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GASING MATHEMATICS INSTRUCTION FOR ENHANCING PROBLEM-SOLVING SKILLS IN ELEMENTARY SCHOOL STUDENTS

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Abstract *Mathematics is a difficult, scary, and boring subject because the teaching method used by teachers is still monotonous, so that it has an impact on students' mathematical problem-solving abilities which are still low in solving a problem. A problem is a problem that if we get it and have not been able to solve it, but have the desire to solve it. Therefore, the GASING mathematics learning method (easy, fun, and enjoyable) is used. The GASING mathematics learning method is a method that uses a simpler method, reduces the use of formulas but emphasizes real (concrete) learning and can be combined with logic. The purpose of this study was to determine whether there was an effect of using the GASING mathematics method on students' problem-solving abilities. This study was conducted at SDN 54 Banda Aceh with a sample of 30 students in grade IV. The research method in this study was the pre-experimental design method with a one group pretest - posttest design. The results obtained from this study were an increase in the average value from 8.17 in the pretest to 10.93 in the posttest. This difference is strengthened based on the results of the t-test (paired sample t-test) with a sig value = 0.000 <0.05, then, the hypothesis value in this study is (Ho) is rejected and (Ha) is accepted because there is a difference between the two tests. So it can be concluded that the GASING mathematics method has an effect on the problem-solving abilities of fourth-grade students at SDN 54 Banda Aceh.*

Keyword: *Gasing mathematics, problem solving abilities*

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Abstrak Matematika merupakan mata pelajaran yang menyulitkan, menakutkan, dan membosankan karena cara mengajar yang digunakan oleh guru masih monoton, sehingga berdampak pada kemampuan pemecahan masalah matematis siswa yang masih rendah dalam menyelesaikan suatu permasalahan. masalah adalah suatu persoalan yang apabila kita mendapatkanya dan belum mampu untuk menyelesaikanya, namun mempunyai keinginan untuk menyelesaikanya Oleh karena itu digunakan metode pembelajaran matematika GASING (gampang, asyik, dan menyenangkan). Metode pembelajaran matematika GASING merupakan suatu metode yang lebih menggunakan cara sederhana, mengurangi penggunaan rumus tapi lebih menekankan pada pembelajaran yang nyata (konkret) dan dapat dipadukan dengan logika Tujuan dari penelitian ini adalah untuk mengetahui adakah pengaruh penggunaan metode matematika GASING terhadap kemampuan pemecahan masalah siswa. Penelitian ini dilaksanakan di SD Negeri 54 Banda Aceh dengan sampel kelas IV yang berjumlah 30 siswa. Metode penelitian dalam penelitian ini adalah metode pre-experimental design dengan rancangan *one group pretest - postest* design. Hasil yang didapat dari penelitian ini adalah adanya peningkatan nilai rata-rata dari 8,17 pada pretest menjadi 10, 93 pada posttest. Perbedaan ini diperkuat berdasarkan hasil uji-t (paired sample t-test) dengan nilai sig = 0,000 < 0,05 maka, nilai hipotesis pada penelitian ini adalah (Ho) ditolak dan (Ha) diterima karena terdapat perbedaan antara kedua test tersebut. Sehingga dapat disimpulkan bahwa metode matematika GASING berpengaruh terhadap kemampuan pemecahan masalah siswa kelas IV di SDN 54 Banda Aceh.

Kata Kunci: Matematika Gasing, Kemampuan Pemecahan Masalah

A. INTRODUCTION

Mathematics is a science obtained by reasoning, in mathematics it emphasizes activities in the world of reason (reasoning) (Rora, 2019). Apart from that, mathematics is used to help humans understand and master social, economic, and natural problems (Diana et al., 2018). Mathematics education also requires appropriate strategies and methods so that the mathematics learning process is by the goals to be achieved. Strategy is an effort or effort to achieve a goal, success, success, and victory. Mathematics is a translation of mathematics, but the exact meaning or definition of mathematics cannot be applied in an actual (definite) and concise manner (Nurohmah, 2018). According to Dian Maulida (Dian Maulida, 2015), one of the competencies that students must achieve in primary mathematics learning is being able to solve problems, reason, and communicate mathematically. One of the problems is the material of flat square and rectangular shapes.

