



ELEMENTARY SCHOOL TEACHERS' AND MATHEMATICS TEACHER CANDIDATES' UNDERSTANDING OF DIVISION WITH REMAINDERS

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Abstract. Mathematics is studied from basic education to higher education. Understanding math concepts is important to learn because it is related to numeracy skills and also to form the basis of understanding at a higher level. One of the important materials to study is division, especially remainder division. This study aims to analyze and compare the understanding of elementary school teachers and prospective mathematics teachers in solving division problems with remainders. This research is a descriptive qualitative. Data were collected through descriptive tests and in-depth interviews with 13 elementary school teachers and 19 mathematics education study program students. The results showed that 92.3% of teachers used the porogapit method in solving the remaining division problems, and the rest used the Gasing method. Meanwhile, 63.16% of student teachers used the porogapit method and the rest showed more method variations. Although student teachers tended to be more thorough in completing the work, errors were still found due to inaccuracy and lack of conceptual understanding. Both groups have not shown a thorough mastery of the concept of remainder division. These findings provide a basis for improving the quality of mathematics learning.

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INTRODUCTION

Mathematics is one of the subjects studied from basic education to higher education. One of the concepts learned at the elementary school level is the division operation (Cooper & Karsenty, 2018; Safiati et al., 2021), including the concept of remaindered division (Tosho, 2022). Residual division is division that produces a remainder, and this residual division occurs when the number is not divisible (Faizah et al., 2022). Understanding residual division is important because this concept is not only related to numeracy skills, but also forms the basis for understanding more complex mathematical material at the next level of education.

However, despite being introduced since elementary school, there are still many problems in understanding the concept of remainder division, both among elementary school teachers and prospective math teachers. In this case, teachers and prospective teachers have not fully mastered the concept of division. Problems regarding the lack of understanding of students in the division calculation process can be caused by teachers who do not teach the concept of division (Faizah et al., 2022). This can have an impact on errors in delivering material to students, potentially causing misconceptions in the early stages of learning mathematics.

Concept understanding is the ability of students to re-express what has been communicated to them or it can also be interpreted as the result of a person's thinking activity in understanding the concept in question (Giriansyah et al., 2022). Understanding concepts in mathematics must be emphasized in students starting from the basic level. In this case, teachers have a very important role in building students' concept understanding abilities. Good concept understanding can solve math problems appropriately (Bela et al., 2024). Therefore, teachers are expected to be able to build or stimulate so that the ability to

understand mathematical concepts is owned by students from an early age (Rochma et al., 2023).

Elementary teachers and prospective mathematics teachers have different backgrounds and experiences. Elementary teachers generally have direct teaching experience in the classroom and are used to dealing with a variety of learner responses, although their theoretical understanding may be limited. In contrast, student teachers have a better theoretical understanding because they have just studied it in college, but do not necessarily have strong pedagogical skills in teaching the material. This difference is important to study, namely how each group understands the concept of remainder division (Maulida et al., 2025; Novita et al., 2022; Susanti et al., 2020). These differences in knowledge and teaching experience often influence the strategies they use in problem solving, ranging from traditional procedural methods to more exploratory approaches. Understanding this gap is crucial for designing effective training that can bridge theory and practice in mathematics education.

The remaining division can be solved through several methods, namely by compositional division (*porogapit*), division by repeated subtraction, using formulas and GASING. The *porogapit* method is a method of stacked division by making a flanking line between the number being divided and the dividing number (Arifendi & Irianti, 2020). The term *porogapit* is taken from the Javanese language, namely *Poro* and *Gapit*. *Poro* means 'divide' and *Gapit* means 'flanking'. While GASING stands for easy, fun, and enjoyable (Kusuma et al., 2018; Nuari et al., 2019), and this method was developed by Yohanes Surya with the aim of minimizing the use of formulas in solving mathematical problems (Lakapu et al., 2023). GASING mathematics is defined as a way of learning mathematics that is done step by step to obtain an achievement or result (Husna & Sari, 2018), where the teacher tries to make math lessons understood by students in an easy, fun and enjoyable way.

