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Research Article

THE EFFECT OF REALISTIC MATHEMATICS APPROACH ON MATHEMATICS LEARNING OUTCOMES OF GRADE STUDENTS IV SDN CAHYA NEGERI KECAMATAN SEMENDAWAI SUKU III KABUPATEN OKU TIMUR

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Abstract
This research is a pre-experimental type of research, that aims to determine the effect of a realistic mathematical approach on the mathematics learning outcomes of 4th grade students of SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur. The independent variable in this study is a realistic mathematical approach, while the dependent variable is the student's mathematics learning outcomes. The population in this study were all 4th grade students of SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur, totaling 25 students, while the sample was 25 students. The sampling technique used was saturated sampling technique. The data from this study were obtained through instruments. The results showed that there was a significant effect on student learning outcomes after using realistic mathematics approaches in the learning process. Based on the results of inferential statistical analysis, the value of P = 0.00 is smaller than α = 0.05. It can be concluded that there is a significant effect on students' mathematics learning outcomes after using a realistic mathematics approach in the learning process of fourth grade students at SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur.

Keywords: Mathematics Learning Outcomes, Realistic Mathematics Approach, Student

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INTRODUCTION

Education plays an important role in the formation of a generation of nations that excel in all fields and are able to compete in the current and future era of globalization. Education takes place in a long process which in the end is to achieve educational goals, including having a high interest in learning so that it excels in all fields. The goal of education is that the desired behavioral change occurs after students learn. Arikunto (Purwanto, 2009:35) stated that "the goals of education can be described starting from national, institutional, curricular, to institutional goals. The national goal of education is the state's dream for citizens after participating in education. In accordance with the above objectives, education should be able to be a forum for students to channel and develop their potential. In this case, the role of teachers is needed to help students in growing and improving their talents and potential. Thus, a generation with character will be formed that will educate the nation.

Teachers play a very important role in schools. Teachers are a substitute for parents in schools who must provide convenience and learning for all students. All subjects taught by teachers have their own functions which will later become provisions for students in daily life. One of the most important basic subjects for students to master starting from the elementary level is Mathematics. This is because mathematics cannot be separated from human daily life. Mathematics has always undergone developments that are directly proportional to the progress of science and technology. Ruseffendi (Heruman, 2007: 1) said that Mathematics is a language of symbols, a deductive science that does not accept inductive proof, the science of order patterns, and organized structures, starting from undefined elements, to defined elements, to axioms or postulates, and finally to postulates. Based on the above opinion, it can be concluded that mathematics has its own language consisting of symbols and numbers. So, if we want to learn mathematics well, then the step that must be taken is that we must master and try to understand the meaning behind the symbols and symbols. Fathani (2017: 35) said that Mathematics, by some students, is still considered a scourge, a dry science, theoretical, full of symbols, difficult formulas, and very confusing.

As a result, mathematics is no longer an objective-systematic discipline, but instead becomes a very subjective part and loses its neutral nature. The problem is that this condition is exacerbated by the attitude of mathematics teachers who often behave in a killer, fierce, irritable, reproachful, monotonous, and too fast in teaching. The conditions mentioned above make them lazy and do not want to learn mathematics, especially children who are still of elementary age. The role of teachers and prospective teachers should be to direct students so that they want to learn mathematics and not think that mathematics is a very difficult, confusing subject for them.

Based on initial observations made by researchers on August 12, 2020 in the classroom IV SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur, The researcher found several problems in the learning process, especially in Mathematics learning, including: 1) The learning process that does not involve the development of student knowledge because the teacher always dominates learning (teacher center), this also makes students become passive, 2) The learning resources used are still very limited, only limited to teacher explanations and student package books and do not utilize other learning resources, 3) Teachers in learning still use conventional models or lectures.

This makes students bored and the interaction process is only limited from teacher to student. This is because teachers still do not know how to operate and utilize computer technology features. As a result of these problems, students are less interested in participating in the learning process. From this situation, the mathematics learning applied is less meaningful so that students become bored and do not like mathematics. Therefore, it is necessary to evaluate the learning that must be carried out by a teacher in mathematics subjects, especially in fractional materials. Basically, students have active characteristics and learn through concrete objects. Learning using real examples and not only listening to lectures will be more

effective in teaching fractional material to students, this realistic mathematics learning is considered appropriate to overcome the problems that exist in the SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur, Where with this realistic mathematics learning, students will be more active and understand the material, especially fractional material because there are real examples in understanding a material. When students' understanding increases, learning outcomes, especially fractional materials, will also increase.

The selection of realistic mathematics learning is also based on the opinion (Heruman. 2012:2) which says that from the age of cognitive development, elementary/middle school students are still bound to concrete objects that can be captured by the five senses, in an abstract mathematics learning, students need aids in the form of media or teaching aids that can clarify what will be conveyed by the teacher so that it is faster understood and understood by students. So that realistic mathematics learning is felt to be appropriate in this study because with this approach not only the lecture method is displayed, but the teacher gives real examples where students do not only think abstractly without seeing direct examples. Hadi (2017: 37) states that "in Realistic Mathematics Learning, learning must start from something real so that students can be involved in a meaningful learning process". Objects in the surrounding environment are used as a tool to bring out students' knowledge. So that students can be involved and active in the learning process.

Based on the results of previous research that has been carried out by Dyan Enggaringtyas (2018) with the title: The effect of the Realistic Mathematics learning approach on the learning outcomes of grade V students of mathematics subjects at SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur, the results of his research show that the pretest to posttest scores in the experimental group that applied the Realistic Mathematics learning approach were higher than the control group that used the lecture method. The magnitude of the increase in the pretest to posttest value in the experimental group was 0.90 or 81%, while the effect of increasing the pretest to posttest value in the control group was 0.67 or 46%. This research is expected to provide an empirical picture of the effectiveness of the Realistic Mathematics approach in improving student learning outcomes in elementary school.

