



The Effectiveness of Make A Match Learning Model on Student Learning Outcomes in the Motion System Topic

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Abstract

This study is entitled "The Effectiveness of the Make A Match Learning Model on Student Learning Outcomes on the Motion System Topic". The purpose of this study was to examine the effectiveness of the make a match learning model on student learning outcomes. The assessment indicators in this final project include three domains, which are cognitive, affective, and psychomotor learning outcomes. The design of this experimental research is the pretest-posttest control group. The population of this study is all students of 11th grade MIPA of SMA N 1 Jekulo consisting of 4 classes. The sample of this study is taken by a cluster random sampling technique, where students of 11th grade MIPA 1 as a control class and students of 11th grade MIPA 2 as an experimental class. Cognitive learning outcomes data (posttest) are tested, affective learning outcomes (attitudes), psychomotor learning outcomes (skills) and student responses are analyzed in a descriptive qualitative manner. The results show the percentage of classical completeness between the experimental and control classes is 91.66% > 62.85%. The attitude of the experimental class students > the control class in each aspect is classified as good and very good with a difference of $\leq 10\%$ in the aspects of the discipline, cooperation, confidence, and curiosity. The number of students who are highly skilled in the experimental class and control class is 58.33% > 34.29%. Student responses to the application of the make a match learning model 52.77% are very good and 47.77% which is good. The conclusion of this research is the make a match learning model is effectively used in the learning of motion system material in SMA N 1 Jekulo.

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INTRODUCTION

The learning process is an implementation of the curriculum to achieve student competence and character (Kosasih, 2014). Learning competence is achieved when there is an interaction between students, teachers, curriculum, methods, and means of learning. The Kurikulum 2013 directs learning in an active, creative, analytical, and critical atmosphere so that students are able to develop learning abilities and form a separate concept in learning (Abidin, 2014).

Based on observations during the Field Experience Practices (PPL) at SMA N 1 Jekulo from July 24 to October 14, 2017, it is found that there are still many passive students during the learning process. Teachers still do not involve students in activities and actions that must be taken. The method applied by the teacher to the motion system material is discovery learning. The method is good, but there are still many students who are less active during the learning process.

Discovery learning is a process that requires a student's creativity, student awareness, and motivation so that learning objectives are conveyed to students (Rudatin, 2015). In the use of the discovery learning method, the success rate of a learning process is measured by the extent to which students can master the learning material delivered by the teacher (Mukarramah, 2012). However, based on observational data, it is known that the classical completeness results achieved by students are still not optimal, which is equal to 58.25%. A class is said to be classically complete if there are $\geq 85\%$ of students completing the study (Ministry of Education and Culture, in Trianto 2010).

The success of learning can be seen from the achievement of student learning outcomes. Student learning outcomes are determined from the teaching and learning process as the main activity in school. In the learning process strategies are needed to achieve the ultimate goal of learning. Students as subjects in learning are also required to be active during the learning process (Umami, 2016). The learning process in each educational unit must be interactive, inspiring, fun, challenging, and motivate students to participate actively, and provide sufficient space for the initiative, creativity, and independence in accordance with the talents, interests, and physical and psychological development of students (Shidiq, 2017). The class atmosphere needs to be planned and built using appropriate learning methods so that students can get the opportunity to interact with each other.

Based on the explanation above, the selection of learning models is needed that can improve learning outcomes and encourage student activity. Methods or approaches related to student learning should vary and be adapted to the different characteristics of students in learning (Knutson, 2014). The Make a Match learning model is one of the learning models that can increase student learning activities both cognitive, affective, and psychomotor (Huda, 2013).

Make a Match learning model can provide space for students to interact with other students. Interaction between students can increase activities between students when the learning process takes place. Students can learn the material that is packaged in a game in the form of question and answer cards so that students can participate actively, creatively, and increase the percentage of student completeness (Rosmala, 2015). Student activities can take the form of individual or group activities. Student activity is usually characterized by responding to learning such as asking questions, answering questions, and listening carefully. This can make the classroom atmosphere active and conducive. Thus, student activity is a process that allows students to absorb information from the teacher by involving various activities and actions that must be taken. Student activities will form skills and knowledge that lead to satisfying learning outcomes or achievements.

With those activities, it is hoped that student learning outcomes will increase. Comparative in this study, here are some previous studies, namely the application of the Make a match learning model that has increased the average activity of students in the first cycle 81.91% (sufficient), increased in the second cycle to 88.12% (good) and students' learning completeness by individuals in the first cycle is 63.33% (complete), 36.67% (incomplete), and in the second cycle increased to 100% (complete) (Darmawati et al, 2013).