Many studies have analyzed students' difficulties in solving division problems, both for students in regular classes and also for students with special needs. Research conducted by Astuti et al. (2024) on grade IV elementary school students aims to identify the factors that cause student difficulties in the division of four-digit *porogapit*. Research conducted by Amaliyah et al. (2022) on grade IV elementary school students with the aim of knowing cognitive students in solving division problems. Research conducted by Ermawati et al. (2024) on grade IV elementary school students aims to find out the learning difficulties of counting division material specifically in solving math story problems. Research conducted by Sari & Fikrati (2023) on grade IV elementary school students aims to analyze the types of student errors in solving division material based on high, medium and low mathematical abilities. Research conducted by Pacheco-Muñoz et al. (2023) which aims to analyze how fourth grade elementary school students solve and interpret the results of non-routine problems, especially division by remainder. Research conducted by İncikabi et al. (2020) on grade VI elementary school students on division material with the aim of knowing the strategies and algorithms used in the division process and the ability to interpret in the context of real life. Research conducted by Taufan et al. (2024) aims to analyze student difficulties in solving division. While research that aims to determine the ability of students with special needs in solving the remaining division material was conducted by Nuari et al. (2019).

In addition, there are also many studies on how to overcome student learning difficulties in division and remainder division material. Research conducted by Arifendi & Irianti (2020) aims to determine the effectiveness of using *porogapit* cards on division material. This study also aims to increase student motivation and understanding. Research conducted by Aspreliha et al. (2022) on grade IV elementary school students with the aim of improving student learning outcomes through SIPINTAR media. Research conducted by Faizah et al. (2022) aims to determine the understanding of the concept of mathematical division in elementary school students through the learning media of counting funnels. Research conducted by Kadir & Rosiyanti (2011) on elementary school students with the aim of learning the use of number pattern techniques in division operations. Research conducted by Lautert et al. (2012) aims to improve children's understanding of division, with the results showing that children can



overcome their difficulties when the invariant principles underlying the concept of division are explicitly mentioned and linked to the problem-solving process. Research conducted by [Safiatiet al. \(2021\)](#) with the aim of solving division problems through improving metacognition skills with the design of the RBL (Research Based Learning) learning model.

Research on division materials, especially decimal division, was conducted by [He \(2025\)](#). This study focused on examining math textbooks used by prospective elementary school teachers, where the researcher investigated how standard decimal multiplication and division algorithms were presented, especially the rationale for the two algorithms.

Research on teachers' conceptual understanding of division material has also been conducted [Korkmaz \(2021^a\)](#). This study aims to determine the instructional explanations of classroom teachers and elementary school mathematics teachers who work in public schools, with the results of the study that classroom teachers and elementary school mathematics teachers who work in public schools do not have sufficient conceptual knowledge. Research on Pre-Service Early Childhood Teachers' strategies in solving multi-digit division problems was conducted by [Ortiz-Laso & Diego-Mantecón \(2020\)](#) with the aim of knowing the teacher's strategy in solving multi-digit division and the mistakes made by Pre-Service Early Childhood Teachers. The results showed that teachers incorrectly identified mathematical models related to the exchange of the roles of the divider and the divided, so it is said that when studying, teachers have not acquired the necessary knowledge and skills to solve multi-digit division problems, so the researcher suggested that the entry requirements at the university should be rethought.

However, there is no research on teachers' and prospective teachers' understanding of basic mathematics topics, especially remainder division. This is despite the fact that findings from such studies can make a significant contribution to the improvement of learning strategies and educational curriculum development, and teachers are also one of the factors that determine the quality of education ([Guntur et al., 2025](#); [Kusuma et al., 2018](#)) because they are directly with students in the learning process in the classroom. In addition, universities also contribute directly to prospective math education teachers ([Cooper & Karsenty, 2018](#)). By knowing the location of difficulties or misconceptions that often arise, educational institutions can design training or learning materials that suit the needs of each group. Therefore, it is very important to conduct research to find out the extent to which elementary school teachers and prospective mathematics teachers understand the concept of remainder division, as well as the methods used in solving problems.

