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Effectiveness of situation based learning model on problem solving abilities and mathematical disposition

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ABSTRACT

This study aims to describe the effectiveness of the SBL learning model on the mathematical problem-solving ability and mathematical disposition of grade VIII Junior High School students. The lesson material focuses on the flat-sided shapes of prisms and pyramids. This is an experimental study that uses a one-group pretest-posttest design, and the study population consists of eighth grade students from junior high schools in Klaten, Central Java, which consists of eight classes. The sample was selected using cluster random sampling, and the treatment was administered to class VIII H using the SBL learning model. The study found that the SBL learning model was effective in improving the problem-solving abilities of junior high school students, with an N-gain score of 0.6231. However, it was not effective in improving their mathematical disposition, with an N-gain score of 0.3005. The application of the SBL learning model can be considered as a solution for developing students' mathematical problem-solving abilities.

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INTRODUCTION

Education is one of the most important assets in life. Education aims to develop the potential of each individual so that they become individuals who believe and are devoted to Almighty God. Law Number 20 Year 2003 Chapter 1 Article 1 about National Education System states that education is conscious and planned efforts to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals, and skills needed by themselves, society, nation and state.

Mathematics is a compulsory subject which must be included from basic education to secondary education levels with the hope of being able to train students to think realistically, critically, practically, systematically and creatively. The Regulation of Government of The Republic of Indonesia Number 21 Year 2016 about Content Standards of Primary and Secondary Education states that The expected mathematical competency for students is to show a positive attitude, namely logical, critical, analytical, careful, thorough, responsible, responsive and not giving up easily in solving problems. National Council of Teachers of Mathematics (NCTM) stated that there are five abilities in mathematics learning namely problem solving, reasoning and proof, communication, connection and representation (NCTM, 2000). From those explanation, it can be said that one of the abilities that is necessary for students is problem solving ability.

Problem solving ability become something important for the students. Polya (1973, p. 3) defined problem solving as an effort to find solution from a difficult situation to reach certain goal. According to Hudojo (2005), problem solving, in simple terms, is a process of accepting the problem as a challenge to solve the problem itself. Problem solving ability is a students' skill in finding, processing information,

selecting, and applying adequate strategy in finding solution from realistic problems encountered by the students, using the initial knowledge that they already have (Fitriani & Maulana, 2016). According to Polya (1973, p. 5), there are four steps of problem solving namely understanding the problem, planning the solution, solving the problem, and re-checking again. Based on those opinions, problem solving ability can be defined as the students' ability in finding the solution from a problem in order to solve the problem in the context of mathematics learning. The indicator of mathematical problem solving ability in this study consists of understanding the problem, planning the solution of the problem, carrying out a problem solving plan, and making conclusion.

Problem solving ability is necessary for the students because through the process of mathematical problem solving, students can actively looking and finding the information which can be processed into concepts, principles or conclusions. Apart from that, the ability of mathematical problem solvings is also important for students because it is needed to solve the daily life problems. This is in line with research from Sari et al. (2019) which stated that problem solving ability can help the students in developing their mathematical analysis and can help them to implement their tought on various different situations. Hasibuan et al. (2019) on his research also stated that the problem solving ability is very important It is very important to have in everyday life, because as humans we will never be free from problems.

However, in this current situation the students' problem solving ability in Indonesia have not yet developed to a satisfactory level or still relatively low. The survey of PISA in 2018 released by OECD showed that the ability of Indonesian students in mathematics got the average score of 379 with the OECD average score of 489 which means that the result of PISA from Indonesian are far below OECD average score. In the study from TIMSS released by IEA also showed that Students are still weak in solving mathematics problems related to daily life, which means that students' problem solving abilities are still lacking. Highlights of TIMSS in the year of 2011 showed that the test result of grade VIII Junior High School students in Indonesia is ranked 38th out of 42 countries with an average score of 386 out of an international average score of 500. Meanwhile, the highlights of TIMSS in the year of 2015 showed that student test results in working on TIMSS mathematics questions are ranked 44th out of 49 countries with an average score of 379 from an international average score of 500. From the result of PISA and TIMSS, both of them showed that the students problem solving ability especially for solving mathematics questions are at a low level.

