The Effect of Applying the Window Shopping Learning Model on the Mathematics Learning Outcomes of Grade VIII Students at SMP Negeri 29 Sijunjung

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Abstract

This research is motivated by the low results of students' mathematics learning. The purpose of this study was to determine the effect of applying the window shopping learning model to the learning outcomes of class VIII students at SMP Negeri 29 Sijunjung. This type of research is experimental research with a quantitative approach. The research design used was the Post-Test Only Control Group Design. The research population was all students of class VIII at SMP Negeri 29 Sijunjung. The technique used in sampling is simple random sampling. The research sample was class VIII 1 as the experimental class and class VIII 3 as the control class. The research instrument used in this study was in the form of a post-test in the form of a description. Furthermore, testing the hypothesis using the one-sided t test to be precise the right side. The results showed that the class using the window shopping learning model had an average of 64.79 and the class using the conventional learning model had an average of 51.04. The results of the hypothesis test obtained tcount = 2.10 and ttable = 2.00, then tcount > ttable so that the hypothesis is accepted. Thus it can be concluded that there is an effect of applying the window shopping learning model to the learning outcomes of class VIII students at SMP Negeri 29 Sijunjung.

Keywords: Mathematics Learning Outcomes, Window Shopping Learning Model



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INTRODUCTION

Mathematics has an important role in human education. Mathematics has been introduced to students from the elementary level to a higher level to equip students to think logically, analytically, systematically, critically and creatively, as well as the ability to work together (Pertiwi, 2017). One field of study that has an important role in education both in the development of science and technology, as a tool in the application of other fields of science and in the development of mathematics itself is the understanding of learning mathematics (Hasanah, 2021).

The process of learning mathematics is a process of interaction between teachers and students in order to achieve learning objectives where students as students at the same time receive lessons resulting in a learning process. Success or failure of learning objectives can be seen in student learning outcomes. Learning outcomes are the main benchmark to determine student success. Learning outcomes can be influenced by two factors, namely internal factors and external factors (Hasanah, 2021).

The fact that was found in schools, the mathematics learning outcomes obtained by students were not in line with expectations. This can be seen from the percentage of completeness in mathematics learning outcomes for class VIII students of SMPN 29 Sijunjung for the 2022/2023 academic year which is presented in Table 1:

Table 1. Students' daily mathematics test scores at SMPN 29 Sijunjung							
No	Class	Total Student	Students' Mathematics Daily Test Scores				
			Complete		Not Complete		
			Total	(%)	Total	(%)	
1	VIII 1	29	8	27,59	21	72,41	
2	VIII 2	29	10	34,48	19	65,52	
3	VIII 3	28	13	46,43	15	53,57	
Total		86	31	36,05	55	63,95	

Table 1 Chardentel della

Source: Mathematics Subject Teacher

Table 1 shows that the mathematics learning outcomes of class VIII students of SMPN 29 Sijunjung are still below the Minimum Completeness Criteria (KKM) set by the school, namely 71, where students who complete are fewer than students who do not complete. Based on observations that were carried out on September 16 2022 in class VIII SMP Negeri 29 Sijuniung it can be seen that students are less active in learning, students feel bored so they often ask permission to leave class, students are busy alone, lack of a sense of responsibility in groups expecting friends who just clever, there are some students who like to walk around when learning takes place, students do not pay attention to the information conveyed by the teacher, the learning model used is less varied.

The results of joint interviews with mathematics teachers at SMPN 29 Sijunjung obtained information that in the learning process in class they still use conventional learning so that it makes students less active in learning, students are busy themselves in the learning process, there are some students who like to walk around during learning so the teacher should be able to make learning more interesting to students. The results of interviews with students obtained information that according to students mathematics is a subject that is very difficult and difficult to understand because there are many very complicated formulas. Learning mathematics is boring so it makes you sleepy and afraid to ask questions with material you don't understand.

Moving on from the problems above, it is hoped that teachers will be creative in the learning process which makes student learning fun, fosters interest, is active and reduces boredom. One of them is by using an approach, method or learning model that is different from what is usually done at the school with the hope that learning will be more meaningful, involving student activity so that students find learning mathematics fun. There is one learning model that can be used, namely the cooperative learning model, this model is a learning model in which students study in groups that have different levels of ability. One model that encourages active participation of students in groups is the window shopping learning model. The window shopping learning model (shopping for works) is a group workbased learning model by shopping around looking at the work of other groups to broaden their horizons (Revianto, 2021).

