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THE IMPACT OF USING QUANTUM LEARNING MODEL WITH MAKE A MATCH METHOD TOWARDS MATHEMATICAL LEARNING MOTIVATION OF STUDENTS IN CLASS V ELEMENTARY SCHOOL

Rusnilawati[1], Dina Ariska[2], Yulia Maftuhah Hidayati [3], Mega Eriska Rosaria Purnomo[4]

1,2,3 PGSD, Universitas Muhammadiyah Surakarta,
4 Pendidikan Matematika, Universitas Muhammadiyah Surakarta,
rus874@ums.ac.id[1]

Abstract: Interesting learning will affect the achievement of learning goals. Based on the results of observations conducted by researchers in class V in public elementary school 1 Sawahan, Juwiring, researcher found problems or constraints, namely the lack of understanding of students towards mathematics learning materials. The problem studied in this study was whether there was an influence of the use of learning models quantum learning with make a match method towards mathematical learning motivation of students in class V in public elementary school 1 Sawahan. The type of research was quantitative research. This study used experimental research design. Researcher took the population of class V students in public elementary school 1 Sawahan totaling 33 students. The number of subjects taken was 33 students so the researcher took as a sample all. Data collection techniques used in this study were observation, questionnaire, and documentation. Data collection instruments were using questionnaires and observation sheets for learning implementation. Based on the results of the study it can be concluded that there was influence of using quantum learning model with make a match method towards mathematical learning motivation of students in class V in public elementary school 1 Sawahan, with result for with a significant level 0.05 obtained 1,645. Because of so that was rejected, so that was accepted. Quantum Learning using make a match method had a positive influence towards students' mathematics learning motivation. This was evidenced by observations of learning implementation that show the enthusiasm of students when participating in learning. When participating in learning, students enthusiastically scramble for the opportunities to express their answers regarding the practice of the questions that had been given.

Keywords: impact, quantum learning, make a match, motivation to learn, mathematics

INTRODUCTION

Mathematics is a subject that needs to give for all students starting to think logically, analytically, systematically, critically, and creatively, and ability to work together (Soviawati, 2011: 80). 4 KI needs to pay attention to mathematics, namely KI 1 concerning spiritual attitudes, KI 2 concerning social attitudes, KI 3 concerning knowledge (cognitive), and KI 4 concerning skills. Minister of Education and Culture Number 24 Year 2016 (Ministry of Education and Culture, 2016: 9) concerning KI and KD explained that KI 3 subjects in class V mathematics elementary school understanding and conceptual knowledge based on curiosity about themselves, God's foundations and activities found at home, at school, and at playgrounds. Therefore,

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teachers ought to provide interesting and contextual mathematics learning so that students will not have difficulty understanding mathematics.

Attractive learning will affect the achievement of learning objectives. Learning carried out in this study is learning by using the quantum learning model with the make a matching method where learning is a fun learning, a learning that provides opportunities for students to participate in learning. The material used in this study is the addition and subtraction of different denominator fractions. According to Hidayati (2012: 88), the learning of mathematics in particular summing fractions has an important role in developing the ability of systematic and creative logical thinking. Therefore, it is necessary to improve mathematics learning, especially in addition and subtraction of different denominator fractions.

The use of a good learning model must also supported by the selection of the right method. One method that can used is the make a match learning method. Learning will be more meaningful by using the make a matching method. According to Wibowo (2015, 160), the method of learning makes a match is an interesting learning method to be used in repeating the material previously given. With the repetition of material, students will better understand the material presented by the teacher. Understanding the material in mathematics learning requires repetition of the material delivered by the teacher. Therefore, the make a matching method is very suitable when applied to mathematics learning.

Learning motivation is very important because, with the high learning motivation, learning will be easy to understand. According to Farhan (2014: 229), motivation is a stimulus that can provide strength to someone to carry out an activity, which directs it to the expected goal, and keeps it stable for what has done. Motivation to learn in mathematics learning must developed because the motivation to learn is very influential on the achievement of learning outcomes. Researchers take learning motivation as a dependent variable because learning motivation has a significant influence on the achievement of learning goals especially in mathematics subjects that usually lack the motivation of students towards these subjects.

One of the causes of this is the teacher is not right in choosing the learning model and learning methods that are in accordance with the material delivered and lack of motivation to learn in the students themselves. Classification of learning motivation of fifth-grade students of SDN 1 Sawahan in mathematics learning in accordance with the following table.

Table 1. Classification of motivation to learn mathematics in fifth-grade students of SDN 1 Sawahan.