Based on this background, this study aims to analyze and compare the understanding of elementary school teachers and prospective mathematics teachers in solving division problems. This research is expected to provide a more comprehensive picture of the readiness of teachers and prospective teachers in teaching basic mathematics concepts conceptually and meaningfully. Thus, teachers and prospective mathematics teachers have an important role to play in overcoming problems in the concept of division by remainder. This important role can be started from the concept understanding ability of teachers and prospective teachers, especially those studied in college.

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RESEARCH METHODS

This study is a qualitative descriptive study. The data sources in this study were 13 elementary school teachers spread across Kupang Regency, with the following characteristics: (1) classroom teachers (grades I–VI); (2) physical education teachers; (3) religious education teachers; and 19 students majoring in mathematics education. The selection of research subjects was conducted purposively, considering the teachers' teaching experience and the students' educational level. The selected teachers represent the diversity of subject types and grade levels they teach. Meanwhile, the students involved were final-year students who had taken courses in basic mathematics and teaching methods. With this selection strategy, it is hoped that the data obtained can reflect the variation in understanding of the concept of division with remainders and the tendency of the methods used in teaching practice in the field. To obtain comprehensive information, the data in this study was collected through tests and interviews. Since the data required was on the abilities of teachers and students, the test used was an essay test that required answers with explanations, descriptions, and creativity in solving problems. Meanwhile, the interviews in this study focused on obtaining information about the accuracy and depth of participants' understanding of the concepts being tested. Therefore, the type of interview used was an in-depth interview. The questions asked were open-ended questions that were not formulated in advance but were adjusted according to the responses of the research subjects.

During the research, the researcher interacted directly with the subjects to ensure that each participant understood the instructions in the test and the questions during the interview. The test was conducted individually in a conducive atmosphere to encourage participants to think independently and demonstrate the problem-solving strategies they had mastered. The interview was conducted after the test, aiming to explore the reasons behind the choice of problem-solving methods used and to determine the extent of participants' conceptual understanding of division with remainders. Data analysis was conducted qualitatively, starting with organizing the data, then sorting the data into manageable parts, and finally identifying patterns and other important points that were interesting and could be written as conclusions. The results of the data analysis regarding the ability of elementary school teachers to solve division problems with remainders will be described descriptively. The three stages conducted in this study are: (1) preparation; preparing research instruments in the form of interview guidelines and test questions, (2) implementation; collecting data in the form of test results and interviews; and analyzing the data, and (3) drawing conclusions based on the results of the data analysis

RESULTS AND DISCUSSION

An analysis of the understanding of the concept of division with remainders was conducted on 13 elementary school teachers and 19 students majoring in mathematics education by giving them two equivalent questions. The participants' results were grouped based on the methods used to solve the questions, including the porogapit method, GASING, and other approaches, as follows.

A. Teachers

The responses from 13 elementary school teachers spread across Kupang Regency are grouped in [Table 1](#).

Table 1. Summary of the Work Results of 13 Elementary School Teachers

No.	Porogapit Method	GASING Method
1	12 (Everything is correct)	1
2	12 (1 Wrong)	1

A total of 92.3% of teachers completed the two questions using the traditional method, namely porogapit (a method of division performed in stages). One of the 12 teachers who worked on the questions using the porogapit method made an error in the operation.



Meanwhile, Meanwhile, the other 11 teachers were able to write down each step of the solution correctly, as illustrated in Figure 1.