This window shopping learning model has an activity, namely asking students to take a walk to see the results of other groups' work posted on the wall. This visiting activity is not just looking around but students are asked to observe and record the learning outcomes of other groups. This activity requires students to communicate with their friends and peer tutor learning activities occur (Istianingsih & Mir'anina, 2017). According to Erlivanti (2020) the window shopping learning model is a learning model in which students not only look at the results of other groups' work but also record the results of the work to share with their group members. So that every member of the guest group who visits also buys knowledge or gains knowledge for souvenirs from other members, especially members who serve as stand keepers. This learning model in learning activities can be a means for students to practice collaboration with groups to achieve maximum learning results and get them used to communicating politely in conveying or defending opinions.

According to Suprapto (2017) the application of the window shopping learning model can improve student learning outcomes and provide opportunities for students to develop mathematical abilities and communicate their knowledge to their peers. According to Zam (2021) the window shopping learning model is a new model so it is interesting when practiced, not passive and not boring, in fact the learning process becomes fun and effective and efficient. This model can also overcome problems for students who have stage fright or are embarrassed to appear for presentations and discussion of questions and answers between groups in class due to the presence of peer tutors.

RESEARCH METHODS

This research was carried out at SMP Negeri 29 Sijunjung. This research was conducted in class VIII of SMP Negeri 29 Sijunjung in the odd semester of the 2022/2023 academic year. This research is an experimental research with a quantitative approach. The experimental method is a way to look for a causal relationship (causal relationship) between two factors that are deliberately generated by researchers by eliminating or reducing or setting aside other disturbing factors (Arikunto, 2010). The research design used in this study was the Post-Test Only Control Group Design. This study involved two groups, namely the experimental group and the control group. In the Post-Test Only Control Group Design, there are two groups: the experimental group and the control group. Treatment was given to the experimental group by applying the window shopping learning model, while the control group did not apply the window shopping learning model. After being given treatment to the experimental group, a posttest was then given to the experimental group and the control group.

The population is a generalization area consisting of: objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then drawn conclusions (Sugiyono, 2013). The population in this study were all grade VIII students of SMP Negeri 29 Sijunjung for the 2022/2023 school year of 86 students as shown in Table 2.

Table 2. Number of Class vill Students of SMFN 29 Sijunjung						
No	Class	Total Student				
1	VIII 1	29				
2	VIII 2	29				
3	VIII 3	28				

Table 2. Number of Class VIII Students of SMPN 29 Sijunjung

Source: Mathematics Teacher Class VIII SMPN 29 Sijunjung

Sample

The sample is part of the population to be studied. Therefore, the sample must be seen as an estimate of the population that has the same characteristics and characteristics so that it can represent the study population. Based on the problem to be studied, two sample classes are needed, namely the experimental class and the control class. The sampling technique in this study was carried out by simple random sampling.

Research Variable

According to Sugiyono (2013) the variables used in this study are:

1. Independent Variables (independent variables) are variables that influence or become the cause of changes or the emergence of the dependent (bound) variable. As for the independent variable in this study is to apply the window shopping (X) learning model.

2. The dependent variable is the variable that is affected or becomes the result, because of the independent variables. As for the dependent variable in this study, the mathematics learning outcomes of class VIII students of SMP Negeri 29 Sijunjung (Y).

Research Instruments

The research instrument is a data collection tool used in a study in order to achieve research objectives. The instrument used in this research is a post test. The test given is in the form of a description that is adapted to the subject matter. To get a good post test in this study, the following steps were taken:

- 1. Constructing the Test. Steps in compiling the test:
 - a. Determine the purpose of holding the test, namely to obtain student mathematics learning outcomes.
 - b. Make limits on the subject matter to be tested.
 - c. Make a math learning achievement test grid. (Appendix 11 page 178)
 - d. Arrange the items in the form of a trial test.
 - e. Make a trial test answer key.
- 2. Test Validity. To find out whether a test is valid or not, it is enough to analyze the validity of the content or the validity of the curriculum. According to Arikunto (2009: 67) that: "a test is said to have content validity if it measures certain specific objectives that are parallel to the material or subject matter provided, therefore the material taught is listed in the curriculum, content validity is often also called curricular validity". Based on the opinion above, it can be said that content validity is the adjustment between the questions given and the material in the curriculum. The test that will be used in this study has content validity. In this study the questions were validated by lecturers from the Mathematics Education Study Program, Faculty of Science and Technology, PGRI University, West Sumatra and teachers in mathematics for class VIII at SMPN 29 Sijunjung. So the results obtained are content validity with an average of 4 (with very easy categories), construct validity with an average of 3.7 (with very easy categories), language with an average of 4 (with very easy categories).
- 3. Trial Test. The results of a study can be trusted if the data collection tool used is truly accurate and already has validity, good discriminating power and good question reliability, then the question needs to be tested first, then analyzed to find out which questions meet the question criteria. the good one. Furthermore, the test questions were tested on schools that were not research subjects that had the same academic level and had the same KKM, namely SMP Negeri 16 Sijunjung.
- 4. Item Analysis. After the pilot test is carried out, the next activity is to analyze the items, to see whether the questions are well structured or not. According to Arikunto (2009: 207) that: "question analysis aims to identify good, bad, and bad questions. With problem analysis, information can be obtained about the ugliness of a question and instructions for making improvements. A question is said to be good, if it is not too easy and not too difficult. To find out this, the following steps are taken:
 - a. Item Validity. According to Arikunto (2010) validity is a statistic that reflects the level of validity or validity of an instrument. Less innovative instruments, on the other hand, have lower validity. Validity checks seek to produce truly valid statements, that is, statements that accurately convey the magnitude of the validity of the variable under consideration.
 - b. Problem Difficulty Level (TK). The difficulty level of the item is used as a condition for indicating easy, medium or difficult item items. A good question is one that is neither too

easy nor too difficult. In order for the test to be widely used, each item must be investigated for its level of difficulty.

- c. Problem Discriminating Power (DP). The discriminating power of a question is a matter to distinguish between high-ability or clever students and low-ability students.
- d. Question Reliability. Test reliability is a measure of whether the test can be trusted. A test is said to be reliable if several tests show relatively the same results.

Data Collection Technique

Data collection techniques are techniques or methods used by researchers to collect data. As for collecting research data, researchers used test techniques. The test used in this research is the learning achievement test. The test method is a way of collecting data in the form of questions or instructions to research subjects. In this study the test was used to measure student learning outcomes after being treated in the form of a description, namely the posttest. To achieve the research objectives that have been set, it is necessary to develop a systematic procedure. The research procedure in general can be divided into three stages, namely preparation, implementation, and final stage.

RESEARCH RESULTS AND DISCUSSION

The research was conducted in class VIII SMPN 29 Sijunjung from 10 November 2022 to 02 December 2022, namely in the two sample classes, data on student mathematics learning outcomes were obtained. Data were obtained through a post-test given to students after learning by applying the window shopping learning model in class VIII 1 and applying conventional learning in class VIII 3. In the experimental class there were 29 students and 28 students who took the post-test. From the data obtained the highest score was 100 and the lowest score was 28. While in the control class there were 28 students and all students took the post-test. From the data obtained the highest value is 21.

The hypothesis in this study was to determine the effect of applying the window shopping learning model to the mathematics learning outcomes of class VIII students at SMP Negeri 29 Sijunjung. Before testing the hypothesis with a one-sided t test, a normality test with the Liliefors test and a homogeneity test of variance with the F test was first carried out.

Normality Test

The normality test aims to test whether the sample is taken from a normally distributed population or not. Testing was carried out using the liliefors test. After the normality test was carried out, the results were obtained in the experimental class L0 = 0.1466 and Ltable = 0.1674 while in the control class L0 = 0.1559 and Ltable = 0.1674. From the two sample classes it can be seen that L0 < Ltable, so accept H0. So it can be concluded that both sample classes are normally distributed.

Homogeneity Test

After the normality test is carried out, then carry out the homogeneity test which aims to see whether the sample group has a homogeneous variance or not by using the F test. From the two sample classes it can be seen that the two sample classes have a homogeneous variance.

Hypothesis Testing

Based on the results of the normality test with normally distributed samples and the results of the homogeneity test where the samples have a homogeneous variance. Thus,

hypothesis testing was carried out using the one-sided t-test, to be precise, on the right-hand side. Test criteria accept H0 if tcount < ttable with degrees of freedom $dk=n_1+n_2-2$, reject H0 if it has other values. Based on the test results obtained t_count = 2.1031 and t_table = 2.0049, because t_count>t_table, then reject H0. So it can be concluded that there is an effect of applying the window shopping learning model to the learning outcomes of class VIII students at SMP Negeri 29 Sijunjung.