CLASSIFICATION	PERCENTAGE
VERY GOOD	21,22%
GOOD	39,39%
ENOUGH	39,39%
LACKING	-
VERY LACKING	-

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According to Ernawati (2013: 109), a class is stated as complete learning if the percentage of its absorption is at least 80%. In accordance with the data obtained regarding learning motivation, there were 39.99% of students whose learning motivation was below good. Therefore, the learning motivation of grade 5 students at SDN 1 Sawahan has not met for at least 80% in the good category. Student learning motivation in achieving learning goals is needed. With good student learning motivation, mathematics learning will be easier to convey and understand by students.

Quantum learning is effective when applied in mathematics learning, this evidenced by the learning outcomes of students who are taught to use quantum learning better than student learning outcomes that are not taught by quantum learning (Sholikhah, 2017: 135). The quantum learning planning framework, as follows (Sugiyanto, 2010: 84):

1) Grow, students given stimulation so that students have high curiosity and curiosity
2) Natural, students presented learning experiences that are easily to understand
3) Name, give meaning to the concept that has learned by the students
4) Demonstration, students given the opportunity to express the knowledge they have acquired
5) Repeat, adventure activities on the material that has delivered, through questions and assignments
6) Celebrate; give a celebration of what students have gained in the form of learning experiences and learning materials. While other studies state that Mathematics learning achievement of students who take cooperative learning techniques to find a partner (Make a Match) is better than students' learning achievement following conventional learning (Artawa, 2013).

The steps of learning with make a matching method is (Sapawardi, 2015: 63-64):

1) The teacher prepares the card
2) Students get a card
3) Students look for answer cards, where students are given time to answer questions on the card
4) Students who answer correctly and get the right card then get a point
5) Cards are shuffled again and shared
6) Conclusion.

Based on theoretical studies and previous research, it can see that interesting, fun, and innovative learning is very necessary. Therefore, researchers used a quantum-learning model with the make a matching method in an effort to improve learning on aspects of student learning motivation. The problem examined in this study is whether there is an influence on the use of the quantum-learning model with the make a matching method on students' learning motivation in the fifth-grade mathematics learning at SDN 1 Sawahan.

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APPROACH & RESEARCH METHOD

This type of research is quantitative research. Quantitative research is research that tends to planned and stated in detail and in this study data collection is in the form of numbers (Drew, 2017: 28). This study uses experimental design experiments Experimental design is a method that produces evidence related to causation (Emzir, 2010: 64). The researcher chose a place at Sawahan Elementary School 1. This research conducted between May 2018-June 2018, which is divided into several technical processes from the data collection process to the report writing process

The researcher took a population of fifth-grade students at Sawahan Elementary School 1, which totaled 33 students. The number of subjects taken in the fifth grade of Sawahan Elementary School 1 was 33 students so that the researchers took all samples. The independent variable used in this study is the quantum-learning model with the make a matching method. The dependent variable used in this study is learning motivation. Motivation to learn is the driving force of a student who comes from outside and from the learner himself in following the learning so that the desired goal achieved.

RESULTS AND DISCUSSION

a. Motivation Data Learning for Student Mathematics

The data obtain from filling out questionnaires conducted by students. Data are groups into five categories, which are very good, good, sufficient, lacking, and very poor. The following category classification according to Widoyoko (2010: 238).

Table 4. Classification of categories

CATEGORY	SCORE INTERVAL
VERY GOOD	X >
GOOD	
SUFFICIENT	
LACKING	
VERY LACKING	X

From the data on students' mathematics learning motivation, the information for the interval scores for each category obtain as follows.

Table 5. Description of interval scores for determining cognitive ability categories

CATEGORY	SCORE INTERVAL
VERY GOOD	X >
GOOD	
SUFFICIENT	
LACKING	
VERY LACKING	X

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The description of the data on motivation to learn mathematics in the control and experiment classes is described as follows.

1. Mathematics Learning Motivation Data Control Class Students
   a) Data on Mathematics Learning Motivation for Students in the Control Class (Pretest)

      Data on mathematics learning motivation obtained from questionnaire scores that have been given as many as 30 items. Based on the scores obtained, the data on the motivation to learn mathematics in the pretest students in the control class can be presented in the following table.

Table 6. Statistics on learning motivation in the control class pretest

MEAN	117,33
STANDARD DEVIATION	8,97
HIGHEST SCORE	134
LOWEST SCORE	100

Table 7. Percentage of each category of control ability cognitive ability pretest

CATEGORY	NUMBER OF STUDENTS	PERCENTAGE
VERY GOOD	4	14,81%
GOOD	21	77,78%
SUFFICIENT	2	7,41%
LACKING	-	0%
VERY LACKING	-	0%
TOTAL	27	100%

   b) Learning Motivation Data for Control Class Students (Pretest)

      Data on mathematics learning motivation obtained from the acquisition score of the questionnaire that has been given as many as 30 items.