Nama Sekolah : SD Negeri Bujurwahon
Guru Kelas : VI
Materi : Matematika

Soal
1. Diketahui jika 1793 dibagi 12 akan bersisa 5, maka tentukan sisa dari 1820 jika dibagi 12.
Penyelesaian :

$$\begin{array}{r} 151 \\ 12 \overline{) 1820} \\ \underline{12} \\ 62 \\ \underline{60} \\ 20 \\ \underline{18} \\ 2 \end{array}$$

Jadi, 1820 dibagi 12 akan bersisa 2.
Atasannya karena 151 jika dikali 12 hasilnya adalah 1812, sehingga apabila dijumlahkan dengan sisanya 8 maka hasilnya 1820

Figure 1. Sixth grade teacher's answer to question number 1

Figure 1 illustrates that this sixth-grade mathematics teacher begins working from left to right by dividing the first two digits by the divisor, multiplying, subtracting, and carrying over the next digit until all digits in the number have been processed. In the final step, the teacher is able to determine the remainder of the division accurately, which is 8. To double-check the accuracy of the result, the teacher multiplies the quotient by the divisor, then adds the remainder, and the result matches the original number. This step demonstrates that the teacher not only follows the procedure but also comprehensively understands the basic concept of division with a remainder. The accuracy in writing the steps and verifying the results indicates good procedural skills and a habit of reflective thinking in solving problems, as shown in Figure 2, which presents the answer from the teacher who made the mistake.

1438

$$\begin{array}{r} 6 \\ 6 \overline{) 38} \\ \underline{24} \\ 14 \end{array}$$

Pola: Bagi satu angka :

1. 8 dibagi 6 = 1, $1 \times 6 = 6$,
 $8 - 6 = 2$, turunkan 8 menjadi 28,
28 dibagi 6 = 4, $4 \times 6 = 24$,
 $28 - 24 = 4$, turunkan 2 menjadi 49,
49 dibagi 6 = 8, $8 \times 6 = 48$,
 $49 - 48 = 1$, sehingga sisanya 1.

Sisa 1

Nama sekolah : SDN Desusu
Guru Kelas : III

Figure 2. Third-grade teacher's answer to question number 2

Figure 2 shows that the third-grade teacher made a mistake in subtracting 24 from 28. This incorrect subtraction appeared repeatedly, both in the long division steps and in the final explanation section. This carelessness was most likely caused by the teacher rushing to finish the problem, so that without double-checking, the teacher immediately copied the numbers from the previous step. This error shows that even though the teacher is familiar with the long division procedure, conceptual understanding and the habit of verification still need to be improved. The haste in completing the problem also reflects low metacognitive skills, namely the ability to reflect on and control one's own thinking process while solving problems. If this habit carries over into teaching practice, the potential for misconceptions being passed on to students will increase.

One teacher (out of 13 teachers) used the GASING (easy, fun, and enjoyable) method developed by Yohanes Surya to solve two division problems with remainders, as shown in Figure 3.

Nama Sekolah : SDN Bokong 2
Guru Kelas : IV
Mengerjakan :
siswa dari : 1820 : 12 = 151 sisa 8

① $1820 \div 12 = \text{Langkah 1} : 18 \div 12 = 1 \text{ sisa } 6$
 $2 : 62 \div 12 = 5 \text{ sisa } 2$
 $3 : 20 \div 12 = 1 \text{ sisa } 8$
Jadi $1820 \div 12 = 151 \text{ sisa } 8$

② $8829 \div 6 = 1471 \text{ sisa } 3$
Langkah 1 : $8 \div 6 = 1 \text{ sisa } 2$
Langkah 2 : $28 \div 6 = 4 \text{ sisa } 4$
Langkah 3 : $42 \div 6 = 7 \text{ sisa } 0$
Langkah 4 : $9 \div 6 = 1 \text{ sisa } 3$
Jadi $8829 \div 6 = 1471 \text{ sisa } 3$

