



TEACHERS' PERCEPTION ON THE APPLICATION OF THE GASING METHOD IN LEARNING MATHEMATICS AT ELEMENTARY SCHOOLS IN MANGGARAI

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Article History

Received : 31/07/2025

Revised : 04/09/2025

Accepted : 17/09/2025

Keywords:

Teacher perception,
Gasing method, Math
learning.

Abstract. Motivated by the poor numeracy skills of primary school students in Manggarai Regency, this study examines teachers' perceptions and experiences of implementing the Gasing method in mathematics classrooms, unlike previous studies that focused mainly on its impact on learning outcomes. The study aimed to describe teachers' perceptions of using the method in the Langke Rembong sub-district. A descriptive qualitative approach was employed, with data collected through interviews and questionnaires; qualitative data were analysed using the Miles and Huberman model, while questionnaire data were analysed by percentage. The results indicate that most teachers perceive the Gasing method as effective in enhancing quick counting skills and understanding of basic mathematical concepts, although challenges remain in terms of limited training, diverse student readiness, and time constraints. These findings highlight the importance of teacher roles and institutional support in sustaining learning innovations, and suggest that the Gasing method has potential as an effective strategy for improving numeracy instruction in primary schools.

How to Cite: Jediut, M., Madu, F. J., Ndiung, S., Tilan, M. D., & Purnama, Y. I. (2025). TEACHERS' PERCEPTION ON THE APPLICATION OF THE GASING METHOD IN LEARNING MATHEMATICS AT ELEMENTARY SCHOOLS IN MANGGARAI. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 6(4), 620-629. <https://doi.org/10.37478/jpm.v6i4.6360>

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Publisher:

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INTRODUCTION

Humans have various skills that must be improved in everyday life. This is done for humans to be able to compete globally, especially in mastering rapidly developing technology (Chia & Goh, 2016; Zubaidah et al., 2017; Gunawan et al., 2025). One of the skills that possessed is high-level thinking. This skill is needed to improve understanding, application of concepts, and problem solving (Yusoff & Seman, 2018; Siburian et al., 2019; Anwar et al., 2025). For that reason, the role of teachers is very important. Mathematics teachers must have knowledge and skills in teaching content to students (Göçen et al., 2020; Tawil et al., 2024). Mastery various content in mathematics can help students improve their thinking skills.

Counting is one of the mathematics learning that's why students must have as a basis for developing critical, creative, and problem-solving thinking (Prahmana, 2015). Thus, the ability to count is a support in achieving thinking skills. Every child has a different ability to solve arithmetic problems in mathematics (Martin et al., 2022). This depends on the child's development.

Learning to count is not easy so that students often experience difficulties (Suwasti, 2013). This also happens to elementary school students in Manggarai. Based on interviews with several teachers in Manggarai Regency, information was obtained that there are still so many children who have difficulty in counting. This difficulty is evidenced by the results of the district-level OSN in mathematics on October 14th, 2024, which was attended by 35 students from various sub-districts, namely the highest student score was 66 and the lowest was 28. From the results of the OSN, 2 students got scores in the range of 60-67, scores range 50-59 got by 8 students, 16 students got scores in the range of 40-49, 8 students got scores in the range of 30-39, and the last is score of 28 got by 1 student. This shows that students' numeracy skills must be improved again through the application of various strategies, methods, media, approaches, and learning models.

One solution that can be done is to apply Gasing. Gasing mathematics is a learning method developed by Prof. Yohanes Surya, Ph.D from Surya Institute Indonesia (Dinata et al., 2017; Sulistiawati, 2019). Gasing is a mathematics learning that is easy, fun and enjoyable (Fiun, 2016; Prasetyo et al., 2020; Hayati et al., 2024). Easy means that students are introduced to mathematical logic that is easy to understand and remember. Fun shows that students have a desire to learn without coercion. Fun means that there is satisfaction in the learning process supported by using teaching aids and games. This means that mathematics learning is carried out in a happy atmosphere without any boredom from students. During the learning process, students are introduced to concrete objects which are then directed to abstract symbols and then concave as a form of evaluation (Diah & Siregar, 2023). For this reason, teachers provide appropriate learning media. Apart from that, students are required to be actively involved in learning. Furthermore, according to Zafivani et al. (2016), the top mathematics learning method has several basic principles. First, there is no child who cannot learn mathematics; However, they may not have had a pleasant and meaningful learning experience. Second, mathematics is based on patterns, which aid understanding. Third, understanding mathematical concepts must start with a visual context before introducing symbolic notation. Fourth, mathematics is not just memorization but rather understanding basic facts with a conceptual and visual approach.