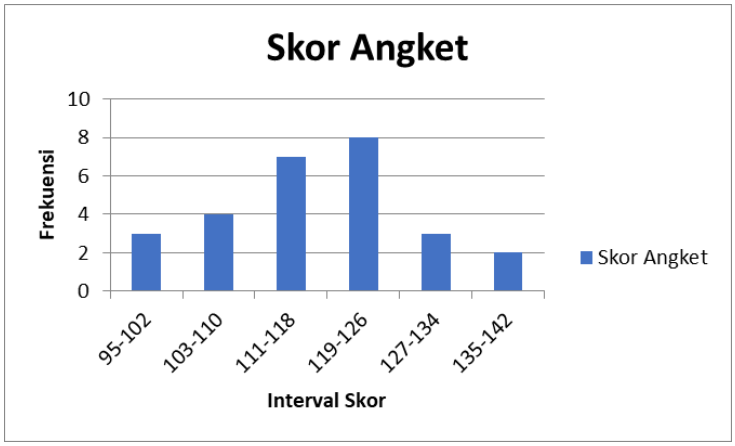

Figure 1. Scoring control motivation pretest class score diagram.

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Table 8. Statistics on the learning motivation of the experimental class pretest

MEAN	118
STANDARD DEVIATION	11,87
HIGHEST SCORE	142
LOWEST SCORE	95

From these data, conclusions can be obtained as follows.

Table 9. Percentage of each category of control class pretest motivation

CATEGORY	NUMBER OF STUDENT	PERCENTAGE
VERY GOOD	5	18,52%
GOOD	19	70,37%
SUFFICIENT	3	11,11%
LACKING	-	0%
VERY LACKING	-	0%
TOTAL	27	100%

2. Data on Mathematics Learning Motivation for Experimental Class Students

1) Data on Motivation to Learn Mathematics for Experimental Class Students (Pretest)

Data on mathematics learning motivation obtained from questionnaire scores that have been given as many as 30 items.

Table 10. Statistics on the learning motivation of the experimental class pretest

MEAN	116,48
STANDARD DEVIATION	10,43
HIGHEST SCORE	142
LOWEST SCORE	95

Table 11. Percentage of each category of experiential learning motivation pretest

CATEGORY	NUMBER OF STUDENT	PERCENTAGE
VERY GOOD	6	18,18%
GOOD	25	75,76%
SUFFICIENT	2	6,06%
LACKING	-	0%
VERY LACKING	-	0%
TOTAL	33	100%

2) Data on Mathematics Learning Motivation for Experimental Class Students (Posttest)

Data on mathematics learning motivation obtained from the acquisition score of the questionnaire that has given as many as 30 items.

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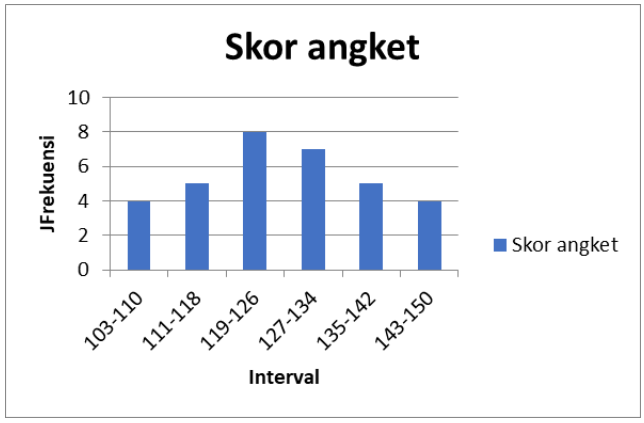

Picture. Motivation test scores for the experimental class pretest learning

Table 12. Statistics on learning motivation in the experimental class pretest

MEAN	125,82
STANDARD DEVIATION	12,73
HIGHEST SCORE	150
LOWEST SCORE	102

From these data, conclusions can be obtained as follows.

Table 13. Percentage of each category of learning motivation in the experimental posttest class.