Figure 3. Fourth-grade teacher's answers to questions 1 and 2

Figure 3 shows that fourth-grade teachers calculate accurately using a logical and exploratory approach through the GASING method. The process begins by dividing the digit on the left by the divisor, then continuing with the subsequent digits in a gradual and flexible manner. This method does not rely on rigid rules, but encourages problem solvers to think more intuitively and contextually. This approach stimulates the right brain (imagination), enabling teachers to solve problems more quickly and efficiently. Additionally, the use of the GASING method reflects an understanding of concepts that is not merely mechanical but cognitively meaningful. Teachers demonstrate the ability to adapt alternative methods that support enjoyable and easily understandable mathematics learning for students, in line with the GASING principles of being easy, fun, and enjoyable.

B. Students

The results of the responses from 19 mathematics education students spread across Kupang City are grouped in Table 2.

Tabel 2. Rangkuman Hasil Kerja 19 Mahasiswa

No.	Porogapit Method	Combined Method
1	12	7
2	12	7

A total of 63.2% of students completed the two questions using the traditional method, namely porogapit (a method of division performed in stages), while the remaining 36.8% of students used several other methods, namely the division algorithm. Here are some answers from students who worked using the porogapit method.

1) diketahui jika 1793 dibagi 12 akan bersisa 5, maka tentukan sisa dari 1820 jika dibagi 12.

Jawab :

$$\begin{array}{r}
 1511 \\
 12 \overline{) 1820} \\
 \underline{12} \\
 620 \\
 \underline{60} \\
 20 \\
 \underline{12} \\
 18 \\
 \underline{12} \\
 6
 \end{array}$$

Jadi Sisa dari $1820 : 12$ adalah 6

Figure 4. Students' answers to question number 1

Figure 4 shows that the student made a calculation error, namely incorrectly subtracting 12 from 20. This basic error affected the final result and indicated a weak mastery of simple arithmetic operations. This is quite worrying considering that the student is a prospective mathematics teacher who should have a strong understanding of basic arithmetic concepts. Additionally, there is no evidence of efforts to review the work, indicating a lack of metacognitive skills such as reflection and verification. Such errors, if not promptly addressed through concept reinforcement and ongoing practice, have the potential to carry over into teaching practice and risk causing misconceptions among elementary-level students.

2. 8829 dibagi 6

$$\begin{array}{r} 147 \\ 6 \overline{) 8829} \\ \underline{6} \\ 28 \\ \underline{24} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

Sehingga $8829 = 147 \times 6 + 3$

Figure 5. Students' answers to question number 2

Figure 5 shows that the solution using the porogapit method performed by students is incomplete, because the numbers derived can still be divided again by the divisor. This shows that students do not fully understand the complete procedure in the porogapit method, especially in terms of determining when the division process is considered complete. In addition to errors in the procedure, the students also made mistakes in writing the final conclusion, both in terms of the numerical results and the explanatory narrative. The conclusion written does not reflect logical calculation results and appears to have been written hastily without review. This carelessness indicates a lack of precision and self-control in solving the problem, as well as weak integration between mathematical thinking processes and written communication. If this is not addressed promptly, students risk facing difficulties when explaining similar concepts to students in a systematic and accurate manner.

Some students combined different strategies to solve the division problem. They did not rely solely on step-by-step procedures but instead applied an algorithmic approach to simplify the process, as illustrated in Figure 6.

1. Diketahui = 1793 dibagi 12 dan bersisa 5
 → Berdasarkan Algoritma pembagian maka dapat ditulis:

$$\begin{aligned} 1793 &= 12x + 5 \\ 1793 - 5 &= 12x \\ 1788 &= 12x \rightarrow x = \frac{1788}{12} \\ x &= 149 \end{aligned}$$

• Sama dari 1820 jika dibagi 12.

