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The Effectiveness of Guided Inquiry with Scaffolding Techniques in Enhancing Primary Students' Self-Efficacy in Mathematics

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Abstract: Students' self-efficacy towards mathematics is still low. High self-efficacy is an essential factor in supporting learning success. Guided inquiry elaborated with scaffolding techniques is thought to affect students' self-efficacy. Therefore, this study aims to identify the effect of guided inquiry with scaffolding techniques on students' self-efficacy. The study design used was the posttest-only control group. In this study, data collection techniques were used using a questionnaire containing 20 questions to measure students' self-efficacy (magnitude, generality, and strength) in facing and completing in mathematics tasks. **Study participants included fourth-grade students' who were drawn through purposive sampling. ANOVA test and post hoc analysis were used for data analysis. The data analysis showed differences in students' self-efficacy between the** implementation of guided inquiry with scaffolding techniques, the **implementation of guided inquiry without scaffolding techniques, and the implementation of conventional learning. It was concluded that guided inquiry implemented with scaffolding techniques** had the greatest contribution in increasing students' self-efficacy in mathematics. The **most affected dimensions of self-efficacy from high to low are strength,** magnitude, generality. **This shows sufficient scaffolding during the implementation of guided inquiry. In addition, students received sufficient scaffolding in the exploration process, which resulted in students being more confident in understanding the material and completing tasks independently.** **Keywords: Guided Inquiry learning; scaffolding techniques;** self-efficacy

1. **INTRODUCTION Self-efficacy is an individual's belief in his or her capacity to perform tasks and achieve goals, which plays an important role in mathematics education. (Bandura, 1997). According to Wale & Bishaw (2020), self-efficacy provides students with confidence in organizing actions effectively to achieve the ultimate goal. Students with high self-efficacy are more engaged in learning, persist in the face of challenges, and use effective problem-solving strategies (Rusmansyah et al., 2023; Zakariya, 2022). In contrast, students with low self-efficacy tend to avoid difficult tasks, experience high anxiety, and show decreased academic achievement (Usher, 2009). In relation to mathematics, studies show a strong correlation between self-efficacy and mathematics achievement, so it is important for educators to foster students' self-confidence (Živković et al., 2023). In addition, self-efficacy affects students' motivation** and ability to **self-regulate learning, which is important for success in mathematics (Zakariya, 2022) and decision-making Puozzo & Audrin (2021). Therefore, by creating adequate self-efficacy, educators can help students develop resilience and positive** attitudes towards mathematics, which **has an impact on enhancing students' academic performance (Živković et al., 2023). Specifically for primary students, self-efficacy is critical to primary students' success in mathematics, as it shapes their basic** attitude towards learning **(Arifin et al., 2021). High self-efficacy is associated with enhancing problem-solving skills and greater resilience in the face of challenges (Masitoh & Fitriyani, 2018). Conversely, low self-efficacy can lead to increased anxiety, decreased motivation, and lower engagement in mathematics (Tergravida & Prihastiwi, 2023). Mastery experiences, such as successfully solving problems, are key to building self-efficacy in mathematics (Özcan & Kültür, 2021). Teacher support also plays an important role in fostering students' confidence and** motivation in learning mathematics **(Tergravida & Prihastiwi, 2023). Students' self-efficacy is still not ideal, especially primary students. Many studies confirm the low and consequent low primary students' self-efficacy in mathematics (Mahmudah & Hermanto, 2024; Prasanti et al., 2023; Yıldız et al., 2019; Živković et al., 2023). Low self-efficacy results in increased anxiety and decreased motivation to learn mathematics. Low self-efficacy also results in low learning outcomes (Mahmudah & Hermanto, 2024; Živković et al., 2023), and math performance (Yıldız et al., 2019), and passive learning activities (Prasanti et al., 2023). This kind of problem, Luzyawati (2018) argues that low** self- efficay is **caused by a fundamental factor, namely the wrong learning approach. The learning** approach applied **is still teacher-centered and does not stimulate students' self-efficacy. Therefore, enhancing self-efficacy through the right learning strategy can support is very important for students' long-term mathematics success (Schunk & DiBenedetto, 2022). Guided inquiry is needed in elementary education in Indonesia because it helps students develop a deeper and more meaningful understanding of mathematical concepts. Currently, the education system in Indonesia is still dominated by conventional learning methods that tend to be instructional and do not emphasize the active involvement of students in the learning process (Suyanti et al., 2024). As a result, many students have** difficulty in understanding mathematical **concepts conceptually and** only memorizing formulas **without understanding their implementation in real life (Magfirotin & Amir, 2024). Guided inquiry allows students to explore concepts through inquiry-based learning experiences with teacher guidance, which can enhance conceptual understanding and problem-solving skills (Rodriguez et al., 2020). More specifically, primary school education related to mathematics aims to provide mathematical skills, understanding, and positive perceptions of mathematics in students' lives and subsequent levels (Bopo et al., 2023).** Therefore, in relation to self- **efficacy, guided inquiry is expected to enhance learning motivation and overcome math anxiety which is still a challenge at the primary school level (Aryal, 2022). Guided inquiry alone is not enough to enhance self-efficacy in mathematics. Teachers must also provide guidance using scaffolding techniques (Jatisunda et al., 2020). The scaffolding technique is one way that can be applied to overcome learning difficulties in students. Using this scaffolding technique can also correct the students' misunderstanding of concepts (Puspitaningsih & Handayanto, 2018). Scaffolding techniques also have several other advantages; among others, students can enhance their investigation and performance, avoid students from failure or misunderstanding, and bridge students' learning difficulties (Dou, 2021). Five types of scaffolding techniques can be used: providing explanations, inviting students' participation, verifying and clarifying students' understanding, modeling desired behavior, and inviting students to contribute presentations (Bikmaz et al., 2010). In this inquiry learning, an educator should also give more freedom to students to collaborate during learning activities (Luce, 2024). Studies on guided** inquiry and **scaffolding in primary school mathematics learning are still conducted** separately, both in **Indonesia and abroad and can be grouped into three main themes. First, studies on guided inquiry that focus on enhancing conceptual understanding and student engagement in mathematics learning, such as those researched by Hastuti et al. (2020), Isran et al. (2024), and Rodriguez et al. (2020), as well as in the Indonesian context by Kurniawati (2018) and Diani et al. (2024). Second, studies on scaffolding that highlight its role in enhancing higher-order thinking skills and problem solving of primary students (Alanazi et al., 2024; Vallejo et al., 2019), as well as its use in supporting guided inquiry through strategies such as e-scaffolding and reflective questioning in mathematics learning in Indonesia (Wang et al., 2021; Wulandari & Hayati, 2022). Third, studies that try to combine guided inquiry and scaffolding, but are still limited to secondary education and international contexts (Wang et al., 2021), while in Indonesia this integration has only been applied through guided inquiry or discovery approaches and local cultural adaptations for enhancing students' self-efficacy and problem solving skills (Fitria, 2022; Simamora et al., 2018).** Thus, there is **no study** that specifically **examines the integration of guided inquiry and scaffolding in mathematics learning in primary schools, especially in Indonesia, so this study aims to fill this gap. Hence, it is suspected that guided inquiry elaborated in depth with scaffolding techniques can affect students' self-efficacy. Existing studies have not examined guided inquiry with scaffolding techniques that are applied not separately to enhance students' self-efficacy. Meanwhile, according to Riben et al. (2024), the stages of guided inquiry can enhance self-efficacy because students are guided in understanding concepts, connecting concepts with several scientific phenomena, and expressing their ideas during learning. Scaffolding is used to solve problems that arise during the learning process; with this, scaffolding has been proven to minimize students' cognitive load when learning, which can affect**