The process of learning mathematics using the spinning top method is divided into five stages (Ikbal et al., 2021; Mahayukti et al., 2024). The first stage is simple dialogue, where the teacher and students engage in short discussions about the material to be learned. This interaction encourages students to express their opinions, fosters a closer relationship between teachers and students, and supports the achievement of learning objectives. The second stage is imagining and fantasizing, in which the teacher guides students to imagine events related to the material. This stage plays an important role in developing concepts, creativity, innovation, and behavior that are relevant to students' daily lives. The third stage is presenting relevant examples of questions, where the teacher provides simple exercises that use mathematical formulas to reinforce understanding, build good learning habits, and enhance students' mathematical skills. After that, the fourth stage, presenting material in depth, focuses on giving physical meaning to the material being studied so that students can attribute meaning to objects or items and gain a deeper understanding of mathematical concepts. Finally, the fifth stage is providing a variety of questions, in which the teacher introduces more diverse problems, including story-based questions, to strengthen comprehension and motivate students to engage actively in learning, both individually and collaboratively. These five stages demonstrate how the Gasing Maths learning method can make learning mathematics easier and more enjoyable without the need for memorisation.

Gasing mathematics in Manggarai Regency is one of the programs of the Youth and Sports Education Office. This program has been implemented since 2024. It aims to improve the numeracy skills of elementary school students throughout Manggarai Regency. Based on an interview conducted with one of the teachers who had participated in the Gasing training, information was obtained that not all schools had implemented Gasing mathematics. This is because not all teachers participated in the Gasing training organized by the Youth and Sports Education Office. In addition, dissemination activities from the training have not been carried out comprehensively in all elementary schools in Manggarai Regency. Therefore, this study aims to describe the teacher's perspective on the implementation of Gasing in elementary schools, so the focus of this study will be carried out on schools that have implementing Gasing.

Many studies have been conducted on the Gasing method, most of which focus on improving student learning outcomes. For example, Sunarti (2021), Sulistiawati (2019), and Situmorang (2024) demonstrated the effectiveness of the method in enhancing primary school students' numeracy skills. However, few studies have examined teachers' perceptions and experiences of implementing the method, particularly in unique geographical and administrative contexts such as Manggarai. This study therefore fills this gap by examining the experiences of teachers who have participated in Gasing training and describing the associated challenges, strategies, and institutional support. Focusing on teachers' perspectives is expected to improve



our understanding of what determines the successful adoption of innovative learning methods. This study focuses on teachers' perceptions and experiences to identify opportunities and challenges for further application of the Gasing Method. The purpose of this study is to describe how teachers perceive the application of the Gasing Method in elementary school mathematics learning in the Langke Rembong subdistrict of the Manggarai regency.

RESEARCH METHODS

This study uses a qualitative research method with a descriptive approach. This method was chosen to provide a general description of teachers' perceptions of using the Gasing method to teach mathematics in primary schools in the Langke Rembong district. The subjects of the study were therefore teachers who had implemented the Gasing method, specifically mathematics teachers at SDI Konggang, SDK Ruteng 2, SDI Wae Rii and SDK Ruteng 5. Data was collected through interviews and questionnaires. Interviews were conducted to gather data on teacher perceptions, while the questionnaires were used to reinforce the findings from the interviews.

