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Analysis of numeracy literacy skills of students on the Pythagorean Theorem material in Class VIII UPT SMP Negeri 7 Medan T.A. 2021/2022

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Abstract

This research aims to determine the numeracy literacy ability of students in class VIII SMP Negeri 7 Medan. This type of research is descriptive qualitative research. The research was carried out in the even semester of the 2021/2022 academic year. The samples taken in this study using purposive sampling were students at UPT SMP Negeri 7 Medan, namely class VIII. The instrument used in this study was a numeracy literacy test in the form of 5 essay questions. Data collection techniques using triangulation techniques, followed by data analysis which includes data collection, data reduction, data presentation, and conclusions. Based on the objectives of the research results that have been made by researchers, it can be seen that there is a difference in the students' numeracy literacy skills in solving post-test test questions, which 50% of students' numeracy literacy skills are obtained at a high level, while 30% of students who have moderate level of numeracy literacy, and 20% of students who have low level of numeracy literacy. From numeracy literacy skills in the high-level category, it can be seen that students are able to solve problems that occur in everyday life.

Keywords: Numeracy Literacy Skills.

INTRODUCTION

Education is a requirement that must be met by every human being. Education is a hard work in seeking human resources (HR) to produce good quality in building a developed country (Situmorang, 2017). To keep abreast of the developments that are taking place today the right and closely related education is mathematics. (Manik, 2021) mathematics is a learning that can connect in applying everyday life. (Eta et al., 2021) mathematics can teach disciplines at the educational level that lead to having curiosity and confidence in problem solving.

The mastery of mathematics will provide basic knowledge in other fields of knowledge which are inseparable from science and technology. Learning mathematics not only makes most of the mathematical knowledge has the ability to count alone because in reality the ability is not enough in dealing with problems in everyday life. For this reason, knowledge other than the ability to count is the ability to understand concepts. With the ability to understand the concepts that have been owned, it will be able to solve the problems that occur in everyday life. Apart from the ability to count and the ability to understand the basic concepts of mathematics in solving problems that occur in everyday life there is such an ability to master both, namely the ability of numeracy literacy. (Fitria et al., 2021) numeracy literacy ability is the ability of Science in the use of numbers and symbols related to basic mathematics learning which can be used to solve problems that occur in everyday life and then the information received is analyzed and presented in the form of graphs, tables, charts and so on for conclusion.

There are three indicators of numeracy literacy skills, namely: 1) the use of numbers and symbols related to basic mathematics as a solution to existing problems in everyday life, 2) analyzing information in mathematics in the form of graphs, tables, charts, and so on, and 3) interpreting the entry of information on mathematical problems (Kemendikbud, 2017; Siskawati et al., 2020). There are also those who state that indicators of numeracy literacy

skills include: 1) working effectively with models in concrete and complex situations. 2) selecting and representing information, including on symbols, and relating them to real situations. 3) Use skills and reason with some knowledge in a hands-on context. 4) provide explanations and communicate them accompanied by reasons and arguments based on their interpretations and actions (Ambarwati & Kurniasih, 2021)

Numeracy literacy skills of students at this time is still in the low level category (Dedi et al., 2021). We can observe (Lamada et al., 2019) research results have been obtained which have shown that only 19.3% of students are able to solve numeracy literacy problems. (Eta et al., 2021) students ' numeracy literacy skills at the stage of understanding problems 44%, at the stage of planning 32%, at the stage of implementing the plan 13%, while the stage of looking back 11% belongs to the category of less which is that the ability of students to question numeracy literacy is still relatively low. Judging from the results of research data that has been done is that the ability of literacy numeracy is very important in learning mathematics which needs to be developed again the ability of students.

So far, in solving all problems on the subject of the Pythagorean theorem, especially certain questions in mathematics learning are still very determined and dependent on teachers, so that students have many difficulties in understanding the material, especially those related to understanding the Pythagorean theorem concept, for example in determining the hypotenuse of a right triangle and solving Pythagorean theorem problems in the form of stories (Saragih, 2021). The difficulty of students in solving problems on the subject of the Pythagorean theorem is, where students have not been able to communicate the core problem on the Pythagorean problem, cannot determine the essential characteristics of the object and understand the problem solving process to be used (Faijah, 2022; Fitriani, 2021).

The Pythagorean theorem, also known as the Pythagorean theorem, is a theorem showing the relationship of the sides of a right triangle (Nurkhaeriyyah et al., 2018). (Sari et al., 2020) the Pythagorean Theorem is a learning material that students must learn in Class VIII semester II, this material has a strong connection with previous materials. Thus the concepts related to the Pythagorean theorem material must be mastered by students, because students will have difficulty if they do not master these concepts. But in fact, students are still not optimal in understanding the concept of the Pythagorean theorem.

RESEARCH METHODS

This study uses qualitative descriptive research. (Sugiyono, 2017) stated that qualitative research method is a research method based on the philosophy of post-positivism or enterpretetif, used to examine the condition of natural objects, where the researcher is a key instrument, data collection techniques are triangulated (combined observation, interview, documentation), the data obtained tend to be qualitative, data analysis is inductive/qualitative, and the results of qualitative research emphasizes the meaning rather than generalization with the aim of knowing the ability of numeracy literacy students in solving problems on the Pythagorean theorem in writing.

