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The Effect of Contextual Teaching Learning on Solving Story Problems Ability Students of MTsN 1 Medan

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ABSTRACT

This research aims to find out the effect of using contextual teaching learning on solving story problems ability at first year MTsN 1 Medan students 2020/2021 on *integer countsubject matter.* The population of this study was all students of class VII MTsN 1 Medan totaling 351 people divided into 11 study groups. This sampling technique using *cluster random sampling* so class VII-1 uses a contextual learning model and VII-2 uses a conventional learning model. This research type is *quasi experiment* with the research instrument tested the ability to solve story problems wich consisted of five essay question. The results of the study with the help of SPSS version 25.0 show that there is an influence of the contextual teaching learning on the ability to solve story problems. This based on a significant value 0,031 < 0,05.

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INTRODUCTION

Mathematics is one of many subjects that must be studied for every level of education from elementary into college. This is because the development of science, technology and science is developing very fast, of course it doesn't escape from the interference of increasingly advanced education, especially in the fields of mathematics, therefore the educational process must be in accordance with the provisions which are fundamental to the development of science.

Learning mathematics is needed by children as a provision of life. But when this math is considered a difficult subject because you have to use a lot of formulas and there are also many teachers who still use the method conventional teaching, such as didactic teaching so that children do not understand what taught. Here the teacher teaches by telling directly to students what the material is and concepts to be mastered. The student's job is only received, remember, and memorize.

The ability to solve word problems had an important role in learning mathematics. Story problems are problems that expressed in meaningful and easy to understand. Word problems are useful for applying the knowledge that previous student had. Solving story problems is a problem solving activity. Problem solving in a math story problem is a process that contains correct and logical steps to get a solution. In solving a math story problem, it's not only about obtaining results in the form of answers to the things that being asked, but more importantly students must know and understand the thought process or steps to get the answer. Education is an effort to create an atmosphere of learning and learning, so that students actively develop their potential and skills in response to various problems in social life. (Sugiarti, N. 2022., Hidayat, M. 2020., Sesriani, Y. 2022., Husna, F. 2022)

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Mathematical word problems play a very important role in the daily life of students because this question put forward problems that accordance with everyday life. Word problems as an evaluation form of students' abilities to the basic concepts of mathematics that had been learned. A person can be said to have mathematical abilities if they are skilled at correctly solving math problems.

On learning mathematics especially about the teacher's story usually submit questions only with written on the blackboard and students work on with the example given by the teacher with simple way. But in a way something like that doesn't produce value which is desired. There are still some students who don't understand in a similar way teacher teach. Based on observations in class, most of the students are many once had difficulty in solve story problems. Difficulty can source from the material aspect.

In fact, students often have difficulty understanding what is meant by the question, what is known and asked by the question, continues on how or what way to solve questions, as well as in communicating findings/results

According to raharjo (2009) stated word problems is a question that presented in the form of short stories in everyday life problem form or the other problems experienced by students writ tend in the form of a mathematical model, where solving the problem requires calculations and mathematical concepts.

Story questions are not easy when students solve number problems, because most of the story questions include questions non-routine. Students are not only required to have skills in counting course, but pay attention to the process the solution too. Participants are expected learn to solve story problems through stages step by step so that the teacher is able analyze the abilities they have. Especially student understands to the concepts used incomplete the given story.

According to Paridjo (2008) the student difficulties in solving story problems is the difficulties of students understanding the story, determine the existing quantities and the correlation in order to obtain a mathematical model and solve the mathematical model mathematically. This difficulty is experienced not only by middle school students, but also students at higher education levels. The difficulties experienced by students in solving questions would be caused by students because students are not careful and difficult to understand the story thus making it difficult for student to make mathematical models and find the right concept. These difficulties can cause errors in doing math story problems.

Khasanah (2015) in her research concluded the tendency of students who are unable to retell the meaning of the question in his own language, lack of students ability to transform sentences into a mathematical model, and lack of understanding of the applied concept, that students find it difficult to determine the used formula. Students also cannot use the formula correctly or an error occurred substituting what is known in the formula resulting in students unable to solve a problem correctly.

In mathematics learning, especially in story problems, the teacher usually delivers these questions by writing them on the board and student work according to the example given by teacher in a simple way, however in this way it doesn't produced the desired value. There are still some students doesn't understand the way the teacher teaches. Based on classroom observations, most students have a lot of difficulty in solving story problems. The difficulty can be sourced in the subject aspect.

