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## THE EFFECTIVENESS OF GASING MATHEMATICS METHOD ON STUDENT LEARNING OUTCOMES AT MUHAMMADIYAH PENCONGAN ELEMENTARY SCHOOL

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### Abstract

Online learning causes several problems such as low student academic achievement and interest in learning. Based on interviews with teachers at Muhammadiyah Pencongan Elementary School, the material that students do not understand is fractional operations. In fraction material, students are unable to compare simple fractions for fractions with different denominators. Therefore the gasing method is applied to third grade students at Muhammadiyah Pencongan Elementary School which aims to find out whether the mathematics learning outcomes of students using the gasing method are better than discovery learning. This research is a type of quasi-experimental research with a posttest only control group design. Data was collected using tests. Data were analyzed by mean difference test. After being analyzed, the average value of the experimental class student learning outcomes was 83.33 and the control class was 70. The results of the mean difference test show that there is a significant difference between the learning outcomes of the experimental class and the control class as indicated by a sign value of less than 0,05. Thus it can be concluded that the learning outcomes of students who use the Gasing method are better than the learning outcomes of students who use Discovery learning.

**Keywords:** Gasing Mathematics Method, Learning Outcomes, Mathematics Learning

### INTRODUCTION

Since the Covid-19 pandemic until 2022, learning has been carried out online. This learning method aims to break the chain of transmission of Covid-19. Online learning is distance learning delivered through the use of the internet and technology that allows students and teachers to interact with each other and is flexible (Hoic-bozic et al., 2009). In practice, most teachers in Indonesia use free applications such as WhatsApp, Facebook, Google Classroom, e-mail, e-learning, YouTube, and others to deliver learning materials (Pajarianto et al., 2020).

In 2019-2022 learning at SD Muhammadiyah Pencongan still uses online learning. This learning is done through WaG. Handout sent to WaG. Students are asked to study the material and then asked to do assignments. But the facts show that the task

was actually done by the parents of the students. This is due to many factors such as low student interest in learning, less learning facilities, and conditions at home that are less conducive to learning. This condition has an impact on student academic achievement. There is a decrease in students' abilities while studying with online learning (Gularso et al., 2021). The decline in students' abilities includes thinking skills, language, mathematics, technology, communication, physics, worship, and others.

Based on the results of interviews conducted with Muhammadiyah Elementary School teachers, information was obtained that after students learned through online learning, students did not understand the material. This is because when students study with online learning, most of the student's assignments are done by parents. Thus the

teacher experiences problems when teaching the next material.

Fractional material is material that is taught sequentially from elementary to intermediate levels. Therefore, students' basic understanding of fractional material is very important for students to have. The problem is that most of the third grade students have difficulty in basic competencies comparing simple fractions, especially for fractions with different denominators (Mahanani, 2018). The same thing was also expressed by Ermayani et al (2018) that when students solve problems, students have difficulty determining fractional values, comparing two simple fractions, and calculating operations for two fractions. The factors causing this difficulty are divided into three aspects: factors of students' prior knowledge such as the ability to count integers, factors of understanding concepts, and factors of student interest and motivation (Ermayani et al., 2018). Therefore we need a learning method that can encourage students' interest and motivation to study mathematics and can teach concepts easily.

One method that is considered to be able to teach concepts well and can increase students' interest in learning is the Gasing Mathematics method (Gampang, Asyik, dan Menyenangkan). The Gasing Mathematics Method uses concrete objects to make it easier for students to understand a concept (Kusuma: 2018). The Gasing Mathematics Method was first initiated by Yohanes Surya.

Learning uses the Gasing Mathematics method (Easy, Fun and Fun) using concrete things to make it easier for students to understand a concept/material (Kusuma et al., 2018). By starting with concrete objects, students' cognitive domains can work better (Mulyawati & Sarwinda, 2020). Therefore there is a significant difference between the learning outcomes of students who use the gasing method and those who do not use the gasing method (Kusuma et al., 2018). The

steps for learning with the mathematical gasing method consist of five stages: simple dialogue, imagining, giving examples of relevant questions, presenting material in depth, and providing variations on questions (Aprijon, 2020). Therefore the research applies the Gasing mathematics method (Gampang, Asyik, dan Menyenangkan) at Muhammadiyah Elementary School. The purpose of this study was to find out the learning outcomes of students who used the gasing mathematical method better than students who used Discovery Learning at SD Muhammadiyah Pencongan? This research is important to do to provide information about the effectiveness of the mathematical gasing method so that math learning outcomes become better at SD Muhammadiyah Pencongan

## RESEARCH METHOD

This type of research is a quantitative research with an experimental design, namely quasi-experimental (quasi-experimental). The quasi-experimental design used was the Posttest Only Control Group Design. The population in this study were 3rd grade students at Muhammadiyah Pencongan Elementary School for the 2022/2023 academic year. 3A class students totaled 22 students and 3B students totaled 22 students. With a Simple Random Sampling technique, class 3A students were selected as the experimental class and class 3B students as the control class. The data collection method in this study is the test method. In this study the test was used to measure the mathematical learning outcomes of third grade students at Muhammadiyah Pencongan Elementary School on Fractions material. The test was carried out after the experimental class received treatment. The data analysis technique in this study is the t test. The t test is used to determine differences in learning outcomes between the two groups. The t test was carried out after the prerequisite test was

fulfilled. Prerequisite test includes normality test and homogeneity test.