Other than PISA and TIMSS result, there were many studies showed that students problem solving ability is still lacking. Sriwahyuni & Maryati (2022) stated that students mathematical problem solving ability are considered as low especially in the indicator of choosing and applying problem solving strategies, explaining or interpreting the result based on the problem, also checking the correctness of the results or answers. This is in line with Melindarwati & Munandar (2022) which stated that students problem solving ability are still in the low category especially in the steps of making plans or strategies, This is because students have difficulties creating mathematical models that will be applied in solving problems. This is similar to the results of the researchers' observation in one of the State Junior High School located in Klaten, Central Java, at the moment of students' daily test which showed that many students are not able to solve a question in a form of story which contains aspects of problem solving. The result of interview from mathematics teacher also stated that students are not yet accustomed to write the aswer of every steps or procedures like what is known and asked in the problem, how to solve the problem especially in a mathematics question in the form of story, and interpret the result according to what was asked (Taufiq & Basuki, 2022).

Learning mathematics does not only mean to develop mathematical cognitive abilities of the students but also also students' affective domains such as students' attitudes or behavior when dealing with mathematics. When the students try to solve mathematical problems, students need to have curiosity, interest, and flexibility toward mathematical problems, as well as having persistent, diligent and confident attitude in solving mathematical problems. The development of the affective domain is the goal of education at every level, one of the goals of mathematics learning stated by NCTM (Syaban, 2009) is "to have an attitude of appreciating the usefulness of mathematics in life, an attitude of curiosity, attention and interest in studying mathematics, as well as a tenacious and confident attitude in solving problems". This goal is called as mathematical disposition.

Mathematical disposition ability is necessary for the students in learning mathematics. According to Katz, disposition is a tendency to behave confidently, persistently, curiously, and consciously have

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flexible thinking, frequently, and voluntarily to achieve a certain goal (Mahmudi, 2010). In the context of mathematics, Katz mentioned that mathematical disposition relates to how students solve mathematical problems, whether they are confident, persistent, interested, and flexible in exploring alternative problem solving. Killpatrick, Swafford, and Findel (2002) called mathematical disposition as productive disposition, which is a tendency in seeing mathematics as something that can be understood, consider it as something useful, believe that a persistent and tenacious effort in studying mathematics will show the results, and do something as effective learning. Whereas mathematical disposition defined by Sumarmo (2010) is a the desire, awareness, tendency and strong dedication of the students to think and act mathematically. Based on those opinions, mathematical disposition can be defined as a tendency to think and act positively, such as confidence, curiosity, tenacious, persistent, and flexible regarding mathematical activities which is carried out, especially in solving mathematical problems. The indicators of mathematical disposition in this study are confidence, tenacity or persistence, curiosity, interest toward mathematics, and flexibility in learning mathematics.

Several studies have been conducted regarding students' problem-solving abilities and mathematical dispositions. The restult of study from Sari & Sutirna (2021) showed that the majority of students have low category mathematical disposition abilities which can be seen from all the students' mathematical disposition indicators. Students still lack attitudes towards indicators of (1) confidence in using mathematics, communicate the ideas and provide the reasons (2) flexible in exploring mathematical ideas and trying various alternative methods to solve the problems, (3) have strong determination, persistence, and tenaciousity in completing mathematics assignments (4) interest, curiosity and ability in mathematics, (5) do self reflection on the way of thinking, (6) appreciate mathematical application, and (7) appreciate the role of mathematics. In another study by Akbar et al. (2017) stated that in general The achievement of indicators of problem solving ability has not been fully achieved and students' mathematical disposition abilities are still relatively low. This is the reason why the students' ability of mathematical disposition need to be developed.

The success of learning in achieving predetermined learning objectives can be influenced by several factors, one of them is the strategy/ learning model selected for use. In using learning models in the classroom, teachers need to choose the right learning model and it should be oriented towards increasing students' intensity effectively in the learning process, and develop the students thinking ability in order to support students' achievement of learning objectives. The passive role of students during the process can cause learning outcomes to decrease, and continuous usage of conventional learning method can also cause students to feel bored and lack motivation in the learning process (Musdiani, 2019). Based on the observation done by the researcher in one of the State Junior High School in Klaten, Central Java, It was found that in the learning process in class the teacher still gives formulas to students directly or learning is still centered on the teacher, so that students tend to be passive when learning takes place. One of the alternative learning model which provides a situation at the beginning of learning and can invite students to be actively involved in the learning process in order to improve students' problem solving abilities and mathematical disposition is Situation Based Learning (SBL) model.