The low ability to solve math problem in the first class is caused by the lack of learning innovations applied by the teacher in creating an attractive learning atmosphere and cannot be separated from everyday problems context. The learning used by teacher is still teacher cantered. Students only involved as recipients of the subject and student dependence on teacher is very high, when students faced with more complicated questions, they still having trouble on solving it. As a result, learning has not been optimal in developing the ability to solve math story problems.

The low ability to solve story problems is caused by which is still often used in the learning process is the conventional model, and teachers also rarely provide a link between the concepts that students learn with everyday life both in mathematics itself, and with another lesson. As well as examples of questions that are often given by teachers usually only questions whose categories are very easy, are rarely in the form of story

questions that are demands understanding of concepts, mathematical modeling and solutions, as well as student interpretation of the results that have been obtained

One of the interesting learning approaches with this research according to the research is the contextual teaching learning, in order to increase students understanding of the concept. Involving students actively in learning, and encouraging students in making correlation between their knowledge with the way they applied in their life.

Contextual teaching learning aims to provide students with flexible knowledge, which can be applied from one problem to another, from one context to another context Contextual teaching learning can be said as a learning approach that recognizes that learning only occurs when students process new information or knowledge in such a way that it is perceived makes sense according to his frame of mind

Contextual teaching learning is concept of the study that helping teacher in connecting the subject they teach with students real-world situations and encouraging the students in making correlations between their knowledge with the way they applied in their daily life.

One of the advantages from contextual teaching learning is the students not required to memorize facts but the strategy stimulated knowledge in their own minds. Through contextual learning, students not only have academic comprehending however students can obtain knowledge that can be related with their life context in order to make students having knowledge with the way they applied in their daily life.

The main goal of the contextual teaching learning is to encourage students to be able in develop thinking skills, both physically and mentally. With this learning model, it is expected that students learning result can apply their ability in real life.

Based on the observation conducted before the study, the level of ability to solve maths word problems for VII class in MTsN 1 Medan still in low category. Therefore, the formulation of the problem in this study is to find out how effective contextual teaching learning on solving story problems abilityy VII Grade Students of MTsN 1 Medan

RESEARCH METHOD

This research conducted in MTsN 1 Medan Medan Amplas District, Medan city, North Sumatera Province in odd semester at academic year 2020/2021. This research population is all of VII Class MTsN 1 Medan at academic year 2020/2021 which consisted of 351 students and divided into 11 Class. Technique of sample collecting is used *cluster random sampling* and VII-10 Class will be experiment class in this research. The subject who used is integer count operations it is expected can improved solving word problems ability with using contextual teaching learning.

Kind of the research is used in this study is *quasi experiment.* In this research using *probability sampling.* Instrument of this research is used essay test which consisted of five questions to find out math solving word problems ability in integer count operations subject. Variable of the research is independent variable and dependent variable. Variable independent in this research is contextual learning models while dependent variable is solving word problems ability.

RESULTS AND DISCUSSION

This research was conducted in MTsN 1 Medan, the lesson which conducted in this research using contextual teaching learning and the subject was given is integer count operations in VII Class. Before conducting the research, the researcher tested the instrument of study first and finally it is used in this research. Therefore the instrument research test is needed to conduct in order the result of data can be validated.

Solving maths word problems ability about understands the problems in meaningful way in solving the problems which used in solving number problems. According to Polya, the steps should conduct in solving word problems is understanding the problems, setting plans, implementing plans, re-checking the answers.

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Through integer count operations subject with each different learning models which given to know about students solving word problems ability.

Quantitatively the mean score in each indicator solving word problems with using contextual learning models can be seen on the table 1.

Table 1. Solving Word Problems Ability Test Score

Indicator	Score test
1. Ability in understanding task concept	3,969
2. Determine the form that will be used in solving the problems	5,344
3. Count and solve the problems	5,094
4. Re-check validity of the answer	3,656
Total score	18,063
Maximum score	20

From the table above, it shows that solving word problem ability score test with using contextual teaching learning is 18.064. as for the data description from each solving word problems ability aspect with using contextual teaching learning showed lower score, higher score, mean score and deviation standard can be seen from the table 2 below.

