

EFFECTIVENESS OF ACTIVE LEARNING STRATEGY OF GIVING QUESTION AND GETTING ANSWERS AND INDEX CARD MATCH LEARNING TOWARDS LEARNING OUTCOMES IN MATHEMATICS STUDENTS

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ABSTRACT

The strategies used in the teaching and learning process are still fixed on speech and discussions, so the result of student learning interest is low. Strategies that can be used to increase student's interest in learning among them is Giving Question And Getting Answer (GIGA) and Index Card Match (ICM). GIGA is one of the active learning strategies to ask a question and receive a good answer used to involve students in repeating learning materials that have been delivered. ICM is an active learning strategy looking for a pleasant enough partner used to repeating learning materials that have been given before. This research aims to determine the effectiveness of mathematics learning by using strategy Giving Question And Getting Answer compared with Index Card Match strategy on mathematical learning outcomes students class XI IPS SMA Muhammadiyah 3 Yogyakarta in the second semester of the academic year 2016/2017. The design of this research is a posttest only control design. This research population is the student's class XI IPS Senior High School of Muhammadiyah 3 Yogyakarta. Sample in this research was taken using simple random sampling obtained class XI IPS 2 as experiment class A and class XI IPS 1 as experiment class B. Data collection is done by a test method. Instrument testing uses validity and reliability. The data analysis technique using a prerequisite analysis test includes the normality test with the Chi-square formula, homogeneity test with Bartlett test, and hypothesis test with t-test. The results of the study are significant $\alpha=5\%$, and $df=69$ obtained the conclusion that : (1) There are differences in the results of learning mathematics students learning using the strategy of active learning Giving Question and Getting Answer with learning using strategy of active learning type Index Card Match. This is indicated by the results of the first hypothesis test that $t_{count}=2,0318 > t_{tabel} = 1,9949$. (2) Learning using strategy of active learning type Giving Question And Getting Answer more effective than learning using the active learning strategy of Index Card Match type. This is shown from the result of the second hypothesis test that $t_{count}=2,0318 > t_{tabel}=1,6672$.

Keywords: Effectiveness, Giving Question, And Getting Answer, Index Card Match, Learning Outcomes.

INTRODUCTION

Education plays a vital role in the continuity of human life because without human education, and it will be challenging to develop and even underdeveloped. According to Trianto (2009: 1), education is one form of the embodiment of a dynamic and laden human culture. Therefore, changes or developments in education are things that are supposed to occur in line with changes in cultural life. Changes in the sense of improving education at all levels need to be continuously made in anticipation of future interests. Education that can support future development is education that can develop students' potential so that they can face and solve the life problems they face.

The ability to solve problems is one concept that is related to several concepts of mathematics. Mathematics is one of the subjects that must be studied because mathematics is a means to solve problems in everyday life. In educational institutions, mathematics is one of the subjects that must be followed by all students in all schools. This is because mathematics has an important function for students, namely, as a tool, mindset, and science or knowledge. Thus, mathematics learning is included

in all levels of education, starting from elementary school to college. Once the importance of mathematics in the world of education so that learning mathematics must be carried out to the maximum.

According to Gagne in Uno, Hamzah B. and Nurdin Mohamad (2011: 212), Learning is a series of activities designed to enable students' learning process. From the opinions above, it can be seen that the main characteristic of learning is to improve and support student learning processes. Also, learning requires interaction between teachers and students or students with other students to achieve learning objectives. One of the learning achievements can be done by using learning strategies to support the learning process so that learning is carried out to the maximum. The strategy is chosen, in addition to potentially stimulating interest in learning can also create active learning.

According to Uno, Hamzah B. and Nurdin Mohamad (2011: 76), To create active learning, one of them is a child learning from his experience, in addition to having to learn to solve the problems he gets. In this case, students can learn well from the experiences they have gained by solving problems that are around them. That way, students will be actively involved with objects or ideas that can encourage their mental activities to think, analyze, conclude, and understand new concepts.

Active learning strategies are steps precisely planned to get students actively involved in learning from the beginning to the end of the learning activity. Learning strategies that can be used include Giving Question and Getting Answers and Index Card Match. Giving Question And Getting Answer Strategy is an active learning strategy to give questions and receive answers where this strategy can encourage students to participate fully in learning. According to Zaini, Hisham et al. (2002: 71), Giving Question and Getting Answer Strategies are used to involve students in repeating the subject matter that has been delivered. This strategy is best used to repeat the material that has been submitted. It is more appropriate to be used at the end of the meeting or the end of the semester as a summary or to repeat all material that has been given during one semester.

While the Index Card Match strategy is an active learning strategy looking for partners where this strategy can encourage students to participate fully in learning, according to Zaini, Hisham et al. (2002: 69), Index Card Match Strategy is a pretty fun strategy used to repeat material that has been given previously. This strategy is best used to repeat material that has been given previously. However, the new material can still be taught with this strategy if students are given the task of learning the topic to be taught first. So, after they enter the classroom, they already know.