Situation Based Learning (SBL) is a learning model which is situation-based with the teacher creating a learning situation that can raise questions from students and students can solve problems that they create themselves (Aqilah et al., 2017). This learning method is one of the learning method which is students centered because due to situation created by the teacher, the students can be more active and interactive in learning process by connecting learning material and situations in everyday life. The SBL learning model consist of four steps, namely creating mathematical situation, posing mathematical problem, solving mathematical problem, and applying mathematics (Isrok'atun & Tiurlina, 2016). Situation Based Learning (SBL) is a constructivist learning model to develop the concept by learning whatever is available in a certain situation. Students can connect what is obtained from a situation with learning material in the teaching and learning process.

Lestari et al. (2019) also explained that there is an effect of the SBL learning model on mathematical problem solving abilities. The application of SBL learning model can be one of the solution that is able to increase students ability in in solving mathematical problems. The existing problems are created by students based on the situation given by the teacher so that students are more interested in solving those problems. As a result, students' awareness of creating mathematical problems will increase and they will have motivation to take part in learning.

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Based on the description above, researchers are interested in testing mathematics learning using learning models of Situation Based Learning (SBL) in order to get information on the effectivity of Situation Based Learning (SBL) model toward problem solving ability and mathematical dispositions of grade VIII Junior High School students. The goals of this study are (1) to describe the effectivity of SBL learning model toward the problem solving ability of the VIII grade Junior High School students on the material of flat-sided shapes of prisms and pyramids, (2) to describe the effectivity of SBL learning model toward the mathematical disposition of the VIII grade Junior High School students on the material of flat-sided shapes of prisms and pyramids.

METHOD

The type of research used in this research is experimental research using One Group Pretest-Posttest Design. This research was conducted at one of the State Junior High School located in Klaten, Central Java on 18 March to 10 May 2022 for 5 meetings or 10 hours of lessons with a population of all grade VIII students in one of the State Junior High Schools located in Klaten for the 2021/2022 academic year which is consisting of 8 classes. The sample used was class VIII H which was chosen using cluster random sampling. Independent variable in this study is the Situation Based Learning (SBL) model and the dependent variable is students' problem solving ability and mathematical disposition. The control variables in this research are the teacher and the material taught, namely the flat-sided shapes of prisms and pyramids.

Data Collection Instruments and Techniques

The instruments used in this research are test instruments and non-test instruments . The test instruments are in the form of written tests of pretest and posttest to obtain data on students' problem solving abilities. Meanwhile, the non-test instrument is in the form of a mathematical disposition questionnaire which is also given before and after treatment and the non-test instrument is in the form of an observation sheet on the implementation of learning carried out during the learning process.

In this research, two data analyzes were carried out, namely descriptive analysis and statistical analysis of inferential tests. Descriptive analysis is used to present data on mathematical problem solving abilities obtained from the pretest and posttest results as well as data from the mathematical disposition questionnaire. In the statistical analysis of inferential tests, there are three test stages which include a normality test to determine whether the data is normally distributed using Kolmogorov-Smirnov Test with the significance level of 5%, the average difference test is to find out whether there is a difference in the average learning outcomes before and after being treated using Paired Sample t-test with the significance level of 5%, and hypothesis testing to determine the effectiveness of the learning model on each variable using One Sample t-test on N-Gain Score of data in each variable.

The effectiveness of the learning model is measured using a normalized gain score (N-gain Score). N-gain Score is the improvement on the students ability before and after the treatment is given to the learning process. SBL learning model is said to be effective if the average N-gain Score data on students' problem solving abilities and mathematical disposition is at medium or high criteria ($g \geq 0{,}3$).

In this research, the validity used is content validity from several experts. The validated instruments are lesson plan, pretest, posttest, questionnaire of students' mathematical disposition, and learning implementation plan. Based on the validation result from several experts which are one of the lecturer of mathematics education and State Junior High School's mathematics teacher in Klaten, Central Java, the results showed that the research instruments were valid with slight revisions.

