

The Effect of Realistic Mathematic Education towards Student' Learning Motivation in Elementary School

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Abstract. This research aims to reveal the results of student responses after applying realistic mathematics education. This study used quasi-experimental methods. The sampling technique used is simple random sampling. The sample consisted of 20 students from SDN Cijati, Kabupaten Majalengka. Data collection techniques used responses to student questionnaires. The results of the questionnaire (questionnaire) were analyzed. 90% of students respond to Realistic Mathematics. This proves that Realistic Mathematics Education influences motivation to learn elementary school students.

1. Introduction

Education is one way to develop human potential so that they are free from backwardness and ignorance so that humans have personalities that are following the values prevailing in their environment. Every education unit must have the hope to make students have superior potential and can be useful for themselves and others.

National Education System Chapter I Article I, states that "Education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have religious-spiritual strength, self-control, personality, intelligence, morals noble, as well as the skills needed by himself, society, nation, and state [1]. Based on the above statement, it can be understood that education is one of the most important aspects of the process of human life that will bring a positive impact in building quality human resources. Therefore, every human being must strive to improve the quality of his education to realize a better life.

The current learning process, especially in mathematics still often uses conventional learning models, where the teacher dominates the learning process and students themselves only receive information conveyed by the teacher, as a result, students in the learning process tend to be passive, will feel bored, sleepy, attention is reduced and finally less motivated in learning mathematics. However, motivation is very important in the learning process, a person may not carry out learning activities if he does not have the motivation to learn. As said by Robert Dubin that 'motivation is a complex force that makes someone want to start and maintain working conditions in the organization'. So it can be concluded that motivation is an absolute requirement for the learning process [2].

The teaching and learning activities in education that especially take place at school is the existence of active interaction between students and teachers. To lure students to be actively involved in teaching and learning activities, teachers are required to be more creative in organizing learning activities, including by applying various variations in teaching to create an active and enjoyable learning process,



so students can be motivated in learning. That way, the implementation of learning can not be done in the usual way, in the sense that teachers must have patterns and references used in the implementation of the learning process, it can be done using a variety of learning models. The learning model is a whole series of presentations of material used by the teacher in organizing the learning process experience to achieve the objectives of learning. But in fact, students are less motivated and enthusiastic in mathematics. This is seen when the learning process still uses the method of memorizing formulas as well as student exercises and learning that are still teacher-centered.

This is in line with the opinion Mathematics is one of the disciplines that can improve the ability to think and argue, contribute to solving everyday problems and in the world of work, and provide support in the development of science and technology [3].

According to Baroody stated that 'mathematics is the heart of human social activities' [4]. His opinion was strengthened by Kline stating that 'mathematics is knowledge that does not stand alone, but can help humans to understand and solve social, economic and natural problems' [5]. Based on this opinion all activities carried out by humans in their daily lives have the influence of mathematics which is very broad in various aspects, because in life many problems must be solved by mathematics. Expressed his opinion about the presentation of mathematics learning that emphasized mathematical concepts [6]. The presentation is as follows:

1) Planting basic concepts (concept planting), namely learning a new mathematical concept, when students have never learned the concept. We can know this concept from the contents of the curriculum, which is characterized by the word "get to know". 2) Understanding of concepts, namely continued learning from concept planting, which aims to make students better understand mathematical concepts. Understanding the concept consists of two senses. First, it is a continuation of the learning of concept planting in one meeting. While the second, learning conceptual understanding is done with different meetings, but it is still a continuation of the concept planting. 3) Development of skills, namely continued learning from the inculcation of concepts and understanding of concepts. Learning skills development aims to make students more skilled in using various mathematical concepts. As is the case with concept understanding, coaching skills also consist of two understandings. First, it is a continuation of learning to plant concepts and understanding concepts in one meeting. Whereas secondly, skills development learning is done at different meetings, but it is still a continuation of the cultivation and understanding of concepts.

The purpose of Heruman's explanation is that mathematics learning must contain three mathematical curricula, namely the inculcation of concrete or basic concepts, understanding of training concepts, and coaching skills. Where in the learning process the teacher implements concepts using concrete objects, where the objects are close to the lives of students and are familiar.

Motivation is the process of pushing and defending goals by directing the behavior [7]. Suggests that psychologists distinguish two main types of motivation, namely intrinsic and extrinsic. Learning motivation is very important in the learning process in elementary schools [8]. Because it will have an impact on learning outcomes and student achievement in mathematics in elementary schools. So from that found in the field that the low motivation to learn mathematics students is a problem that needs to be seeking a solution. These problems indicate that the process of learning mathematics still requires innovation and the development of models that can motivate students in learning mathematics, one of which is by using one of the Realistic mathematics education models. This realistic mathematics education is a learning model that involves students in learning mathematics in elementary schools by linking learning with daily life. So that learning mathematics is more meaningful.

2. Research Method

20 fourth grade students of SDN Cijati Majalengka were selected as the participants of this research. The research was conducted in 2019. The design used in this study was quasi-experimental using two groups. Each group is given a test that is a test and a post-test. The research design is as follows.