Discussion

Based on the hypothesis testing, it can be concluded that the students' mathematics learning outcomes in the experimental class were better than those in the control class. This shows that the application of the window shopping learning model has a positive impact on students' mathematics learning outcomes. Based on observations during the research which was conducted in 5 meetings, it was seen that students in the experimental class were more active and fun with visits from other groups and visiting other groups in learning because students were able to communicate and share with friends in one group or other groups. The grouping was done randomly based on the order of attendance.

1. Learning Process

a. First Meeting

At the first meeting, the implementation of the window shopping cooperative learning model did not go well because students were still not familiar with the learning model being implemented. Class conditions became noisy when forming groups. When dividing into groups, students reject one group with their friends. Students still rely on friends who are smarter, therefore the teacher directs students to be able to work together in their respective groups so that each group member understands and understands the subject matter being studied and tries to be able to respect each other among group members. Students are not used to the activities of visiting other groups and visiting or shopping in other groups so that in the learning process it makes students confused and noisy when dividing tasks into groups.

The results of group discussions taken at random found that students were able to answer the questions given. The group consists of six groups where each group gets different questions. Each group was able to answer the questions given in the submaterial, namely understanding the concept of a linear equation of two variables. Students can determine equations that include two-variable linear equations and equations that are not two-variable linear equations. Each group has a different way of solving it, there are groups that answer very clearly and in detail, there are also groups that answer by simply concluding or not being clear. When the percentage of student groups is shy and afraid to present the results of the work they get, and other students are reluctant to provide feedback and do not pay attention to the group that appears. To overcome this the teacher provides direction and motivation of students. After that the teacher gave confirmation of the answers the students got. Then at the end of the lesson a quiz is given as an evaluation or to see whether students have mastered the material provided. Of the 28 students who attended the quiz, more than half of the students were able to answer the quiz questions given.

b. Second meeting

The second meeting, the learning process has begun to be directed but there are still students who choose friends in sitting in groups, and only rely on friends who are smarter, therefore the teacher directs students more to be able to work together in their respective groups so that each member of the group understand and understand the subject matter being studied and try to be able to respect each other between group members. Students are still not used to the activities of visiting other groups and visiting or shopping in other groups so that in the learning process it makes students confused and noisy when dividing tasks into groups.

The results of group discussions taken at random found that students were able to answer the questions given. The group consists of six groups and each group gets different questions. Each group was able to answer the questions given in the submaterial, namely solving a system of two-variable linear equations using the elimination method. When there were group presentations, students were shy about presenting their work, and other students were reluctant to provide feedback and did not pay attention to the groups that appeared. To overcome this the teacher gives more direction and motivation to students. After that the teacher gave confirmation of the answers the students got. Then at the end of the lesson a quiz is given as an evaluation or to see whether students have mastered the material provided, of the 27 students who attended the quiz, more than half of the students were able to answer the quiz questions given.

c. Third Meeting

The third meeting, the learning process has started directed. Students are getting used to learning and discussing in groups, although there are still students who are shy about presenting the results of group discussions, the teacher always provides direction and motivates students. Students are still noisy with visiting activities from other groups and visiting or shopping in other groups.

The results of group discussions taken at random found that students were able to answer the questions given, where the groups consisting of six groups got different questions. Each group was able to answer the questions given in the sub-material, namely solving a system of two-variable linear equations using the substitution method. Even though there are still students who are shy about presenting the results of the work they get, and other students are still reluctant to give responses to the groups that appear and there are still group members who do not pay attention to the groups that appear. To overcome this the teacher gives appreciation and motivates students. After that the teacher gave confirmation of the answers the students got. Then at the end of the lesson a quiz is given as an evaluation or to see whether students have mastered the material provided, of the 26 students who attended the quiz, more than half of the students were able to answer the quiz questions given.

d. Fourth Meeting

Meeting four, the learning process has begun to be directed. Students are getting used to learning and discussing in groups, and have started to be more courageous in presenting the results of group discussions. Students are getting used to visiting activities from other groups and visiting or shopping in other groups.