The method used in this study to estimate the instrument reliability is by using the Alpha Croncbach formula. Reliability estimation is used on the pretest, posttest, dan questionnaire instrument of students mathematical disposition. From the results of calculations using Cronbach's Alpha on the pretest instrument, it was obtained $r_{hit} = 0{,}848 \geq 0{,}355$ which means the pretest instrument is reliable with the reliability level being in the very high category. On the posttest insturment, $r_{hit} = 0{,}687 \geq 0{,}355$ which means the posttest instrument is reliable with the reliability level being in the high category. On the instrument of students mathematical disposition questionnaire, $r_{hit} = 0{,}804 \geq 0{,}355$ which means that the student's mathematical disposition questionnaire instrument is reliable with the level of reliability being in the very high category.

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RESULT AND DISCUSSION

This research was carried out in 5 meetings which were divided into three stages of the learning process, 1 meeting for learning preparation, 3 meetings for learning implementation, and 1 meeting for learning evaluation. On the step of learning preparation, pretest questions are given to the students to measure initial mathematical problem solving abilities and initial questionnaires are given to measure students' initial mathematical disposition abilities. On the second step, learning implementation is carried out using SBL learning model on the material of flat-sided shapes of prisms and pyramids by referring to the lesson plan that has been created. SBL learning model is carried out in groups with four learning stages, namely creating mathematical situation, posing mathematical problem, solving mathematical problem, and applying mathematics. Then at the last meeting, the learning evaluation stage was carried out, namely giving posttest questions on problem solving abilities and a final questionnaire on students' mathematical disposition.

In the implementation of SBL learning model, observations are made by observers at each meeting regarding the implementation of the learning to observe the implementation of the lesson plan that has been prepared. This is carried out to see whether each stage of SBL learning model has been implemented properly. Based on the result of observation, the learning implementations were implemented in accordance with the lesosn plan.

The data obtained from this research on mathematical problem solving abilities comes from the pretest and posttest scores for problem solving abilities. The summary of data from the test results of students' problem solving abilities on the material on flat-sided shapes of prisms and pyramids is presented in Table 1.

Table 1. Summary of test results on problem solving ability

Description	Pretest	Posttest
Number of students (N)	31	31
Average value	32,58	73,03
Variety/variant	246,718	323,632
Standard deviation	15,707	17,990
Highest score	69	96
Lowest score	11	24

Based on the Table 1, it can be seen that there is a rise on the result of pretest to the posttest results of mathematical problem solving abilities. Analysis of problem solving ability test results is also seen based on each indicator of mathematical problem solving ability. The results of the analysis of students' mathematical problem solving ability test scores based on indicators are presented in Table 2.

Table 2. Average test score of problem solving abilities for each indicator

Indicators	Pretest	Posttest
Understanding the problem	35,51	85,16
Planning the solution	34,97	75,70
Solving the problem	34,65	73,43
Re-checking again	25,19	57,85
Average	32,58	73,03

Based on Table 2 above, It can be seen that the students' problem solving ability scores have increased in each indicator of their mathematical solving ability. Meanwhile, data on students' mathematical disposition was obtained from the initial score and final score of the mathematical disposition questionnaire. The summary of data from the students' mathematical disposition questionnaire is presented in Table 3.

Based on Table 3 above, it can be seen that there is an increase in students' mathematical disposition questionnaire scores. Analysis of the results of students' mathematical disposition questionnaires was also seen based on each indicator in mathematical disposition. The results of the analysis of students' mathematical disposition questionnaire scores based on indicators are presented in Table 4.

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Table 3. Summary of questionnaire score on mathematical disposition

Description	Preliminary Questionnaire	Final Questionnaire
Number of Students (N)	31	31
Average score	66,32	76,77
Variety/variant	72,426	65,847
Standard deviation	8,510	8,115
Highest Score	88	93
Lowest Score	42	61

Table 4. Average test score of mathematical disposition for each indicator

Indicator	Preliminary Questionnaire	Final Questionnaire
Confidence	64,09	74,31
Tenacity or persistence	71,35	78,21
Curiosity and interest toward mathematics	67,45	78,21
Flexibily in learning mathematics	62,40	76,36
Average	66,32	76,77

Based on Table 4, it can be seen that the score of students mathematical disposisition is increasing on every mathematical indicator. Among those four mathematical indicators, the one that had the highest increase occurred in the flexibility indicator and the lowest occured in tenacity or persistence indicator which are 13,96 and 6,86.