Table 1. Indicators and Statements of Teacher Perceptions

Indicator	Statement	Perception	Statement number
Teacher Preparation	Teachers experience difficulties when compiling the Gasing Mathematics teaching module	Negative	1
	The challenge for teachers in preparing spinning top mathematics learning is to think of various games and ice breakers.	Negative	2
	Limited facilities and infrastructure are the main obstacles in implementing the gasing method.	Negative	3
	Limited facilities and infrastructure are the main obstacles in implementing the gasing method.	Negative	4
Application of the Method	Teachers need to adapt the mathematics material to suit the spinning top method.	Positive	5
	Teachers always apply the spinning top method in every mathematics lesson	Positive	6
	Gasing mathematics learning is suitable for application in study/discussion groups	Positive	7
Learning Impact	The application of the gasing method help students understand mathematical concepts better.	Positive	8
	Students can count faster after applying the gasing method	Positive	9
	Students who have less ability find it difficult to understand the material using the gasing method.	Negative	10
	There are still students who don't like the noisy top atmosphere (lots of singing/ice breaking)	Negative	11
	Students want to continue learning mathematics with the gasing method	Positive	12
	Some students need enough time to adjust from the old way of counting to the gasing method.	Negative	13
Evaluation and Reflection	The application of the gasing method in mathematics learning is very effective in improving student learning outcomes.	Positive	14
	Teachers need a lot of time to apply the spinning top method effectively.	Negative	15
	Teachers must continue to learn about the spinning top method so that its application is more effective.	Positive	16
	All teachers should take gasing training	Positive	17

The research instruments used were therefore interview guidelines and questionnaires. The indicators related to teacher perceptions are teacher preparation; the application of the



spinning top method; the impact of learning the spinning top method; and evaluation and reflection. These four indicators are described in 17 statements, as shown in Table 1.

The interview data in this study were analysed using Milles and Huberman's proposed technique, which includes data reduction, presentation and conclusion drawing. The questionnaire data were analysed by percentage, with the frequency of teacher scores calculated using the following formula (Bimanggara dan Mansur, 2020).

$$P = \frac{f}{n} \times 100 \%$$

Description: P =percentage, f =frequency/number of respondent's answer, n =number of respondents

RESULTS AND DISCUSSION

In general, the results of this study show that teachers have a positive perception of the Topping Method. They consider it to be an effective way of helping students to understand concepts, starting from the concrete stage, and of improving their numeracy skills quickly and accurately. However, various factors influence the implementation of the spinning top method. These depend on the teacher's preparedness, the availability of teaching resources, and their teaching experience. In this study, teachers' perceptions are based on three main aspects: preparation, implementation and evaluation.

a. Preparing Teachers to Implement the Gasing Method

Before applying the gasing method in learning mathematics, there are two things that teachers need to prepare, namely compiling teaching modules and designing games or ice breaking.

1. Preparation of teaching modules

A teaching module is a document in the learning toolkit that teachers use as a reference when teaching. When applying the Gasing Method, preparing teaching modules is the most fundamental part of planning learning. However, the researchers found differences in how teachers integrated the Gasing method into the teaching modules at the four schools studied. For example, ATJ, the fifth-grade teacher at SDK Ruteng 5, said that he did not write specifically about the spinning top method in the teaching module but rather applied it directly to the mathematics curriculum, especially in basket calculations. This is because the top method does not have special activities, only quick calculations. Additionally, time constraints are an obstacle in preparing the spinning top teaching module.

The findings from SDK Ruteng 2, MHJ as the mathematics teacher for grades V and VI, also revealed that the gasing method was not explicitly written in the teaching module. According to MHJ, writing the gasing method specifically in the teaching module makes learning more rigid because teachers will only focus on the objectives written in the module, rather than on students' needs and circumstances, which can change with each meeting. Additionally, during the spinning top method training, they were not taught how to develop teaching modules. Therefore, there was no specific guidance on the Gasing teaching module. Therefore, MHJ decided to incorporate the spinning top method into mathematics learning flexibly.

Unlike the previous two schools, MES as the mathematics teacher for grades IV, V, and VI at SDI Wae Rii, took a more systematic approach to preparing the teaching module. He modified the existing teaching module by adding the spinning top method to the learning steps. He included the spinning wheel method in the opening activity by conducting a spinning wheel drill, as well as in the core activity for math calculations. Preparing this teaching module was an effort to integrate the spinning top method into a more formal, planned structure. However, SIOR, the third-grade teacher at SDI Wae Rii, and KPE, the first-grade teacher, admitted that they did not specifically write about the spinning top method in the teaching module. This is because there are no specific guidelines on the spinning top method. Additionally, teachers can be flexible and combine other methods that suit students' learning needs.