Penyelesaian:

$$\begin{aligned} \frac{1820}{12} &\text{ dapat di tulis menjadi:} \\ &= \frac{1793}{12} + \frac{27}{12} \\ &= \frac{12x + 5}{12} + \frac{27}{12} \\ \rightarrow (\text{substitusi nilai } x \text{ dan cari KPK dari 12 yang mendekati 27}) \\ &= \frac{12(149) + 5}{12} + \frac{24 + 3}{12} \\ &= \frac{1788 + 5}{12} + \frac{24 + 3}{12} \\ &= \frac{1793}{12} + \frac{27}{12} \\ &= 149 + \frac{5}{12} + 2 + \frac{3}{12} \\ &= 151 + \frac{8}{12} \end{aligned}$$

maka terlihat $1820 : 12 = 151$ dan bersisa 8

Figure 6. Students' answers to question number 1

Figure 6 shows that students solved the problem using the division algorithm, first determining the quotient of 1793 divided by 12. Next, students calculated the remainder of 1820 divided by 12 by substituting the quotient value and determining the multiple of 12 closest to the difference of 27. This strategy demonstrates that students understand the concept of division as a process involving the relationship between the quotient, divisor, and remainder. In the solution process, there are no errors, either in the procedure or the final result, indicating precision and logical thinking. The approach used also demonstrates the student's ability to apply mathematical logic in simplifying calculations without overly relying on conventional step-by-step methods. This can serve as an indicator that the student possesses flexibility in problem-solving and the potential to develop adaptive and context-appropriate teaching approaches when eventually teaching in the classroom.

② Diketahui jika 8829 dibagi 24 akan terbagi 21 mode, tentukan sisa dari 8829 jika dibagi 6

$$\begin{array}{r} 1471 \\ 6 \overline{) 8829} \\ \underline{8826} \\ 3 \end{array}$$

3 - sisa

Dapat kita lihat bahwa 8829 dibagi 6 sama dengan 1471 dan sisa 3

Secara lain kita kalikan dengan angka 6 yang mengikuti 8829

$$\begin{aligned} 6 \times 1470 &= 8820 \\ 6 \times 1471 &= 8826 \\ 6 \times 1472 &= 8832 \end{aligned}$$

Disini kita lihat bahwa yang mengikuti 8829 sama

$$6 \times 1471 = 8826$$

$$8829 - 8826 = 3$$

Jadi sisa dari 8829 : 6 = 3

Figure 7. Students' answers to question number 2

Figure 7 shows that the student briefly wrote down the steps to solve the problem in the form of a long division, and the quotient was obtained with the help of a calculator. In addition, the student used an approximation method to determine the remainder, rather than the systematic procedure commonly taught at the elementary level. Although this approach can speed up the process, using a calculator without understanding the logic behind it risks reducing the quality of conceptual understanding. The solution to this problem does not appear to have been done manually and was done hastily, resulting in errors in writing the conclusion in the first method. This shows that the student has not yet developed comprehensive mathematical thinking skills, especially in maintaining consistency between the process, results, and writing. Reliance on computational tools without manual verification also has the potential to form habits that are less supportive in the classroom learning context, especially if students will eventually need to guide students with diverse abilities and learning styles.

② 8829 dibagi 24, sisa 21.

8829 dibagi 6, sisa ...?

* Penyelesaian:

$$8829 : 6 = 8829 : (24 - 18), \rightarrow \text{sisa } (21 - 18)$$

$$= 8829 : 6 \rightarrow \text{sisa } 3$$

$\therefore$ 8829 dibagi 6 akan bersisa 3.

Figure 8. Students' answers to question number 2

Figure 8 shows that students use the reduction method to determine the remainder of the division. This solution step is simple, so it does not take a long time to complete. Students directly subtract the closest multiple of the divisor from the dividend to find the remainder. Although this strategy is practical, such an approach can lead to errors if it is not accompanied by a deep understanding of the relationship between the quotient, divisor, and remainder. In the context of learning, this method does not adequately reflect the systematic structure of division as taught at the elementary school level. Additionally, the overly concise and minimally explained solution makes it difficult for readers or students to follow the thought process. This indicates that students still need to develop their mathematical communication skills, not only in obtaining the correct answer but also in explaining the process in a sequential, logical, and easily understandable manner.