students' self-efficacy. Therefore, this study aims to identify the effect of guided inquiry with scaffolding techniques on students' self-efficacy. To answer the study objectives, the following three study questions were formulated: (1) Is there a significant difference in enhancing mathematics self-efficacy between students taught with guided inquiry approach with scaffolding techniques and guided inquiry alone with conventional learning? (2) Which of the applied learning approaches, guided inquiry with scaffolding techniques, guided inquiry alone, or conventional learning is most effective in enhancing mathematics self-efficacy of primary school students? (3) Which of the dimensions of self-efficacy (magnitude, generality, and strength) has the highest to lowest enhancement?

2. METHOD Participants The study participants were fourth grade students at Sugihwaras State Primary school, Sidoarjo. From a total of 119 fourth grade students, 81 students were selected as participants using purposive sampling technique. Purposive sampling was based on inclusion and exclusion criteria. The selection through inclusion criteria is based on regular students who do not have inclusion barriers and demographic characteristics, namely age, gender, and mathematics achievement in Table 1. Meanwhile, the selection of exclusion criteria was based on the participation of at least 75% of the meetings. In other words, students who attended less than 75% of the meetings were excluded from the study. The selection based on these two criteria resulted in 81 out of 119 fourth grade students distributed into 3 classes, namely: First class with 29 students, Second class with 27 students, and Third class with 25 students.