Thus, it is hoped that the application of the Make a Match learning model can be effective to improve student learning outcomes at SMA N 1 Jekulo. The purpose of this study is to examine the effectiveness of the make a match learning model on learning outcomes in the motion system material.

RESEARCH METHOD

The research design is the Nonequivalent Pretest Posttest Control Group Design. This research is carried out at SMAN 1 Jekulo which is located on Jalan Raya Kudus Pati KM 10 No. 34 Klaling, Jekulo district Kudus Regency. The study is conducted in September 2018. The population of this study is all students of 11th grade IPA SMAN 1 Jekulo. This study uses a cluster random sampling technique. The research sample is 11th grade MIPA 1 as a control class and 11th grade MIPA 2 as an experimental class. The test instrument is a multiple choice question. The non-test instrument is an observation sheet. The data analysis of cognitive domain learning outcomes is analyzed by classical learning completeness and tested further by t-test. Affective and psychomotor learning outcomes are analyzed by descriptive qualitative. The data results are tested using Microsoft Excel and SPSS applications. The stages of the research are, first, holding a pretest on the research sample. Then, determine the research group that is the control group class XI MIPA 1, while the experimental group class XI MIPA 2. Next step carry out learning activities in accordance with the Lesson Plan (RPP) that has been prepared that is the experimental class using the Make a Match learning model and the control class using the discovery learning method. Steps for implementing the Make a Match model: The teacher prepares several cards that contain concepts or topics, some cards contain questions and answers. Students are divided into two groups right side and left side each representative three students come forward. Each student thinks of answers/questions from the card they got. Each student matches a pair of cards, students who find a matching card into a group of eight students. For students who have not found a card match then stand in front and representatives from each side will advance and the cards will be shuffled again, and so on. The observation of the assessment of student attitudes during the teaching and learning process is observed by the observer. Conduct student assessment skills during practical work. Hold posttest at the end of learning. Provide questionnaire responses of students in the experimental class at the end of learning.

RESEARCH RESULTS AND DISCUSSION

The analysis of student learning outcomes consists of three aspects. They are cognitive, affective and psychomotor and student questionnaire responses to the Make a Match learning model. Cognitive values in the control and experimental class are obtained from the pretest and posttest scores. The average data of students' cognitive learning outcomes can be seen in the following table.

Table 1.1 The average of student cognitive learning outcomes

Explanation	Control Class		Experimental Class	
	<i>Pretes</i>	<i>Posttest</i>	<i>Pretes</i>	<i>Posttest</i>
	<i>t</i>		<i>t</i>	
Students number	35	35	36	36
Highest score	64	88	64	96
Lowest score	28	52	28	56
Average	48	69,26	50,11	79,67
Number of completed students	0	22	0	33
Number of incompleted students	35	13	36	3
Classical Completeness Percentage (%)	0	62,85	0	91,66

Based on Table 1.1, the posttest scores of the control and experimental classes are carried out by t-test, normality test, homogeneity of the control class and the experiments are presented in Table 1.2.

Table 1.2 t-Test Results

Class	Normality	Homogeneity	t-test Posttest	
	Test Sig.	Test Sig.	t _{count}	Sig. (2-tailed)
Control	0,214			
Experimental	0.101	0,322	4,732	0,000

In Table 1.2 shows that the significance value of the normality test > 0.05 which means the data are normally distributed. While the results of the t-test if Sig. (2-tailed) < 0.05 , then there is a significant difference between learning outcomes in the control and experimental classes.

Affective learning outcomes consist of six aspects, which are discipline, collaboration, confidence, curiosity, tolerance and responsibility. The following are the average affective learning outcomes of control and experimental class students in Table 1.3.

Table 1.3 Student Attitudes for Every Aspect

Aspects	Control Class		Experimental Class		Difference s (Δ)
	Average (%)	Criteria	Average (%)	Criteria	
Discipline	75	Good	85.4	Very Good	10.4
Cooperation	74.06	Good	84.83	Good	10.8
Confidence	61.2	Good enough	72.46	Good	11.3
Curiosity	73.56	Good	84.9	Good	11.3
Tolerance	71.2	Good	76.4	Good	5.2
Responsible	71.43	Good	81.23	Good	9.8

Based on Table 1.3 the average attitudes of students from six aspects show that the experimental class has an average higher than the control class with a difference of $\leq 10\%$ in the aspects of discipline, cooperation, self-confidence and curiosity.