Thus, the above strategy can increase the activeness of students who were initially passive and afraid to ask questions, be more willing to ask questions and be more confident in answering questions from teachers about material that is not yet understood. Thus, learning mathematics will be more fun, exciting, and memorable. Based on the results of an interview on November 15, 2016, with a mathematics teacher at Muhammadiyah 3 Yogyakarta High School, namely Mrs. Diah Wulandari, S. Pd, the strategies used in the teaching and learning process were still focused on lectures and discussions, resulting in low student interest in learning. However, the use of learning strategies is considered easy and simple to help the learning process due to time constraints in preparing a strategy so that the use of lecture and discussion strategies is used as an alternative in teaching. Also, in the class, only a few students are active in asking questions and seriously following the lessons and doing the exercises given in the form of groups and individually. In contrast, other students only imitate the work of their friends and are not involved in group discussions.

Table 1. The average midterm mathematics test scores for students of class XI IPS in the Muhammadiyah 3 Yogyakarta high school in the odd semester 2016/2017 academic year

Class	Mean Score	Number of Classes		Percentage (%)	
		Complete	Not Complete	Complete	Not Complete
XI IPS 1	57,68	10	26	27,78	72,22
XI IPS 2	42,83	3	32	8,57	91,43
IX IPS 3	31,31	0	29	0	100
Total	131,82	13	87	13	87

(Source: SMA Muhammadiyah 3 Yogyakarta)

From Table 1 above, it can be seen that the average odd midterm results are still low. Out of 100 students, only 13 students pass the Minimum Mastery Criteria (MMC) set by the school, which is 75. Therefore, learning mathematics requires a learning strategy that encourages students to be active in learning mathematics. Thus, student activity in learning is expected to maximize mathematics learning outcomes. Among those learning strategies that can activate students are active learning strategies, Giving Questions, and Getting Answers and Index Card Match types. Based on the description above, the authors are interested in conducting mathematics learning research on The Effectiveness of Active Learning Strategies Giving Question and Getting Answers and Index Card Match Against Mathematics Learning Outcomes Class XI IPS High School Students of Muhammadiyah 3 Yogyakarta High School Semester 2016/2017 Academic Year.

METHODS

This type of research is experimental research and research design using True Experimental Design with a post-test-only control design. The design of this study is illustrated in table 2.

Table 2. Research design Posttest-Only Control Design

Class	Treatment	Posttest
Experiment A	X ₁	O ₁
Experiment B	X ₂	O ₂

Information

R: Random

O₁: Learning test results using the Giving Question And Getting Answers learning strategy

O₂: Learning test results using Index Card Match learning

X₁: Treatment using learning strategies Giving Question And Getting Answers

X₂: The treatment uses Index Card Match learning strategy

This research was conducted in Muhammadiyah 3 Yogyakarta High School Even Semester 2016/2017 Academic Year. The population is a generalization area that consists of objects/subjects with specific qualities and characteristics determined by researchers to be studied and then drawn conclusions (Sugiyono: 2012). The study population in this study were all students of class XI IPS Muhammadiyah 3 Yogyakarta High School Even Semester 2016/2017 Academic Year consisting of 3 classes, namely, class XI IPS 1, XI IPS 2, and XI IPS 3. The sample is part of the number and characteristics possessed by the population (Sugiyono: 2012). In this study, sampling using a simple random sampling technique is sampling, the class is done by lottery class and obtained class XI IPS 2 as class A experiment and class XI IPS 1 as class B.

The research variable is an attribute or value of people, objects, or activities with certain variances determined by researchers to be studied and then concluded (Sugiyono, 2012: 61). The variables used in this study include the variable type of active learning strategies Giving Question and Getting Answers, Index Card Match, and mathematics learning outcomes of students of the XI IPS high school Muhammadiyah 3 Yogyakarta even semester 2016/2017 Academic Year. Data collection techniques in this study are to use documentation and tests. Meanwhile, this data collection instrument uses questions in the form of objective test multiple choice forms. This study's data analysis technique was the prerequisite analysis, that is, a test for normality and homogeneity and a hypothesis test that is a two-party hypothesis test and a one-party hypothesis test.

RESULTS AND DISCUSSION

Based on the results of data analysis and assumptions, it can be concluded that mathematics learning using the active learning strategy of the Giving Question and Getting Answer type is more effective than learning using the active learning strategy of the Index Card Match type. This can be seen from the one-party hypothesis test at a significant level of 5% and degrees of freedom (df) = 69 that is $t_{count} = 2,0318$ and $t_{table} = 1,6672$, so $t_{count} > t_{table}$.