Furthermore, the findings from SDI Konggang, SSN as the first-grade teacher also adapted the existing teaching module by including the gasing method in the learning steps. This modification is done by adjusting the needs and conditions of students. This situation cannot be separated from the absence of regulations and official guidelines from the school regarding the application of the gasing method. Research findings from the four principals studied show that there is no regulation or internal school policy governing the application of the topsy-turvy method in mathematics learning. Due to the absence of a policy basis, teachers feel that they have no formal requirement to write specifically about the Gasing method in the teaching module. This is also the reason why most teachers choose to integrate it directly in learning practices, without writing it down in a written planning document.

As the research findings above show, there are common patterns and differences in preparing the Gasing method teaching module. In general, teachers in the four research schools did not explicitly write about the Gasing method in their mathematics teaching modules. This is due to several factors: the absence of official guidelines from related agencies, time constraints, and the need to maintain flexibility in the learning process. However, SDI Wae Rii and SDI Konggang are attempting to incorporate the Gasing method into their teaching modules in a more structured way. At SDI Wae Rii, teachers modified the teaching module by systematically including the Gasing steps. Meanwhile, at SDI Konggang, teachers included the topping component in the learning process, albeit in a simpler manner. Thus, it can be concluded that the preparation of teaching modules for the Gasing Method in four schools was not carried out systematically due to the absence of official guidelines, time constraints, and the need for flexibility in teaching. This is reinforced by the results of the questionnaire 67% of teachers reported difficulty preparing teaching modules. The absence of official guidelines and school policies is the main factor that makes it difficult for teachers to design modules systematically. Some teachers integrate the modules directly into the learning process, while others try to modify them to be more structured.

The success of applying the Gasing method largely depends on careful design. This aligns with [Damopolii et al. \(2024\)](#) assertion that teachers applying the Gasing method to mathematics education first prepare a lesson plan for each cycle. Additionally, the results of [Dinata et al. \(2017\)](#) research show that an increase in lesson planning in cycles two and three is directly proportional to teacher readiness in planning learning and to better class mastery. Thus, the successful application of the Gasing method is closely related to teachers' readiness to design systematic learning.

2. Games and Ice Breaking Design

Games and ice breaking are also an important part of the Gasing method that need to be prepared beforehand. According to [Rahmadi & Lavicza \(2021\)](#) interactive games can make learning math fun for students. Additionally, [Shoolikhah \(2025\)](#) research showed that using icebreakers with games increased the engagement of Phase A students in mathematics learning. Furthermore, [Korompis \(2023\)](#) argued that students learn regular and structured patterns when studying mathematics. Therefore, ice breaking inserted into the learning process can help students refocus and concentrate more on the material being studied. However, interviews with teachers at SDI Konggang, SDK Ruteng 2, SDI Wae Rii, and SDK Ruteng 5 revealed that designing different games and icebreakers for each lesson was challenging because teachers had to think creatively. The questionnaire results support this finding: 67% of teachers strongly agree and 33% agree that designing a variety of games and icebreakers is challenging when preparing for Gasing Math learning. This suggests that, although teachers recognize the importance of game elements in fostering a fun learning environment, they encounter obstacles in consistently generating new ideas.

b. Application of the Gasing Method

Based on the research findings in the four schools studied, the process of applying the Gasing method in these schools varies greatly. The findings from SDK Ruteng V related to the process of applying the Gasing method are that ATJ as a mathematics teacher integrates this method directly in mathematics learning activities, especially in basic mathematics materials



such as bakalkubagi. ATJ always consistently applies the Gasing method in every meeting. In addition to bakalkubagi material, ATJ also applies this method in flat and spatial building material, especially in doing calculations such as finding area and perimeter. This method is very helpful for students in doing calculations quickly and precisely. As for the steps of the Gasing application used by ATJ, it begins with fun activities such as singing while dancing which aims to foster students' interest and prepare their mental state before entering the core stage of learning. Next, ATJ explains the core material by introducing the concept of multiplication through real activities so that students understand the concept of multiplication as a form of repeated addition.