The results of group discussions taken at random found that students were able to answer the questions given. groups consisting of six groups get different questions. Each group was able to answer the questions given in the sub-material, namely solving a system of linear equations with two variables using a mixed method (eliminationsubstitution). In the percentages, each group has begun to dare to present the results of the work they have obtained, and other students have begun to provide responses to the group that appears and the group members who do not appear have paid attention to the group that appears. To overcome things that are still repeated from the first meeting to the third meeting, the teacher takes an action by giving an award in the form of a group assessment. After that the teacher gave confirmation of the answers the students got. Then at the end of the lesson a quiz is given as an evaluation or to see whether students have mastered the material provided, of the 27 students who attended the quiz, more than half of the students were able to answer the quiz questions given.

e. Fifth Meeting

The fifth meeting, the learning process using the window shopping learning model has been carried out smoothly because students in forming groups of students are used to it and in groups are able to divide tasks. Students become familiar with visiting activities from other groups, and make visits to other groups with the division of tasks in each group.

The results of group discussions taken at random found that students were able to answer the questions given. Groups consisting of six groups get different questions. Each group was able to answer the questions given in the sub-material, namely solving a system of two-variable linear equations by drawing a graph. Students are brave and active in presenting the results of their group discussions. Have the courage to present the results of the work obtained, and other students can provide feedback to the group that appears and all other group members have paid attention to the group that appears. After that the teacher gave confirmation of the answers the students got. Then at the end of the lesson a quiz is given as an evaluation or to see whether students have mastered the material provided. Of the 28 students who attended the quiz, many students were able to answer the quiz questions given.

2. Final Test Results

Based on the final test (post-test) that was carried out in the two sample classes, the average student mathematics learning achievement in the experimental class was 64.79 while the average student mathematics learning achievement in the control class was 51.04.

Students have been able to answer question number 1 both from students in the experimental class and from students in the control class, students in the experimental class and in the control class have mastered the material during the learning process. From the results of the students' answers in the two classes, they have similarities, namely being able to determine equations that include two-variable linear equations and equations that are not two-variable linear equations. Apart from that, the results of students' answers in the experimental class and the control class also had differences, namely in the answers of students in the experimental class, students answered clearly and completely, while in the answers of students in the control class, students answered.

Students who are in the experimental class and students who are in the control class, that is, in the answers of students in the experimental class, students do not share what is known from a question in the form of a story, but are able to answer questions correctly, while in the answers of students in the control class, students share what is known. from questions in the form of stories but students cannot solve questions in the form of stories correctly.

The answers of students in the two sample classes were unable to answer question number 5, the answers of students in the two sample classes had similarities, that is, students had not mastered the material during the learning process, students did not understand the questions so students could not answer these questions. The conclusion from the students' answers in the two sample classes was that in the students' answers in the experimental class the students did not understand the question commands in the form of story questions. The same thing happened to the answers in the control class where students could not understand the question instructions in the form of story questions.

Obstacles

While conducting research at SMPN 29 Sijunjung in class VIII 1 and VIII 3 there were several obstacles, namely at the first meeting the teacher had difficulty asking students to sit in predetermined groups because some refused to be in a group with their friends. However, this can be overcome by directing students to sit more quickly with their respective groups. Conditioning students to work together with their respective groups is a little difficult because there are group members who just stay silent and do not participate in discussions and only rely on friends who are smart. However, this can be overcome by giving awards in the form of assessments to each group.

CONCLUSION

Based on the results of the research and discussion, it was concluded that there was an effect of applying the window shopping learning model to the mathematics learning outcomes of class VIII students of SMP Negeri 29 Sijunjung. This can be seen from the data obtained, namely tcount = 2.1031 > ttable = 2.0049. This can be seen from the final test given to the experimental class students, the basis of which is that the scores of students above the KKM are higher than the scores of students in the control class.

Based on the research results obtained, the authors suggest the following: For mathematics teachers to be able to try to apply the window shopping learning model as an alternative in carrying out the teaching and learning process. For other researchers who wish to use the window shopping learning model, it is hoped that they can research in different schools with different materials and be able to allocate their time properly so that the results achieved in implementing this window shopping learning model can be maximized. In forming groups to be arranged or made outside the classroom before the learning process so that there is no commotion during the learning process. And also in group work so that all groups work together in their respective groups to be able to provide awards in the form of assessments to each group.

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