CATEGORY	NUMBER OF STUDENT	PERCENTAGE
VERY GOOD	16	48,48%
GOOD	16	48,48%
SUFFICIENT	1	3,04%
LACKING	-	0%
VERY LACKING	-	0%
TOTAL	33	100%

3. Data on Implementation of Learning Observation

Observation of the implementation of learning is needed to find out whether learning has been carried out properly or not. The observation was carried out by the class teacher towards the researcher. This observation is carried out by filling out the learning implementation sheet with 13 learning steps that must be done by the researcher with a score interval of 1-4 in each learning step. The following data are obtained from observations made by the teacher towards the researcher.

Table 14. Learning observation scores

LEARNING	SCORE
FIRST	46
SECOND	47
THIRD	49

From these data, the average score obtained from the three lessons was 47.33.

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b. Data Analysis Results

1) The trial of Research Instruments

The instruments used in this study were tested before being given to students both in the control class and the experimental class. The instrument trial was carried out in SDN 1 Jetis, Juwiring by taking 15 students as respondents. The following are the results of the instrument trials conducted by researchers.

Validity test is used to determine whether the instrument is valid or not before being given to students. Validity test carried out by researchers using a significant level of 0.05 with the number of respondents 15, then found df = 13. So that r table is found to be 0.514. The instrument is said to be valid if. and it said to be invalid if All items in the statement on student learning motivation questionnaire instruments are declared valid.

Reliability test is used to determine whether the instrument is reliable or not before being given to students. If reliable, the instrument is ready for use in the control class and the experimental class. The results of the calculation of reliability coefficients on 30 items of statements regarding motivation to learn mathematics state that the value of reaches 0.94 with a very high category.

2) Test Prerequisites

The prerequisite test used in the study was the normality test and homogeneity test. Prerequisite tests are used to determine whether the data will be processed using parametric or non-parametric statistics. If the data obtained is normal and homogeneous, the statistics used are parametric statistics. The following is an explanation of the test for normality and homogeneity of data obtained by researchers.

a. Normality Data Test

The normality test is used to determine whether the data is normally distributed or not. The normality test uses the Chi-Square test with a significant level of 0.05 and obtained is 7.81. Data will be said to be normally distributed if. The following are the results of normality calculations from the data obtained.

Table 15. Normality of learning motivation data

CLASS	TYPE			EXPLANATION
EKSPERIMENT	PRETEST	1,199	7,81	NORMAL
	POSTTEST	2,477	7,81	NORMAL
CONTROL	PRETEST	6,141	7,81	NORMAL
	POSTTEST	1,514	7,81	NORMAL

From the table, it can be concluded that the data on students' learning motivation in the pretest and posttest in both the control and experimental classes were all normally distributed.

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b. Homogeneity Data Test

The homogeneity test is used to determine whether the data between the experimental class and the control class has the same (homogeneous) variance. This homogeneity test is calculated by looking for the value that will be compared with. The data is said to be homogeneous if. The value in the table is found to be 1.88, the following is the result of calculating the data for homogeneity.

Table 16. Data homogeneity

DATA	JENIS			KETERANGAN
MOTIVASI BELAJAR	PRETES	1,34	1,88	HOMOGEN
	POSTES	1,14	1,88	HOMOGEN

From the table, it can be seen that pretest learning motivation in the control class and the experimental class is homogeneous. It can be concluded that the experimental class and the control class have the same initial ability before being given treatment. All data obtained in the study is homogeneous so that researchers in testing hypotheses can use parametric statistics.

3) The Hypothesis Test

This study will test hypotheses using different tests of two independent means using the Z test to determine whether there is a difference between the control class and the experimental class that has been given treatment.

Z Test (Independent Two Mean Difference Test)

The researcher used the Z test because the researchers took all of the population in both the control class and the experimental class. This Z test is to determine whether or not there is an influence of the quantum learning model with the make a matching method on student learning motivation by comparing between the experimental class and the control class. The significance level used is 0.05 and using the right-hand test.

Testing the hypothesis first determines and along with the formulation of the hypothesis.

: There is no effect on the use of the quantum learning model with the make a matching method on student learning motivation.

: There is the influence of using the quantum learning model with the make a matching method on student learning motivation.

Conditions:

is accepted if

From the results of calculations carried out by researchers, the value of for b was obtained with a significant level of 0.05 obtained at 1.645. Because then is rejected. So that it can be concluded that there is the effect of using the

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quantum learning model with the make a matching method on student learning motivation.

4) Analysis of Data on Implementation of Learning Observation

Learning observation data obtained must be classified based on 5 categories, namely very good, good, sufficient, lacking, very lacking. This classification is needed to find out whether the learning is done is in a good category.

Table 17. Description of score intervals for each category

CATEGORY	SCORE INTERVAL
VERY GOOD	X > 44,2
GOOD	
SUFFICIENT	
LACKING	
VERY LACKING	X

Then conclusions can be drawn for each of the following lessons.