Strategy in education is defined as a plan, method, or design of activities to achieve an educational goal. Teaching and learning strategies can be interpreted as an effort to achieve predetermined targets (Arief Aulia Rahman, 2018). A method path used by educators to convey lesson material and is used to achieve the goals that have been implemented, both learning objectives and teaching goals (Arief Aulia Rahman, 2018).

According to Ruseffendi (Ruseffendi, 2020), the main problem in learning Mathematics is that most students view it as one of the subjects that are considered scary, difficult, and boring by many students. Most students already hate it before learning its feelings of laziness and fear dominate, and it is not uncommon for teachers who teach mathematics to be considered a scourge by students.

Teachers have a main role in the success of learning achievement as well as erasing the bad image of mathematics subjects in the eyes of students. Teachers must be able to provide easy learning, and fun so that students can easily understand it. The problem that often occurs in learning activities is that students do not understand the learning delivered by the teacher. It is known that with understanding students should be able to communicate the concepts they have understood to solve mathematical problems after understanding the concepts (Ahmad Susanto, 2014). This is partly caused by teachers' monotonous teaching methods so that children become bored and lazy to learn. Therefore, teachers must be able to choose and use the right method, which can help students understand mathematics, especially the material on the circumference of flat shapes, more easily and more pleasantly. Apart from that, it must also be appropriate to the development of students and the material to be presented so that this problem can be overcome.

One learning method that can optimize the learning process well, which is easy, fun, and enjoyable is the GASING learning method (easy, fun, and enjoyable). A glance at the GASING method (easy, fun, and enjoyable) is one solution in learning mathematics that emphasizes logic so that students do not need to memorize or rely on formulas. GASING is a way to learn mathematics easily whatever the person's educational background (Wiwik wiyanti dan Nur safitri, 2013).

Russefendi (Ruseffendi, 2020) Stated that: A problem is a problem for a person if the problem is unknown to him and that person has the desire to answer and solve it, regardless of whether he arrives at the answer or not. Mathematical problem-solving ability is the ability to identify elements that are known, asked about, and the adequacy of the required elements, the ability to create or compile mathematical models, the ability to choose and develop a solution strategy, and ability to explain and check the correctness of the answers obtained (Mawaddah, 2015).

Nida Jarmita defines problem-solving as the activity of solving story problems, solving non-routine problems, applying mathematics in everyday life or other situations, and proving or creating. The thinking process in solving problems requires the ability to organize strategies. This will train students to think critically, logically, and creatively which is very necessary in dealing with societal developments or in solving problems (Nida Jarmita, 2018).

Based on the results of a test with problem-solving ability questions carried out in class IV of SDN 54 Banda Aceh, on the material around flat shapes on November 9, 2023, it was found that only 40% of the 30 students could solve the problems on the questions. This can be said to be low problem-solving abilities so students cannot solve the problems in the questions. Based on the results of the researcher's observations, when learning mathematics about story problems, most of the students remained silent in the learning process, because the teacher did not direct students to the appropriate steps for the stages of problem-solving in the form of story questions. The teacher only gives story problems and directs students to read the questions carefully, without giving directions to solve the problems in the story problems. So students experience difficulty in planning problem solving because there is no guidance from the teacher. This will have an impact on students' lack of ability to solve problems.

Teori Polya (Billy Alexa Belvian, 2021; G. Polya, 1973; Risma Astutiani, 2019). interprets problem-solving as an attempt to find a way out of a difficulty to achieve a goal that is not immediately achievable. The indicators of problem-solving according to Polya, among others are:

1. *Understanding The Problem*
2. *Devising A Plan*
3. *Carrying Out the Plan*
4. *Looking Back*

Besides that, the teacher has never tried using the GASING method. GASING (easy, fun, and enjoyable) method can be a breakthrough for teachers in teaching mathematics. This method is an innovation developed by John Surya. Yohanes Surya is a prolific writer in the fields of physics and mathematics, the number of books he has written is 68 for elementary to high school and he is also the owner of Surya University. This method is a method that uses simpler methods, reduces the use of formulas but places more emphasis on real (concrete) learning, and can be combined with logic. According to (Wiwik wiyanti dan Nur safitri, 2013). In the GASING mathematics learning method, there are five indicators, including:

1) Simple Dialog
2) Imagination and fantasy
3) Display examples of relevant problem
4) Presents material in depth
5) Giving different problem