The results of the research show that learning by using an active learning strategy type Giving Question and Getting Answer, and active learning strategy Index Card Match types together with make students active in learning because students do the learning processes not only with mental, mind, and sense of learning. But also physical. In this way, students will feel a more pleasant atmosphere so that learning outcomes can be maximized. Both of these strategies also minimize the level of students' boredom in following a series of learning processes. If this can be achieved, indirectly, the enthusiasm of students in participating in the learning process becomes more increased so that students' motivation to learn can increase. However, learning by using active learning strategies, the type of Giving Question, and Getting Answer is more influential because this strategy can activate students in the teaching and learning process and provide opportunities for students to ask and answer questions. Also, students can optimize all their potential so that students can achieve satisfying learning outcomes through the learning experience gained. This is by the opinion of Uno, Hamzah B., and Nurdin Mohamad (2011: 76). To create active learning, one of them is a child learning from his experience, in addition to having to learn to solve the problems he gets. This learning strategy can help students understand the material being studied because this strategy encourages students to ask questions and answer questions or express ideas. In observation, students initially felt ashamed when allowed to ask questions. However, this can be overcome when an active learning strategy of the Giving Question And Getting Answer type is implemented. Hence, they dare to express things that are not yet understood from the teacher's explanation.

Student activities in learning mathematics by using an active learning strategy type Giving Question and Getting Answer begins with the teacher briefly explaining the material then gives a pair of cards where the card is used to write statements about the material understood by students or material not yet understood by students who then students form groups and share the knowledge they have gained. Based on researchers' observations when using an active learning strategy type Giving Question And Getting Answer, mathematics learning activities run smoothly. Students actively share information that they have gained during the learning process. While learning using active learning strategies Index Card Match type begins with the teacher explaining the material briefly then the teacher divides students into two groups namely, the first group gets a question card and the second group gets an answer card then students look for their respective pairs after students get their partners they discuss and make steps from the questions and answers that have been given then they present the results of the discussion in front of the class.

Based on the observations of researchers when using learning that uses active learning strategies, Index Card Match type math learning activities run smoothly. Students like to participate in learning because the material presented is interesting and not boring. However, learning by using active learning strategies with Index Card Match type has a weakness that is, learning activities require a long time for students to complete assignments and presentations, in addition to that the teacher must spend a long time in making preparations so that mathematics learning is less than optimal. In mathematics with functional derivative material, a deep understanding of concepts is needed to solve problems in daily life more easily. So that meaningful learning is needed for students. This results in mathematics learning outcomes of students who use an active learning strategy type Giving Question, and Getting Answer. It is better than learning using an active learning strategy type Index Card Match in class XI IPS students of SMA Muhammadiyah 3 Yogyakarta Even Semester Academic Year 2016/1017.

From the description above, it illustrates that learning that applies an active learning strategy of the Giving Question and Getting Answer type is more effective compared to learning that uses an active learning strategy of Index Card Match type towards the mathematics learning outcomes of XI IPS grade students of SMA Muhammadiyah 3 Yogyakarta Even Semester Year Doctrine of 2016/1017. This research is supported by previous research namely, research conducted by Titi Prabandari (2015) with the title Experiments of GQGA and ICM Learning Models on Learning Independence and Student Learning Achievement concluded that (1) learning independence and student achievement are subjected to the Giving learning model Question and Getting Answer is better than learning independence and

student achievement with the Index Card Match learning model. (2) learning with the Giving Question and Getting Answers learning model is effectively used for students of class VIII SMP N 1 Watumaland. Research conducted by Zen, Lailia (2015) with the title Differences in the Application of the Giving Question and Getting Answer Learning Model with Index Card Match. concluded that (1) The results of this study indicate that there are significant differences in social studies learning outcomes between the Giving Question and Getting Answer learning models and Index Card Match in class VIII students of SMP Negeri 5 Sleman. (2) Social studies learning outcomes that use the Giving Question and Getting Answer learning model are higher than the increase in Social Studies learning outcomes using the Index Card Match learning model.

CONCLUSION

Based on the results of research and discussion, it can be drawn several conclusions from the research that has been carried out are as follows:

1. There is a difference in mathematics learning outcomes of students whose learning uses Giving Question And Getting Answer active learning strategies with mathematics learning outcomes of students whose learning uses Index Card Match type active learning strategies in class XI IPS students of SMA Muhammadiyah 3 Yogyakarta Even Semester 2016/2017 Academic Year. This is indicated by the results of the two-party hypothesis test with a significant level of 5% and a degree of freedom 69. The value of $t_{count} = 2,0318$ is obtained outside the interval $-t_{table} = -1,9949$ and $t_{table} = 1,9949$.
2. Mathematics learning that uses Giving Question And Getting Answer type of active learning strategies is more effective than mathematics learning that uses active learning strategies Index Card Match type in class XI IPS students of SMA Muhammadiyah 3 Yogyakarta Even Semester 2016/2017 Academic Year. This is indicated by the results of the one-party hypothesis test with a significant level of 5% and a degree of freedom 69, the value of $t_{count} = 2,0318$ and $t_{table} = 1,6672$, so $t_{count} > t_{table}$.

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