The research was conducted at SMP Negeri 7 Medan, which is located at Jl. H. Adam Malik No.12, Silalas, District. New Terrain., Medan City, North Sumatra in the second semester (even) of the 2021/2022 academic year. Research Data obtained from the results of written tests that have been given to students. Research subjects or samples in descriptive research conducted purposive sampling techniques. (Sugiyono, 2017) purposive sampling technique is a sampling technique with careful consideration. With that the researcher

determines the sample based on considerations of problems in the population to be studied in order to get a valid result or research data as expected. Therefore the subjects in this study are students of class VIII2 SMP Negeri 7 Medan totaling 32 students.

In this study the research instrument was conducted in the form of a test as much as 1 time by giving a post-test in the form of a test description (essay test). The research instrument sheet in the form of a test description (essay test) contains questions consisting of problem items. Each item represents one type of variable to be measured. This Test is given to measure the knowledge, skills, talents, and literacy skills of students.

Qualitative data analysis in this study was conducted through four stages, namely (1) Data Collection, (2) data reduction, (3) data presentation and (4) drawing conclusions. To analyze the numeracy literacy skills of students in accordance with the indicators that have been focused before, the researchers classified the categories of data the student's ability level can be seen by:

Table 1. Student Ability Category Scale

Value %	Categories
61-100	Height
41-60	Medium
0-40	Low

RESULTS AND DISCUSSION

Before conducting the research, the instrument was tested to see the validity and reliability of the test. From the calculation results using SPSS 25.0 for Windows obtained the results of validity and reliability as follows :

Case Processing Summary

		N	%
Cases	Valid	32	100,0
	Excluded[a]	0	,0
	Total	32	100,0

a. Listwise deletion based on all variables in the procedure.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Soal1	35,8125	71,577	,775	,752
Soal2	36,1250	70,177	,765	,752
Soal3	35,7813	71,789	,766	,754
Soal4	41,4688	90,580	,266	,808
Soal5	37,0625	62,899	,676	,767
Soal6	41,5313	92,193	,169	,816
Soal7	36,5938	71,797	,677	,764
Soal8	41,7500	86,903	,365	,801

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Soal9	41,5313	88,257	,330	,804
Soal10	41,3125	99,770	-,167	,836

Reliability Statistics

Cronbach's Alpha	N of Items
,806	10

From the calculation of validity, obtained that from the test results to 32 students obtained the result that for 10 questions provided there are as many as 6 questions are valid and 4 questions are invalid. From 6 valid questions, 5 valid questions were selected to be used in research. The keliama selected questions are about No. 1, No. 2, No. 3, No. 5, and No. 7, because it has a fairly high validity value. From the reliability calculation results also obtained that overall that all the problems are also reliable because the value of thitung > ttable is 0.806 > 0.349. Furthermore, from the results obtained the following data :

Table.2.

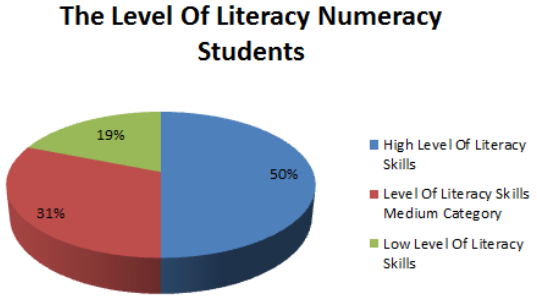
Indicators Of Numeracy Literacy Skills	Percentage (%) Of Literacy Skills				
	Problem 1	Problem 2	Problem 3	Problem 4	Problem 5
Numeracy literacy skills on the ability to use symbols in the material space and form.	20%	19,38%	18,75%	16,88%	3,75%
Numeracy literacy skills on the ability to analyze information from graphs, tables, diagrams and so on.	19,38%	15,63%	14,38%	13,13%	2,50%
Numeracy literacy skills in interpreting the results of problem analysis to predict and make decisions in solving problems.	18,96%	11,25%	6,88%	4,38%	0,63%

Where the answers given are very diverse solutions. Here is a review of the numeracy literacy skills of students in solving the problem of the Pythagorean theorem :

Table.3.

Level Of Literacy Skills	Number Of Learners	Percentage
High Level Of Literacy Skills	16	50,00%
Level Of Literacy Skills Medium Category	10	31%
Low Level Of Literacy Skills	6	19%
Amount	32	100%

Then it can be seen the comparison of the level of literacy numeracy students in the following diagram :



Based on the diagram above, the literacy skills of students in class VIII2 UPT SMP Negeri 7 Medan reached a high level category of 50%, a medium level category of 31%, and a low level category of 19%.

CONCLUSION

Based on the purpose of the research results that have been made by researchers, it can be seen that there is a difference in the numeracy literacy skills of students in solving post-test Test Questions where the numeracy literacy skills of students obtained 50% at a high level, while 31% of students who have medium-level numeracy literacy skills, and 19% of students who have low-level numeracy literacy skills.

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