Table 2. The data result of solving word problems ability

	N	Minimum	Maximum	Mean	Deviation Std
Contextual	32	14,00	20,00	18,063	1,865

From the table 2 above, it showed that the score test of solving word problems ability with using contextual learning models obtained lower score is 14,00 and higher score is 20,00

Testing the second research hypothesis that significant by contextual teaxhing learning on solving story problems ability. The tested hypothesis are:

$$H_0 : \beta_{21} = \beta_{22}$$
$$H_1 : \beta_{21} > \beta_{22}$$

Note:

β_{21} : the effect of contextual teaching learning on solving story problems ability

β_{22} : the effect of usual learning to the students confidence

The criteria of the test are if the significant score < 0,05 or F_{count} score > F_{table} then H_0 is rejected. While if the significant score > 0,05 or $F_{count} \leq F_{table}$ then H_0 is accepted. With using SPSS version 25, result test contextual teaching learning towards solving word problems ability can be seen on table 3 below.

Table 3. Result test the effect of contextual teaching learning on solving story problems ability

Tests of Between-Subjects Effects

Dependent Variable: solving story problems ability

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	391,400	1	391,400	5,093	,031
Intercept	5166,683	1	5166,683	67,231	,000
Contextual	391,400	1	391,400	5,093	,031
Error	2305,475	30	76,849		
Total	263700,000	32			

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Corrected Total	2696,875	31

From the table 3, it showed that the F score from contextual column is 5.093 with the significant score 0,031 < 0,05 that mean H_0 is rejected. Therefore, it concluded that there are significant effect between contextual teaching learning towards solving word problems ability. This is proved by the researcher Rukmin Podungge (2013) who showed that with the contextual teaching learning can improve solving word problems ability.

One of the difficulties for students who often found, namely the difficulties of students in solving story problems. Though the matter story is a form of ability evaluation students in understanding the basic concepts mathematics that has been studied, so that teachers must motivate students to generate confidence and desire know with the aim of increasing ability students in solving story problems in mathematics. Aside from that, the ability of students will increase in learning, especially subjects mathematics if the teaching method and style very good teacher and easily accepted by students and teachers familiarize students learn to solve story problems.

The ability of students will improve in learning, especially eyes mathematics lessons if the method and teacher's teaching style is very good and easy accepted by students. And how the ability of students to understand or do math story problems is how teachers can develop learning that is the way the teacher must always require to be creative because of this already stated in the 2013 curriculum which based on character and competence so that the teacher must create a conducive situation and raises self-confidence curious with the aim of improving the ability of students in solve story problems in lessons mathematics.

According to H.E. Mulyasa, (2017) Teacher is as an agent of revolution and innovation learning at school, to realize education according to national standards, teachers as agents of revolution and innovation learning is required to have standards adequate competence and professionalism, such as the need to organize content, organize sources learning, managing the learning process and make an assessment according to the standard national.

This research was conducted as an effort to increase ability solves math problems using the Polya model. With using the learning students will be more active and can understand better material in depth. The ability to solve mathematical story problems is to understand problems meaningfully in solving problems used in solving number problems. According to Polya, the stages that must be carried out in solving story problems understand the problem, making plans, implementing plans, and re-examining answers. Through arithmetic operations with integers with each different learning model given to see students' ability to solve story problems.

Contextual teaching learning outcomes are expected to be more meaningful to student's students to solve problems or problems, think critically, and carry out observations and draw conclusions in the long term length. To achieve this goal, there are 5 strategies for teachers to: carry out contextual learning, namely looking for relationships, emphasizing on experience, emphasizing context on its use, emphasizing on learning together, emphasizing its use in contexts or situations the new one.

To see the ability to solve story problems in the contextual learning model that has been done using SPSS version 25 of 0.019 <0.05, which means H0 is rejected. In other words, there is a significant influence between the contextual learning model and the ability to solve story problems. This is in line with the results of Rukmin Podungge's research (2013) which shows that the contextual learning model can improve the ability to solve story problems and the results of Herdwi Febriandari's research (2017) which shows that the learning model with polya steps affects students' ability to solve story problems.

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CONCLUSION

Contextual learning is a process education that aims to help students see meaning in material academic skills they learn by connecting subjects academics with the context in their daily lives, namely with context of their personal, social and cultural circumstances. Contextual teaching learning linking subject content to real-world situations and motivate students to make connections between knowledge and its application in daily life life. Thus, students are able to connect learning with everyday life, other disciplines, and between topics mathematics.

The result of the study showed that there are significant effects of contextual teaching learning towards solving word problems ability in VII class MTsN 1 Medan. It is based on significant score which obtained is 0.031 lower than 0.05 that means there are effect between contextual teaching learning towards solving word problems ability.

Suggestions that can be given is teacher can use contextual teaching learning as one of learning model that can be used in teaching learning activity to improve solving word problems ability. Therefore, it caused by limitation of the research, it is suggested that there be father researcher who research about contextual teaching learning towards solving word problems ability in another subject.

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