According to Kusuma and Sulistiawati, learning the GASING method has 3 stages, namely concrete, abstract, and upward (Kusuma, 2018). Based on the results of research conducted by Herawati, a student at the Elementary School Teacher Education Department, Muhammadiyah University of Makasar entitled "The Influence of the Gasing Mathematics Learning Method on the Learning Outcomes of Class III Students at SD Inpres Mariso III, Makasar City, Academic Year 2018/2019". The results of research conducted by Herawati showed that students who studied using the spinning top method had better learning outcomes than students who studied using the lecture method, because $t_{hitung} > t_{tabel}$. Based on the calculation of the t-test value with t_{hitung} = 3.153 dan t_{tabel} = 2.043. Based on the average value of learning outcomes for students in class III/a as the experimental class and III/b as the control class on the main material of multiplication, with the average score for class A = 69.2 and class B = 47.3.30. (Herawati, 2018; Herawati Susilo, 2011).

B. METHOD

The research design used in this research is experimental research. Experimental research is the only type of research that is more accurate than other types of research in terms of looking for the effect of certain treatments on others but under controlled conditions, or in short, very accurate in determining a cause-and-effect relationship (Mulyatiningsih, 2014). The type of experiment used in this research is Pre-Experimental Design with a Group Pretest-Posttest research design.

The reason the researcher used the One Group Pretest-Posttest form was that the researcher wanted to know whether or not there was an influence of the GASING method on problem-solving abilities through a treatment (Sugiyono, 2016). This research was conducted to see the influence of the top mathematics method on students' problem-solving abilities in class IV of SDN 54 Banda Aceh.

The subjects in this research were 30 students in class IV/a of SD N 54 Banda Aceh. To obtain research data, supporting instruments were used, namely students were given 5 questions (pre-test) and 5 questions (post-test) in the form of essay questions related to material about square and rectangular shapes. The collected data was analyzed using the SPSS 25 for Windows version program in the following way: in class IV of SDN 54 Banda Aceh.

1. Normality test

The normality test is used to determine whether the data being analyzed is norm-distributed or not. This data analysis used the SPSS 25 for Windows version program. If the sig value is > 0.05, then the data is normally distributed. If the sig value <0.05 then the data is not normally distributed.

2. Paired Samples T-test

Paired t-test is a method of presenting hypotheses that are used not independently (in pairs), meaning that one individual (research object) is known for two different treatments or actions. Criteria in the paired samples t-test (Nuryadi, 2017) that is:

Ho: is rejected if $t_{count} > tt_{able}$ or sig. > 0.05

Ha is accepted if $t_{count} \leq - t_{table}$ or sig. ≤ 0.05

With the following hypothesis:

Ha: The gasing mathematics learning method influences the problem-solving abilities of class IV students at SDN 54 Banda Aceh.

Ho: The gasing mathematics learning method has no effect on the problem-solving abilities of class IV students at SDN 54 Banda Aceh.

C. RESULT AND DISCUSSION

This research was carried out at SDN 54 Banda Aceh in the even semester of the 2023/2024 academic year, from May 15 2024 to May 20 2024 in class IV-A. This research was carried out with three treatments. On Wednesday 15 May 2024, pre-test questions were distributed, treatment I was carried out on Friday 17 May 2024, and treatment II was carried out on Saturday 18 May 2024. On 20 May 2024, the researcher gave treatment III and distributed questions. Post-test for students to see the extent of their problem-solving abilities after being given the top mathematics learning method. The research activity schedule can be seen in Table 2 below.

Table 1.
Research Schedule

No	Day/Date	Time	Activity
1	Wednesday, 15 Mei 2024	10.35-10.50	*Pretest*
2	Friday, 17 Mei 2024	08.00-09.10	*Treatment* I
3	Saturday, 18 Mei 2024	10.35-11.45	*Treatment* II
4	Senin, 20 Mei 2024	08.00-09.10	*Treatment* III and *Posttest*

The research data in this thesis were analysed using experimental research using the SPSS 25 for Windows version application. Researchers prepared several learning tools to support research in the learning process. These learning tools include Teaching Modules (MA), Student Worksheets (LKPD), teacher activity observation sheets, pre-test questions, post-test questions, and geoboard media.