Table 1. Research Design of non-equivalent control group

Experimental Group	O1	X	O2
Control Group	O3		O4

Note:

O1 = Pre-test of Experimental Group

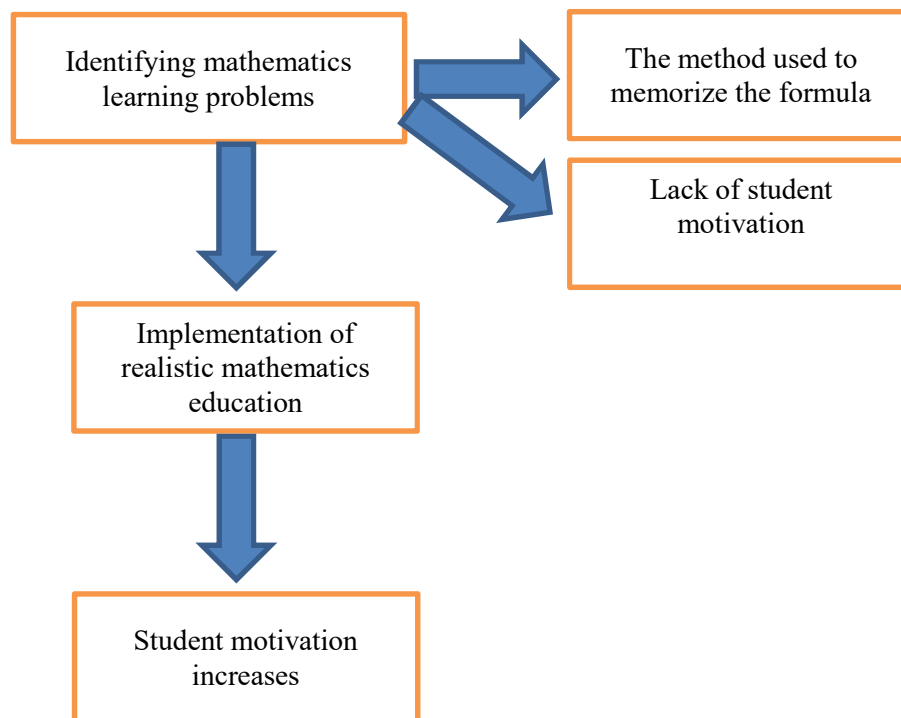
O2 = Posttest of Experimental Group

O3 = Pre-test of Control Group

O4 = post-test of Control Group

X = The treatment

The statistical test used is based on the assumptions that are met then using the parametric test and if it is not met then the nonparametric test is used [9]. Tests used in this study are paired sample t-test if the prerequisite and Wilcoxon test are not eligible. The pretest was carried out by both classes, namely the experimental class pretest and the control class achievement. The stages carried out in this study are conducting pre-research, making instruments, validating instruments, testing instruments, coordinating with teachers, conducting pre-tests, providing treatment by applying realistic education in learning, conducting posttest, conducting data processing, analyzing research data and reports. The description of research thinking framework can be seen in tabular form as follows:

**Figure1.** Theoretical framework

3. Result and Discussion

The results of the study provide a picture that the research carried out to see the effect of realistic mathematics education in mathematics learning at Cijat Majalengka State Elementary School looks influential on student motivation. The stages carried out in this study are conducting pre-research, making instruments, validating instruments, testing instruments, coordinating with teachers, conducting

pre-tests, providing treatment by applying realistic education in learning, conducting posttest, conducting data processing, analyzing research data and reports.

In calculating descriptive analysis using tools in the form of SPSS software version 21. The results of descriptive statistical analysis of post-test motivation of students both in the experimental class and in the control class can be seen in the following table:

Tabel 2. Experimental Class and Control Class Post-Test Results

	Post-Test	Post-Test
	Kontrol	Eksperimen
Mean	66,87	79,37
Median	68,75	79,69
Std. Deviation	10,209	8,626
Minimum	50,00	65,63
Maximum	81,25	100,00

Based on table 1 above, obtained the average value of the control class post-test results of 66.87 and the average value of the experimental class post-test results was 79.37. The mean value of the control class post-test was 68.75 and the mean value of the experiment was 79.69. The minimum value of the control class post-test was 50.00 and the minimum value of the experimental class was 65.63. Meanwhile, the maximum value of the control class post-test was 81.25 and the maximum value of the experiment was 100.00. Meanwhile, the control class post-test deviation was 10.20940 and the experimental standard deviation was 8.62665.

The results of testing the hypothesis of the experimental class by applying realistic mathematics can be seen in table 1. From the table, it can be seen that the sign indicates a value of 0,000. Following the criteria for hypothesis testing using paired sample t-test that sig. <0.05 then H_0 is rejected and H_a is accepted. This means, there are differences in student motivation before and after treatment by applying Realistic Mathematics Education. Based on the results of the study it was found that the RME approach could improve understanding of integer operations in mathematics in elementary schools [10]. This can be seen from the results of student learning has increased. Based on the results of research that has been done and by relevant research, it can be concluded that Realistic Mathematics affects the motivation to learn mathematics elementary school students.

4. Conclusion

Based on the results of research in applying Realistic Mathematic Education in learning mathematics in elementary school very influential on students' motivation. This is evidenced by the results of the pre-test and post-test data in the control class and the experimental class. That these results indicate the results of the experimental class hypothesis test by applying realistic mathematics can be seen in table 1. From the table, it can be seen that the significance indicates a value of 0,000. In accordance with the criteria for hypothesis testing using paired sample t-test that sig. <0.05 then H_0 is rejected and H_a is accepted. This means, there is an influence of student learning motivation before and after treatment by applying Realistic Mathematics Education.

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