The results of the study indicate that both elementary school teachers and prospective mathematics teachers tend to use the porogapit method in solving division problems with remainders. As many as 92.3% of elementary school teachers were able to solve the problems correctly using the porogapit method, but procedural errors were still found due to carelessness, such as errors in subtraction or mistakes in copying numbers. This indicates that although teachers are accustomed to teaching practices, they still need to improve their understanding of the basic concepts underlying the procedure. These technical errors show that procedural skills alone are not sufficient without being supported by a complete conceptual understanding (İncikabı et al., 2020).

On the other hand, prospective teachers showed a tendency to use various methods such as algorithmic approaches, calculators, and combinations of formal logic. As many as 36.84% of students did not use the porogapit method but tried alternative strategies. This phenomenon reflects exploration and flexibility in their approach to problem solving. However, this variation in methods is not always accompanied by accuracy, as some fundamental errors were found, such as mistakes in subtraction, illogical conclusions, or incomplete solution processes. This indicates that students' understanding of the concept of division with remainders is not yet fully established and consistent (Ndalichako, 2013; Star & Newton, 2009). Such findings highlight the importance of strengthening conceptual understanding rather than merely emphasizing procedural skills. Without a solid foundation in number sense and logical reasoning, students may struggle to transfer their strategies effectively to more complex mathematical problems in the future.

This finding aligns with the research by Faizah et al. (2022), which emphasizes that difficulties in understanding division concepts often stem from a lack of conceptual understanding reinforcement by teachers. In the context of prospective teacher students, this issue can be linked to the suboptimal integration of theory and practice in the higher education process. Students tend to understand the theory but are not yet skilled at applying it in the form of clear and coherent mathematical communication (Cooper & Karsenty, 2018).

Furthermore, the results of this study emphasize the importance of the role of teachers and prospective teachers in teaching division as a meaningful mathematical concept, not merely a mechanical procedure. As stated by Giriansyah et al. (2022), conceptual understanding is the result of a deepthinking process, not merely the result of memorization. Therefore, learning should prioritize a conceptual and reflective approach that allows students to understand the reasoning behind each step of the solution. This is also in line with the opinion of Pacheco-Muñoz et al. (2023), who emphasize the importance of diverse interpretations of division with remainders so that students can relate the concept to real-life contexts.

The difference between teachers and students can also be influenced by teaching experience. Teachers tend to be more skilled procedurally due to their direct classroom experience, while students are stronger theoretically but lack sufficient field experience. This underscores the need for holistic and integrative learning experiences for prospective teacher students, including active involvement in teaching practice at elementary schools. Through such practical activities, students can internalize concepts, refine their mathematical communication



skills, and gain a more concrete understanding of the dynamics of learning in the field (Korkmaz, 2021^b).

Therefore, both teachers and prospective teachers need support in the form of ongoing training and practice-based learning programs to ensure they not only master procedures but also understand the conceptual meaning of each mathematical process taught. Such an approach will contribute to a more comprehensive improvement in the quality of mathematics education at the elementary level (Safiati et al., 2021).

CONCLUSIONS AND SUGGESTIONS

Elementary school teachers' understanding of the concept of remainder division tends to be procedurally strong, but less varied in method. Meanwhile, prospective mathematics teacher students have a more varied understanding of the approach, but there are still conceptual errors and inaccuracies. Both groups have not shown a thorough mastery of the concept of remainder division, both in terms of concept understanding and application in the context of story problems. Elementary school teachers are expected to attend continuous training that emphasizes conceptual understanding in mathematics learning to gain experience, and prospective mathematics teachers are expected to practice to gain more intensive field experience so that they can apply learning theories practically and conceptually.

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