Discussion

This research was conducted in 3 cycles starting from May 15 2024 to May 20, 2024. This research aims to see the application of the make-a-match model including the level of teacher understanding in managing learning to improve student learning outcomes. Based on the data collected in this research, the things that need to be analysed are as follows:

1. Normality test

The normality test is used to determine whether the data being analyzed is norm-distributed or not. If the sig value is > 0.05, then the data is normally distributed. If the sig value <0.05 then the data is not normally distributed. Analysis of the initial normality data obtained from the students' pretest scores which were distributed at the beginning of the lesson. Normality testing uses the Sharpiro-Wilk one sample test with a significance level = 0.05 using the SPSS 25 For Windows program. Data on student pretest and post-test results are as follows:

Descriptives

			Statistic	Std. Error
pre -test	Mean		8.17	.547
	95% Confidence Interval for Mean	Lower Bound	7.05	
		Upper Bound	9.29	
	5% Trimmed Mean		8.09	
	Median		8.00	
	Variance		8.971	
	Std. Deviation		2.995	
	Minimum		4	
	Maximum		14	
	Range		10	
	Interquartile Range		4	
	Skewness		.331	.427
	Kurtosis		-.809	.833

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
pre -test	.156	30	.062	.936	30	.073

Figure 1. Normality Pre-test

Based on the picture above, it can be concluded that the initial data (pre-test) is normal. Because the sig value is > 0.05, namely 0.073. The following are the results of the post-test normality:

Descriptives

			Statistic	Std. Error
post-test	Mean		10.93	.606
	95% Confidence Interval for Mean	Lower Bound	9.69	
		Upper Bound	12.17	
	5% Trimmed Mean		10.78	
	Median		10.00	
	Variance		11.030	
	Std. Deviation		3.321	
	Minimum		6	
	Maximum		20	
	Range		14	
	Interquartile Range		4	
	Skewness		.789	.427
	Kurtosis		.442	.833

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
post-test	.211	30	.002	.936	30	.070

Figure 2. Normality Post-test

Based on the picture above, it can be concluded that the initial data (post-test) is normal. Because the sig value is > 0.05, namely 0.070. To be clearer, the results of the normality test can be seen in the table below:

Table 2
Normality Test Post Test

Data yang diuji	Ujian Normalitas	Kesimpulan
	Nilai sig	Normal
Nilai *Post-test*	0,070	

2. Paired Samples T-test

Criteria in the paired samples t-test (Nuryadi, 2017: 102). that is:

Ho is rejected if $t_{count} > - t_{table}$ or sig. > 0.05

Ha is accepted if $t_{count} \leq - tt_{able}$ or sig. ≤ 0.05

Table 3.
Paired Sample T-Test.

Paired Samples Statistics				
		Mean	N	Sig
Pair 1	Uji Pre-test	8,17	30	0,001

Based on the table above, the average pre-test score before treatment was 8.17. Meanwhile, the average post-test score after being given treatment was 10.93. and sig value. The result obtained is 0.001. Because the sig value <0.05, Ha is accepted. This means that there is a significant influence on the average value before and after treatment. Based on the tests above, it shows the effect of applying the GASING mathematics learning method on the problem-solving abilities of class IV students at SDN 54 Banda Aceh.

Analysis of initial data on pretest scores using the normality test. The normality test used in this research is the one-sample Sharpiro-Wilk test with the help of the SPSS 25 for Windows program. The data has a sig value that is greater than the 0.05 significance level. This can be seen from the normality test results of the pretest data of 0.073. So, it can be concluded that the pre-test data is normally distributed because sig. > 0.05. The final data normality test on the post-test value was 0.070. So, it can be concluded that the post-test data is normally distributed.

Based on the pretest and posttest results of class IV/a students, it show that there is a significant difference between the pretest and posttest in mathematics problem-solving abilities using the GASING mathematics learning method. The average pretest result was 8.17. Meanwhile, the average posttest result was 10.93. Because of the sig value. < 0.05, then Ha is accepted. Based on the examination of the pretest and posttest results above, it can be concluded that there is an influence of the application of the Gasing mathematics learning method on the problem-solving abilities of class IV students at SDN 54 Banda Aceh.

This agrees with previous research, conducted by Herawati (Herawati, 2018). shows that students who learn using the spinning top method have better learning outcomes than students who learn using the lecture method. So it can be proven that the

top mathematical method can improve problem-solving abilities and can also improve learning outcomes.

CONCLUSION

Based on the research results and data analysis results, $t_{count} <- t_{table}$ or sig. < 0.05. Because the sig value is 0.001 < 0.05, Ha is accepted and H_o is rejected. So it can be concluded that there is an influence of the application of the top mathematics learning method on the problem-solving abilities of class IV students at SDNi 54 Banda Aceh..

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