After the data was analyzed descriptively, the data was then analyzed statistically inferentially with three test stages. First is normality test using Kolmogorov-Smirnov Test toward the data of the results of mathematical problem solving abilities in the form of pretest, posttest, and N-Gain Score of students' mathematical problem solving abilities. It showed that the data came from a normally distributed population. Meanwhile, for data on mathematical disposition results in the form of initial questionnaires, final questionnaires, and N-Gain Score of students' mathematical disposition, it was also found that the data came from a normally distributed population.

Since the data is normally distributed, it can be continued with the second test analysis namely the average difference test. The test results using the paired sample t-test showed that there were differences in the average students' mathematical problem solving abilities. Similarly, the results for students' mathematical disposition abilities showed that there was a difference in the average students' mathematical disposition scores before and after the treatment.

Next, a hypothesis test was carried out using the N-Gain Score. The hypothesis test results obtained are as follows. (1) Based on the results of the one sample t-test with a significance value of 5%, *Sig. (2-tailed) value* = 0,000 < 0,05 which means that H_0 is rejected, or in another word the average of *N-gain Score* from students' mathematical problem solving abilities is more than 0,29. (2) Based on the result of *one sample t-test* with a significance value of 5%, *Sig. (2-tailed) value* = 0,770 > 0,05 which means that H_0 is accepted, or in another word the average of *N-gain Score* from students' mathematical disposition ability is less or similar with 0,29.

Discussion

In the results of hypothesis 1 testing, it is found that H_0 is rejected or the average of *N-gain Score* from students' mathematical problem solving abilities is more than 0,29, so the mathematics learning using Situation Based Learning (SBL) learning model is effective on problem solving abilities of grade VIII Junior High School students on the material of flat-sided shapes of prisms and pyramids with the average of *N-gain Score* test on problem solving ability is 0,6231 so its effectiveness is in the medium criteria. Based on that, it can be said that one of the alternative in increasing the students' mathematical problem solving ability is by using Situation Based Learning (SBL) learning model.

Judging from the average test scores for students' mathematical problem solving abilities for each indicator, all indicators of problem solving ability showed an increase on average after being given learning using the Situation Based Learning (SBL) learning model. In the indicator of understanding mathematical problems, students experienced the highest improvement compared to other indicators

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which is the improvement from an average of 34,83 to 84,73. From these results it can be seen that SBL learning model can improve students' ability to understand problems, because at the SBL learning stage, namely creating mathematical situations and posing mathematical problems, students are taught to understand existing situations and can investigate and extract information from these situations so that they can pose them as mathematical problems so that students can understand existing problems. This is in line with the study from Mulia et al. (2021) which stated that SBL learning model requires students to be able to think and analyze things well, thoroughly and precisely, especially at the posing mathematical problem stage which aims to enable students to ask various questions ranging from simple questions to more complex questions. The study from Junedi & Susanti (2020) also stated that *Situation Based Learning* (SBL) requires the students to construct the knowledge that they have which then leads to problem and allows students to raise questions about situations that have been designed by the teacher. On this study, the example of the situation provided by the teacher in student worksheet can be seen on Picture 1.

Figure 1. The example of situation provided by the teacher in student worksheet

On the indicator of planning the solution of the problem, students have an improvement from 34,97 to 75,70 and in indicators of solving problem the students also have an improvement from 34,65 to 73,43. Based on the result of those indicators, it can be seen that SBL learning method can improve the students ability in planning the solution of the problem which later can be used to solve the problem by applying the the steps of planned solution. This is due to the influence of the SBL learning stages, namely the mathematical problem solving stage or solving mathematical problems, At this stage students are given the opportunity to be able to solve problems from problems they have created themselves, so that students are able to plan what kind of steps needed to solve the problem. The last indicator of problem solving ability which is re-checking have improved from 25,19 to 57,85.