Table 18. Each category of learning

LEARNING	SCORE	CATEGORY
FIRST	46	VERY GOOD
SECOND	47	VERY GOOD
THIRD	49	VERY GOOD

From the classification of the categories, it can be concluded that the learning done by the researcher is in accordance with the expected learning steps, namely the learning step that uses the quantum learning model with the make a matching method. Learning conducted by researchers provides opportunities for students to give more participation than conventional learning. The learning process seeks to foster learning motivation with learning that is fun and provides comfort to students.

c. The Effect of Using Quantum Learning Learning Models with the Make a Match Method on Student Mathematics Learning Motivation

This study aims to determine whether there is an effect of using the quantum learning model with the make a matching method on the motivation to learn mathematics in fifth-grade students of SDN 1 Sawahan or not. The conclusion is done by comparing the results of the posttest questionnaire between the experimental class and the control class. In conducting the study, the two classes were given a pretest to find out the initial ability of students whether or not between the control class and the experimental class. The results of pretest homogeneity between the control class and the experimental class on student learning motivation prove that the control class and the experimental class before

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being given treatment are the same or homogeneous. Then in the experimental class followed by doing mathematics learning the material addition and subtraction of different denominator denominators by using the quantum learning model with the make a matching method which was carried out 3 times. While in the control class researchers only observed the implementation of conventional learning carried out by the teacher. After both classes were given the same learning, the two classes were given posted in the form of learning motivation questionnaires with the same level of difficulty as the pretest.

The pretest data in each class is the control class average of 117.33 and the experimental class is 116.48. This also shows that the initial learning motivation of the two classes is homogeneous. Data on learning motivation after being given posttest is obtained by the average learning motivation of the control class of 118 while the experimental class is 125.82. The discussion of the hypotheses tested will be explained as follows.

The influence of the use of the quantum learning model with the make a match learning method on the motivation to learn mathematics in the fifth-grade students of Sawahan Elementary School 1 was conducted by the Z test. From the data analysis, the for was obtained with a significant level of 0.05 obtained 1.645. Because H_0 is rejected. So that it can be concluded that there is the influence of the use of the quantum learning model with the make a matching method on the motivation to learn mathematics in fifth-grade students of SDN 1 Sawahan. So it is also proven that there is the influence of the use of the quantum learning model with the make a matching method on the mathematics learning motivation of class V students. The results of this study are similar to those of Suyono (2015: 40-41) where learning motivation in quantum learning is created through AMBAK activities. With this students are motivated to take part in learning. In addition, in quantum learning, there are also celebrating activities, in which these activities give feelings to students the satisfaction of achieving success, in which students will be motivated in further assignments. This is also like the research conducted by Pebriana (2017) which explains that learning motivation by using quantum learning experiences continuous improvement.

Combining the quantum learning model using the make a match method can also have a positive effect on learning motivation as argued by Rusman (2011: 223) which states that the method of make a match uses a technique where students are told to look for pairs of cards in the form of answers where students can finding a partner will be given a point, this will certainly lead to motivation for students by involving students in fun activities. In addition this is also in accordance with the research conducted by Saparwadi (2015: 73) stating that by using the make a matching method students are more enthusiastic in doing learning, and the results of the research conducted state that there are significant differences between cooperative learning type Make A Match when compared with the control class

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that uses conventional learning in terms of motivation and student learning outcomes towards mathematics.

Quantum learning with the make a matching method also influences students' mathematics learning motivation. This is evidenced by observations of the implementation of learning that shows the enthusiasm of students when participating in learning. When participating in learning, students are enthusiastic by fighting over the opportunity to express their answers about the social exercises that have been given. In addition, the activity of looking for an answer card in accordance with the question card that is obtained by each student also provides enthusiasm and pleasure. This certainly has a positive influence on students' mathematics learning motivation. So the conclusion is that there is the effect of using the quantum learning model with the make a matching method on learning motivation. This is indicated by students who are increasingly enthusiastic about participating in mathematics learning.

CONCLUSION

Based on the results of the research and discussion that has been described, it can be concluded that there is the influence of the use of the quantum learning model with the make a matching method on the motivation to learn mathematics in fifth grade students of Sawahan Elementary School 1, with the results of for with a significant level of 0.05 obtained 1.645 . Because then is rejected, so is accepted.

The teachers have to use the quantum learning model and the make a matching method to increase learning motivation both in learning mathematics or other subjects. The quantum learning model with the makes a matching method as one of the coachings for teachers in improving mathematics learning.

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