Research findings from SDK Ruteng II show that applying the Gasing Method to learning begins by building students' enthusiasm. As a math teacher, MHJ starts the lesson with gasing songs to create a fun learning atmosphere and generate enthusiasm among the students. Then, the teacher gradually delivers the material. When students start to lose focus, the teacher leads educational games to maintain a lively classroom atmosphere and prevent boredom. This method aims to keep students actively involved in the learning process. In the gasing Method, arithmetic operations use a counting technique that starts from the front and goes to the back. This distinguishes the spinning top method from conventional methods. This method is considered more systematic and efficient. This aligns with the findings of [Ramadhanti et al. \(2024\)](#), who state that the distinguishing factor between calculations in the Gasing method and conventional methods is that Gasing calculations start from the front row to the back. Additionally, music or Gasing songs are played during the learning process to maintain student enthusiasm.

According to the research findings of the mathematics teacher at SDI Wae Rii, the Gasing method aims to help students understand mathematical concepts in depth rather than simply memorize formulas. The focus is strengthening basic math skills, such as addition, multiplication, subtraction, and division, because these skills form an important foundation for understanding other mathematical concepts. The Gasing method is conducted in three sequential stages: concrete, abstract, and storytelling. During the concrete stage, the teacher uses real objects, such as ice cream sticks, to visually and tangibly introduce numbers or basic operations. This approach aligns with the findings of [Rahmawati et al. \(2023\)](#), who demonstrated that the use of concrete media can facilitate learning addition and subtraction counting operations. The next stage is the abstract stage, in which students are introduced to the written forms of concrete concepts they have previously understood. The final stage is the mencongak stage, in which students strengthen their understanding of concepts through practice.

In addition to MES, SIOR, the third-grade teacher at SDI Wae Rii, applies Gasing steps starting from the concrete stage. Different media, such as color cards, are used to represent values from units to thousands. SIOR also applied the drill concept to addition. Another finding from SDI Wae Rii is teacher KPE, the first-grade teacher who applies Gasing flexibly and emphasizes a fun and easy learning process for students. KPE does not emphasize the application of drills too much because they are considered to require more time, especially for first grade students, who need a more patient and gradual approach. KPE focuses more on interactive learning to increase students' enthusiasm for learning. This aligns with research by [Kurniawan et al. \(2024\)](#) and [Manurung et al. \(2025\)](#) which states that the Gasing method increases student participation because learning is not boring, making it easier to understand math concepts.

The findings from SSN, the first-grade teacher at SDI Konggang, show that the gasing method is applied gradually and in a structured manner. This begins with changing students' views that math is difficult to the idea that math is fun and easy to learn. Teachers avoid the traditional lecture method and emphasize active learning, making students the main participants in learning activities. During the concrete stage, teachers introduce the concepts of numbers and basic operations using simple materials, such as stones. This allows students to experience mathematical concepts directly. The final stage is Mencongak, in which students are trained to calculate quickly and accurately without tools.



Based on the above description, it can be concluded that, although the process of implementing the gaming method in the four schools varies in approach, it generally follows three main stages: concrete, abstract, and storytelling. Teachers use real-life media, songs, games, and interactive activities to build conceptual understanding, increase student interest, and improve counting speed. Questionnaire data also supports this, showing that 83% of teachers use the Gasing method to teach mathematics. Although application varies among teachers, the Gasing method has been proven effective in creating a fun, systematic, student-centered approach to learning mathematics. The questionnaire data shows that 100% of teachers agree that the spinning top method is helpful for students to count quickly and understand concepts better. Thus, it can be concluded that the spinning top method effectively improves counting speed and understanding of basic mathematical concepts, as well as student interest and enthusiasm for learning. Research by [Inayah et al., \(2025\)](#) also showed that the spinning top method significantly improves counting ability. Therefore, the Gasing method is an effective, fast, and fun way to perform mathematical calculations.

c. Evaluation and Challenges of Implementing the Gasing Method

As a newly implemented method, it is certainly challenging for teachers and students alike. The results show that implementing the Gasing method presents challenges for both students and teachers. The findings from SDK Ruteng V show that students face obstacles such as EALD. One grade V student admitted that he was too shy to be creative during ice breakers that required movement. Additionally, PKLH students had difficulty adapting from the conventional counting method to the method offered by the Gasing approach. These results align with those of [Rokhmawati & Budiyo \(2018\)](#) who found that not all students can quickly adapt to and accept the Gasing method as a new learning method. This is because students are accustomed to conventional counting methods, so changing to a new method is challenging for them. Additionally, ATJ, a grade V teacher at SDK Ruteng V, had difficulty building enthusiasm among students participating in prepared games. Another difficulty was that the teacher had limited time for instruction because he was responsible for other subjects as well.