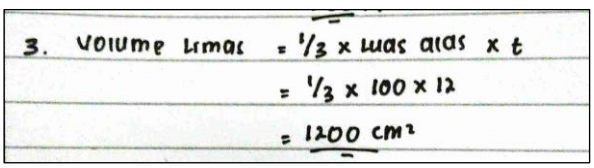

Figure 2. The example of pretest answer of student A's problem solving ability

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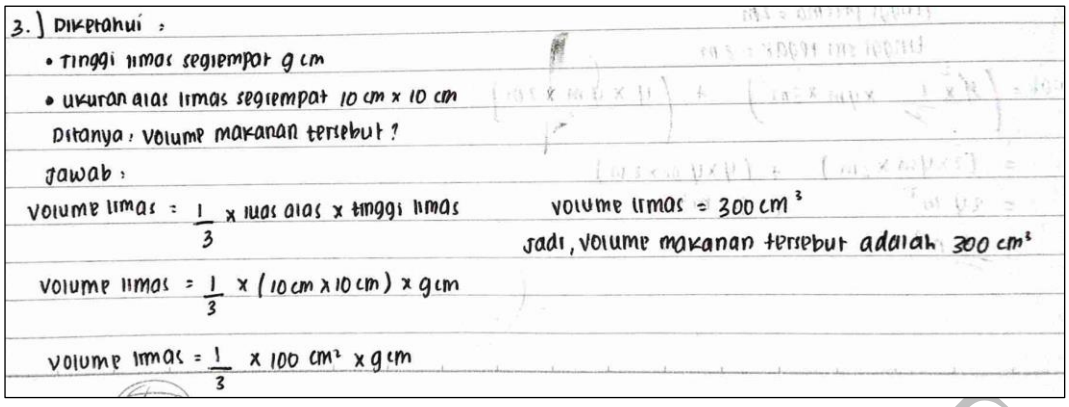

Figure 3. The example of posttest answer of student A's problem solving ability

From picture 2 and picture 3, it ca be seen that there are imrovements on student A's problem solving ability from all indicators namely understanding mathematical problem, planning and solving problem also re-checking, so it appears that learning with this SBL learning model can improve problem solving abilities or be effective in terms of students' problem solving abilities. This is in line with the result fo study conducted by Rahmatika et al., (2019) which concluded that the improvement of mathematical problem solving ability of the student from State Junior High School 3 Muara Enim who received learning using SBL was higher than students who received conventional learning, so that the SBL learning model can be used as a learning guide that can improve students' mathematical problem solving abilities. The result of study from Lestari et al., (2019) also concluded that there is an effect of SBL learning model toward mathematical problem solving ability of Senior High School students in Jakarta, so that the application of the SBL learning model can be a solution that can be used to improve students' abilities in solving mathematical problems. This is possibly due to the influence of the stages carried out in the SBL learning model. In learning with this model, the existing problems are created and arranged by the students themselves based on the situation given by the teacher, so that students feel more interested in solving mathematical problems from the problems they create themselves.

On the test result of hypothesis 2, it is found that H_0 is accepted or the average of N-gain Score from students' mathematical disposition is less than or similar with 0,29, so that mathematics learning using the Situation Based Learning (SBL) learning model is not yet effective for mathematical dispositions of grade VIII Junior High School students in the materials of flat-sided prisms and pyramids. Final questionnaire score of students mathematical disposition have an average of 75,65 with the highest score of 93 and the lowest score of 60. Those scores are higher compared to the initial questionnaire score with an average of 66.97 with the highest score being 89 and the lowest score being 42. Moreover, the average of *N-gain Score* from students' mathematical disposition questionnaire is 0,3005 with the effectivity is on the medium level. Although most of the students' score on mathematical disposition questionnaire have an improvement and *N-gain Score* is in medium level, it is not yet enough to draw conclusion that SBL learning model is effective on students' mathematical disposition. This is because the initial result of students mathematical disposition is quite high, so the improvement of the score result from students' mathematical disposition have little influence on it.

