning activities are carried out in the form of lectures and assigned. Students tend to be passive in learning activities because the learning process only takes place in one direction. These findings can be a source of learning difficulties for students in learning physics. This is in contrast to the current education paradigm, namely student centered learning (SCL). With learning activities centered on students, it is hoped that students can become more active and foster student curiosity, so that student enthusiasm and motivation to learn is higher. Therefore it is hoped that student learning activities at SMP Langkat Regency are directed towards student-centered education so that the goals of education can be achieved optimally.

From the results of the essay question analysis, there is 1 indicator with a strong category, 3 indicators in the sufficient category, and 1 indicator with a weak category. This shows that in general students have difficulty solving problems on the subject matter of Newton's style and law. This difficulty can be caused by two factors. The first factor is that students have difficulty understanding the problem and implementing problem-solving planning. This shows that students' mastery of concepts on the material being tested is low.

In this category of assessment, it is related to indicators of writing down the data given by the questions, writing down the symbols and units, writing what is being asked in the questions, gathering information in the form of concepts or rules needed to solve the problems, and interpreting the information, predicting the consequences of an event. Therefore, if students cannot complete this phase, it can be ascertained that the students' answers are not correct. This also

reflects the understanding of physics concepts, it needs to be improved so that learning objectives can be achieved optimally.

Apart from the students' low understanding of concepts, the second factor that causes students to have difficulty solving the problems given is the low mathematical ability of students. This indicator relates to the student's ability to perform mathematical operations with formulas, write down the correct units, and the ability to solve new problems or situations in the problem. This problem arises because the numeracy skills brought by students from the previous education level are low. The low mastery of students' concepts and mathematical abilities has an impact on the ability of students to draw conclusions on solving the problems faced. In order for this obstacle to be overcome, physics teachers must collaborate with mathematics subject teachers to improve numeracy skills and the concept of solving mathematical calculations, until finally the students 'mathematical abilities increase so that it has an impact on increasing students' physics problem solving abilities.

CONCLUSION

From the research findings above, it can be concluded that the difficulties in learning physics faced by students are related to the use of learning media that is not optimal and learning activities that are still in the form of teacher centered learning. This has a major effect on the enthusiasm and motivation of students to study harder. If these two problems can be solved, in the end students' ability in solving physics problems can also improve. Problem solving obstacles such as low understanding of questions, problem solving planning, mathematical solving to problem evaluation can also improve. Further research on the identification and analysis of problems faced by students in learning activities can be carried out more thoroughly, so that they can become feedback for teachers so that learning objectives can be achieved optimally.

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