The SDK Ruteng II findings show that certain students, such as the grade V MPDD student, dislike the Gasing method because it involves singing and dancing. Additionally, PAMG, a sixth grader, needed more time than other students because she had difficulty understanding the example problems given by the teacher. Additionally, MHJ, a teacher, faces the challenge of changing the arithmetic habits of high-grade students accustomed to old methods.

The findings from SDI Wae Rii show that some students, such as AAF (grade IV) and CDM (grade V), have not mastered basic addition, so they have difficulty performing addition operations with large numbers. Additionally, KMD (grade III) students, who are less capable, have difficulty understanding the material with the Gasing method. Furthermore, the teachers at SDI Wae Rii (MES, SIOR, and KPE) reported no serious obstacles to implementing the Gasing method. They revealed that not all aspects of the Gasing method can be directly applied, particularly fast counting, which is considered time-consuming and not suitable for first grade students. Nevertheless, this method is generally considered effective in improving mathematics learning outcomes.

The findings from SDI Konggang show that low-grade students face obstacles such as a lack of early learning readiness. Specifically, some students still have difficulty recognizing numbers. Additionally, high-grade students need to adapt to the Gasing method's calculation method because they are accustomed to the conventional method. These results align with those of [Pagarra & Syamsuddin \(2024\)](#) who found that not all students achieve high learning outcomes when using the Gasing method. This is because students have different levels of ability and understanding.

Based on the above description, it can be concluded that the topsy-turvy method encounters obstacles in elementary schools from both students and teachers. Based on the results of the questionnaires, 83% of teachers agree that students with lower abilities will have difficulty understanding the material with the Gasing method, 67% agree that some students



dislike the crowded atmosphere, and 100% agree that they need a lot of time to effectively implement the Gasing method and that certain students need time to adapt to it. Therefore, the success of the Gasing method depends heavily on students adapting to the new approach, parental support, teacher availability, and teacher competence and consistency in implementation. Nevertheless, most teachers believe this method effectively improves students' quick calculation skills, especially with more intensive practice and an approach tailored to students' characteristics at each level.

Teachers in the four schools demonstrated their commitment to overcoming the challenges of implementing Gasing by adjusting learning approaches to suit students' abilities. Additionally, teachers actively participated in Gasing training activities. Questionnaire data shows that all teachers strongly agree to continue learning about Gasing and attending Gasing training. This is in line with Sunarti (2021) research results, which state that the gasing method requires practice or training to instill calculation habits in students. The Gasing method aims to improve students' accuracy, dexterity, and skills to strengthen their mastery of mathematical abilities. Despite facing obstacles in implementing the Gasing method, teachers have shown a reflective and adaptive attitude. They have applied learning strategies tailored to each student's abilities and recognized the importance of further training to improve their understanding of and skills in applying the Gasing method.

CONCLUSIONS AND SUGGESTIONS

Based on the research results obtained from the field, it can be concluded that the gasing method positively impacts students' quick calculation skills, especially. Despite challenges in student adaptation, there has been an overall improvement in student learning outcomes, particularly in basic math skills. One of the main impacts of this method is faster and more accurate mastery of counting skills. Thus, teachers perceive the Gasing method positively in terms of mathematics learning.

This research makes a valuable contribution to educational studies by shifting the focus from student learning outcomes to the experiences of teachers implementing the Gasing method. The findings show that, although the method is perceived as effective in improving basic numeracy skills, its success depends heavily on training availability, curriculum integration and collaboration between teachers. Thus, this study fills an important gap in the literature by demonstrating how pedagogical innovations are adopted and implemented by teachers at school level, particularly in under-researched areas such as Manggarai.

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