Psychomotor learning outcomes consist of three aspects, they are the skill of using a microscope, observing preparations and presenting observations. Psychomotor ratings of control and experimental classes are presented in Table 1.4.

Table 1.4 Results of Student Psychomotor Scores

Category	Control Class		Experimental Class	
	Student number	P (%)	Student number	P (%)
Very skilled	12	34,29	21	58,33
Skilled	20	57,14	14	38,88
Skilled enough	3	8,57	1	2,77
Less skilled	0	0	0	0

The result of the psychomotor assessment shows that the experimental class students are more skilled than the control class. Based on Table 1.4, the percentage of experimental class students who are very skilled and skilled is 97.21%, while the control class is 91.43%.

The results of the t test analysis showed a significant difference between the average learning outcomes of the control and experimental classes (Table 1.2). T test requirements ie the data must be normally distributed. A data that forms a normal distribution if the amount of data above and below the average is the same, as is the standard deviation (Sugiyono, 2006). One of the factors that can influence differences in learning outcomes is to apply the Make a Match learning model. The learning atmosphere that is added to the game tends to motivate students to also make students actively involved physically, emotionally and mentally so as to increase student activity, creativity and enthusiasm of students when learning takes place (Putri et al. 2013). Learning activities like this have advantages in discovering concepts,

practicing cooperation between students and students having real learning experiences. All the senses possessed by students work because learning is done by observation. The more senses that are used to receive and process information, the more likely the information is understood and can be maintained in memory (Arsyad, 2011). This makes students' enthusiasm increase so that the learning outcomes obtained are better.

Based on the data above, there are still some students who have not yet completed KKM in the experimental class after being given treatment that is the Make a Match learning model. This is because students have different levels of understanding and achievement. Although the same treatment has been given, not all students in the experimental class can receive learning material properly. Some students who are not yet finished are less active in participating in learning so that it affects their learning outcomes.

The applied learning method in a class can also affect student activities in the class (Zaini, 2008). Increased student affective learning outcomes in the experimental class increased higher than the control class with very good criteria. This shows that the learning process with the Make a Match learning model is able to encourage students' attitudes to become better. Factors that can affect attitudes according to Ruslan (2010) consist of three components known as ABCs of attitude which include affect, behavior, and cognition. Affect (feelings or emotions) this component is related to feeling happy, like, love, fear, hate, sad, and bored with something. Behavior displays a person's behavior or behavior. The behavior in this study is the attitude of student discipline. The disciplinary attitude includes arriving on time, orderly in the following learning, wearing uniforms in accordance with the rules of discipline, doing assignments given by the teacher and collecting assignments on time (Siti, 2015). Discipline in learning can also hone students' skills and recall of the material that has been given (Aslianda et al. 2017). Using effective and efficient learning time is a direct effect on learning achievement (The Liang Gie, 1986). Armed with disciplined character values will encourage the growth of other good character values, such as self-confidence, responsibility, honesty, curiosity, cooperation, and so on (Setiowati et al. 2015). Cognition (understanding or reason) is related to a person's reasoning to judge information.

Learning activities that take place on the Make a Match learning model have an impact on student behavior and attitudes. These results are in line with research by Zulhemi (2009) that the achievement of indicators in each aspect occurs because students have the opportunity to develop their attitudes and skills during learning.

Learning outcomes in the psychomotor domain are those related to skills or the ability to act after someone has received information or learning. In the psychomotor realm, both experimental and control class students are given learning how to use a microscope correctly and are trained to be skilled in making observations. Learning using a microscope will make practicum activities run smoothly. The analysis that has been done shows the experimental class psychomotor learning outcomes are higher than the control class, likewise with the students' skills of drawing observations and presenting observations. However, in observations using a microscope there are few problems that are due to the fact that there are still many students who are not accustomed to using a microscope, focusing the object's shadow and getting optimum light. Psychomotor learning outcomes can be seen in table 1.4.

CONCLUSION

Based on the results of the analysis and discussion that has been carried out, it can be concluded that the Make a Match learning model is effective in improving learning outcomes in the motion system material at SMA N 1 Jekulo Kudus. The suggestions from the researcher are that teachers are advised to apply the Make a Match learning model as an alternative because it is proven to be more effective in improving learning outcomes. Make a Match learning model requires special attention when implementing learning in time management so that learning does not take up much time.

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