## FINDING(S) AND DISCUSSION

### Finding

After learning with the Gasing Mathematics method in the experimental class and Discovery Learning in the control class, a learning achievement test was carried out. Data on student mathematics learning outcomes in Table 1.

**Table 1. Data on Student Learning Outcomes**

	Experiment Class	Control Class
Average	83,33	70
Standard Deviation	16,83	22,2
Maximum	100	100
Minimum	35	25

Furthermore, the normality test was carried out in both groups and the results were obtained in Table 2.

**Table 2 Normality Test Results**

Tests of Normality							
	Class	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Learning outcomes	Experiment	.183	21	.063	.856	21	.006
	Control	.174	22	.082	.929	22	.118

a. Lilliefors Significance Correction

From Table 2, the sign value for the experimental class in the Shapiro-Wilk column is 0.06, which means more than 0.05. Thus H<sub>0</sub> is accepted, which means that the experimental class comes from a normally distributed population.

From table 2, the sign value for the control class in the Shapiro-Wilk column is 0.118, which means more than 0.05. Thus H<sub>0</sub> is accepted, which means that the control

class comes from a normally distributed population.

Furthermore, the homogeneity test was carried out using SPSS. The results of the homogeneity test analysis can be seen in Table 3.

**Tabel 3. Hasil Uji Independent Sampel Test.**

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Learning outcomes	Equal variances assumed	3.343	.075	2.211	41	.033	13.33333	6.02986	1.15578	25.51089
	Equal variances not assumed			2.225	39.042	.032	13.33333	5.99122	1.21538	25.45129

The mean difference test was carried out using SPSS. The results of the mean difference test can be seen in table 3 by looking at the sign value in the 2-tail sign column. Because on the homogeneity test we found that both classes had the same variance, so we only need to look at the 2-tailed sign value in the equal variances assumed line, which is 0.033. The sign2-tailed value is less than 0.05, so H<sub>0</sub> is rejected and H<sub>1</sub> is accepted. This means that there are differences between the two groups. Furthermore, if you look at the average value of the experimental class is 83 and the control class is 70. Thus the average value of the experimental class is greater than the control class. this means that the learning outcomes of the experimental class are better than the control class. Thus the application of the mathematical gasing method has an influence on student learning outcomes in the Fractions chapter. Or in other words the mathematical gasing method is more effective than discovery learning at SD Muhammadiyah Pencongan

### Discussion

This study aims to compare the learning outcomes of students who use the mathematical method of gasing and discovery learning. After the learning process was carried out for three meetings with fractional chapters, the two classes were posttested to find out the differences in the learning outcomes achieved by the two classes. The experimental class learning outcomes were 83.33 and the control class learning outcomes were 70.

After the average difference test was carried out, the results of the analysis showed that there was a significant difference between the learning outcomes of the experimental class and the control class. The experimental class got better learning results than the control class. This difference is caused by the treatment given to the

experimental class, namely the Gasing Mathematical Method. The results of this study are in accordance with the results of research conducted (Wibowo et al., 2022) that the use of the mathematical gasing method can have an impact on student learning outcomes. This is because students become more active and motivated in learning. Learning with the Gasing mathematical method provides an opportunity for students to easily understand the lessons being taught. This is in accordance with the concept of the gasing mathematical method, which is Gampang, which means that students are taught with logic that is easy to understand (Sunarti, 2021). Students understand easily because in the learning process students are invited to explore using real objects such as pizza and teaching media so that students can really understand and apply what is learned (Nursakiah & Bahar, 2021). Learning with the Gasing mathematical method also creates fun learning situations. Fun means that during the learning process students have the motivation to learn without having to be forced by the teacher (Nursakiah & Bahar, 2021). This feeling exists because of the simulation of teaching media and games used

### CONCLUSION(S)

Based on the results of research at Muhammadiyah Elementary School, it was concluded that the mathematics learning outcomes of students who used the gasing mathematical method were better than Discovery Learning at Pencongan Muhammadiyah Elementary School.

Mathematics teachers are expected to be able to apply the gasing math method in other suitable materials

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