In SBL learning method which begins with creating a mathematical situation prepared by the teacher and then given to students to investigate and extract information at the posing mathematical problem stage so that they can pose mathematical problems from situations regarding real examples in everyday life that are related to the material presented, capable of generating curiosity and interest in mathematics and being able to realize the existence of mathematics in everyday life. In the step of solving mathematical problem, students are given the chance to solve the problems that they created by themseves, so this has the potential to arouse students' curiosity. This is in line with Yantoro (2017) which stated that the problem solving method is able to increase students' curiosity. The average of students' curiosity and interest in mathematics has increased from 67,45 to 78,21 and that results is in accordance with the existence of some students who still have low motivation to learn mathematics so that their curiosity and interest in mathematics still needs to be improved further.

At the SBL learning model stage, students are asked to create problems from the situations presented, thereby helping to hone their ability to investigate individually and in groups, as well as

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giving students the opportunity to discuss actively in conveying ideas, thoughts and plans to solve the problems they create. This can show students' tenacity or perseverance by not giving up easily in gathering information to organize problems and in solving problems. Based on the result of the mathematical disposition questionnaire on the tenacity or persistence, an initial average of 71,35 is obtained and increased to 78,21. By giving a situation that contains a lot of information, students are able to create their own problem which is obtained through discussion and investigation, it makes students realize that there are various ways that can be used to find a solution to the problem. Students can choose various ways that can be used to solve the problems. The result of mathematical disposition questionnaire on flexibility indicator in mathematic learning showed the initial average score of 62,40 and increased to 76,36 after SBL learning method has been implemented.

According to Suhaebar & Isrokatun (2019), conducive and enjoyable learning will grow students' self-confidence. In the fourth stage of SBL learning method, students apply mathematics in various problems. Students apply the concept of mathematics that they got to solve the problems and then the results of solving those problems were presented in front of their classmates, thus giving students the opportunity to grow their self-confidence. In presenting or conveying these results, students need courage to express ideas in written or oral form. During the process of presenting the results of solving problems in class, students seemed enthusiastic because without being appointed by the teacher, some students volunteered to convey their results, so that the learning process continued to be enjoyable. However, there are still some students who need to improve their self-confidence. From the result of mathematical disposition questionnaire, the average score of students' confidence was 64,09 and increased to 74,31.

Although in this study the SBL model was not effective for mathematical dispositions of grade VIII Junior High School students on material for flat-sided prisms and pyramids, there are some positive change experienced by students. This can be seen from the students' mathematical disposition questionnaire scores which showed that almost all students experienced an increase in scores on all indicators of mathematical disposition and there was an increase in the average score of students' mathematical disposition. In line with the study conducted by Amalliyah et al. (2022) which stated that the application of Situation Based Learning gave positive responses on the students interest in learning mathematics and the benefit of taking part in mathematics lessons. However, based on the results of hypothesis testing, the increase in students' positive attitudes in this study was still lacking, because these positive attitudes were only observed and familiarized with one teaching material in class. According to Nurjan (2015), It takes a certain period of time for children to fully understand the concepts being taught, as well as positive attitudes. It takes a long time to get used to it so that students have a positive attitude towards learning. Therefore, when students want to increase their self-confidence, tenacity or perseverance, curiosity and interest in mathematics, as well as flexibility in studying mathematics, it takes a considerable time to be able to process and get used to learning.

Quasi-experimental research that has been carried out in class VIII H in one of the State Junior High School in Klaten in 2021/2022 academic year proves that the application of the Situation Based Learning (SBL) learning model on the flat-sided geometric material of prisms and pyramids is effective on the problem solving abilities of Junior High School students. That is why, the application of SBL learning model can be a solution to increase students' mathematical problem solving ability. Although in this research the application of the SBL learning model on the material of flat-sided shapes of prisms and pyramids has not been effective on Junior High School students' mathematical dispositions, the application of this learning model is quite visible to increase students' mathematical disposition scores..

CONCLUSION

The effectiveness of the Situation Based Learning (SBL) model in enhancing the problem-solving skills of grade VIII Junior High School students when studying flat-sided shapes of prisms and pyramids is supported by significant improvements in posttest scores and N-gain values. However, the impact of SBL on students' mathematical disposition appears to be limited, possibly due to already high initial disposition scores obscuring observable improvements. Moving forward, it is important for educators and researchers to investigate additional strategies to foster positive attitudes towards mathematics. This will ensure a holistic approach to student learning and development.

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