RESEARCH METHOD

This study uses a systematically compiled method to obtain data that is relevant to the research objectives. The type of research used is pre-experimental research, which is research conducted on one group of subjects to determine the influence or effect of a treatment without using a comparison group (control). The research design applied is One Group Pretest Posttest Design. In this design there is only one experimental group without a comparison group. Dependent variables were measured first through a pretest, then given treatment in the form of the application of the Realistic Mathematics approach, and then a posttest was carried out to determine changes in learning outcomes after the treatment was given.

The population in this study is all students of the same class IV SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur in the current school year. The research sample was determined using a saturated sampling technique, where all members of the population were sampled because the number was relatively small and considered to be able to represent the characteristics of the population as a whole. The research instruments used include tests and documentation. Tests in the form of pretest and posttest are used to measure students' mathematics learning outcomes before and after the application of the Realistic Mathematics approach. Documentation is used to obtain supporting data such as student name lists, grades, and other school administrative data.

The data analysis techniques used include descriptive analysis and inferential analysis. Descriptive analysis was used to describe student learning outcomes before and after treatment, while inferential analysis was used to test the influence of the application of the Realistic Mathematics approach on students' mathematics learning outcomes. Hypothesis testing is carried out using a t-test (paired sample t-test) to find out a significant difference between the pretest and posttest values after the treatment is given.

RESULTS AND DISCUSSION

The results of this study describe three main objectives, namely: (1) to know the application of the Realistic Mathematics approach in the learning of classroom students IV SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur; (2) to know the mathematics learning outcomes of students after applying the Realistic Mathematics approach; and (3) to determine the influence of the Realistic Mathematics approach on the mathematics learning outcomes of grade students IV SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur.

Descriptive Statistical Analysis

Based on the results of the pretest, there were 5 students (16%) who obtained sufficient scores in the intervals of 55–69, as many as 11 students (44%) obtained less scores in the intervals of 40–54, and 10 students (40%) obtained very poor scores in the intervals of 0–39. The overall mean of the pretest was 40.64, which indicates that the learning outcomes before treatment were in the poor category.

After applying the Realistic Mathematics approach, the posttest results showed an improvement. A total of 6 students (24%) obtained very good grades at intervals of 85–100, 16 students (64%) obtained good grades at intervals 70–84, and 3 students (12%) obtained good grades at intervals of 55–69. The overall mean value of the posttest was 76.28**,** which indicates that the learning outcomes after treatment were in the good category.

Inferential Statistical Analysis

The results of the normality test showed that the pretest and posttest data were distributed normally, because the significance value (p) was greater than 0.05. Furthermore, the results of the homogeneity test also showed that the data was homogeneous with a probability value of 0.071 > 0.05**,** making it eligible for a t-test (paired sample t-test).

Based on the results of the t-test**,** a significance value (Sig. 2-tailed) of 0.000 < 0.05 was obtained**,** so that the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. Thus, there is a significant influence between mathematics learning outcomes before and after the application of the Realistic Mathematics approach**.**

Discussion

This research was conducted on all students of the IV SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur, which amounted to 25 students and was used as a sample using saturated sampling techniques**.** Data collection is carried out through tests and documentation. The test in the form of description questions was used to measure the results of mathematics learning before and after treatment, while documentation was used to obtain school administrative data.

Data analysis uses descriptive and inferential statistics. The results of the descriptive analysis showed an increase in the average score of learning outcomes after the application of the Realistic Mathematics approach. The results of the inferential test reinforced these findings, where there was a significant difference between the pretest and posttest scores ($p = 0.000 < 0.05$). This means that the Realistic Mathematics approach has a positive effect on students' mathematics learning outcomes.

This increase in learning outcomes occurs because the Realistic Mathematics approach provides opportunities for students to think actively, find concepts, and relate learning to real situations**.** Students not only passively receive information, but are directly involved in the process of finding solutions. These results are in line with constructivist learning theory which emphasizes that knowledge is built through meaningful learning experiences.

Thus, the application of the Realistic Mathematics approach has proven to be effective in improving the mathematics learning outcomes of elementary school students**,** especially in fractional materials. The increase did not occur by chance, but because of a learning model that actively involved students in the process of thinking and problem solving. However, this research has limitations, including requiring teachers' creativity in designing and implementing learning, and requiring more time and energy than conventional methods. The researcher suggests that teachers can adapt the learning approach to the characteristics of students to achieve optimal learning outcomes.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that the application of the Realistic Mathematics approach in mathematics learning in grade students IV SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur is running well and effectively**.** During the learning process, students show high enthusiasm; they actively ask questions, discuss, and try to remember and relate the prerequisite material to the new concepts learned. Students also carry out their tasks in an orderly manner and cooperate positively during learning activities.

The results of the study showed that students' mathematics learning outcomes increased after the application of the Realistic Mathematics approach**.** This is evidenced by the difference in average scores between pretest and posttest, where posttest scores are in the *good* category, while pretest scores are in the *low category*. Based on the results of the statistical test, a significant difference was obtained between the learning outcomes before and after the treatment, so it can be concluded that the Realistic Mathematics approach has a positive and significant effect on the mathematics learning outcomes of grade students IV SD Negeri 1 Cahya Negeri Kecamatan Semendawai Suku III Kabupaten OKU Timur.

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