Table 1. Demographic information of students Demographic Aspects Total Age 10 years 36 11 years 45 Sex Female 41 Male 40 Mathematics achievement < 60 10 60-80 31 80-100 40 Research Design and Procedures The research design uses a posttest-only control group which is part of a quasi experiment (Creswell & Creswell, 2018). In this, there are three classes, namely two experimental classes and one control class. The first class and the second class as the experimental class. The first class applied guided inquiry with scaffolding techniques and the second class applied guided inquiry only. Meanwhile, the control class is the third class that applied conventional learning. Furthermore, at the end of the study, the three classes were given a posttest in the form of the same questionnaire to determine the difference between the experimental and control classes. The whole design was implemented over eight weeks with the first four weeks focusing on testing the instrument and the second four weeks focusing on implementing learning in the three classes. The procedure for conducting experiments in the first class that applied guided inquiry was based on the six phases of guided inquiry adapted from (Sotiriou et al., 2020), namely problem orientation, hypothesis design, designing experiments, conducting experiments, analyzing data, and making conclusions. (1) Problem orientation. The teacher conveys the learning objectives, motivates students to learn, and presents the problem in class. (2) Hypothesis design. Students are asked to make predictions related to the problem that has been presented. (3) Designing experiments. Students are asked to design the steps that must be taken to solve the problem. (4) Conducting experiments. Students collect relevant information or data related to the problem that has been presented. (5) Analyzing data. Students analyze data to find patterns or relationships. (6) Making conclusions. Students make conclusions that answer the initial problem or question. Meanwhile, the second class applied guided inquiry with scaffolding techniques. Scaffolding techniques were adapted from five types of scaffolding (Bikmaz et al., 2010), which include: offering explanation, inviting student participation, verifying and clarifying student understanding, modeling of desired behaviors, inviting students to contribute clues. (1) Offering explanation. At this stage, the teacher provides an explicit statement by adjusting it to be in line with students' understanding of the material being studied. (2) Inviting student participation. Learners are given the opportunity to participate in the ongoing process. (3) Verifying and clarifying student understanding. If the understanding that emerges is logical, the teacher confirms the students' responses. However, if not, the teacher provides clarification. (4) Modeling of desired behaviors. The teacher teaches behaviors that show how one should feel, think, or act in certain situations, including modeling thinking aloud. (5) Inviting students to contribute clues. The teacher asks learners to provide clues in completing the task. Operationally, the implementation procedure and the linkage of guided inquiry with scaffolding techniques are explained through the mapping and activity stages in Table 2.

Table 2. Activity stages of implementing guided inquiry with scaffolding techniques Guided Inquiry General Guided Inquiry Activity Scaffolding Techniques Guided Inquiry Activity with Scaffolding Technique Problem orientation The teacher conveys learning objectives, motivates students, and presents the problem. Offering explanation Modeling Students receive an explanation of the learning objectives and basic concepts Students observe how to identify problems through examples given by the teacher. Hypothesis design Students make predictions about the problem that has been presented. Inviting student Verifying and clarifying Students participate in group discussions to develop hypotheses. Students propose hypotheses and get clarification or feedback from the teacher. Designing experiments Students design problem-solving steps. Inviting student participation Modeling Students determine the steps of the investigation with minimal guidance from the teacher. Students observe examples of effective experiment design to apply in their assignments. Conducting experiments Students collect relevant information or data. Offering explanation Inviting student Students access various sources of information and collect data based on their experiment plan. Students collaborate with peers to find information that supports problem solving. Analyzing data Students analyze data to find patterns or relationships. Verifying and clarifying Inviting students Students interpret data and identify patterns by discussing with friends. Students ask questions to clarify their understanding of the analysis results. Making conclusions Students draw conclusions based on the data obtained. Offering explanation Verifying and clarifying Students draw conclusions and explain their findings to their friends. Students receive feedback and clarify conclusions based on the data collected. Instrument The instrument in this study is a self-efficacy questionnaire which is classified as a non-test. The researcher developed statements on the self-efficacy questionnaire based on three dimensions of self-efficacy (Bandura, 1997), namely magnitude, generality, strength. In this, the questionnaire statements on the magnitude dimension measure the extent to which students believe that they can complete tasks with various levels of difficulty faced. While in the generality dimension to measure how broadly students' self-efficacy beliefs can be applied in various fields or conditions. Meanwhile, the strength dimension measures the level of constancy of individual beliefs in their abilities. Each dimension has three indicators with each indicator represented by 2 or 3 item statements that are positive and negative. Finally, the mapping of items on each indicator per dimension produces 20 statements with details of magnitude, generality, and strength statements as many as 7 items, 6 items, and 7 items respectively. The distribution of items on each indicator per dimension is shown in Table 3. Table 3. Dimensions, indicators, and item of self-efficacy test Dimensions Indicator Items Magnitude Confidence in students' skills to complete a particular task. 1, 2 Confidence in skills to overcome obstacles in the level of difficulty encountered. 3,18

Confident in positive thinking about the task at hand. 7, 6, 12 Generality Confident in responding to situations and conditions in problem-solving with a positive attitude. 8, 15 Confidence to use life experiences as a step towards success. 5, 4 Self-confidence is an attitude that shows that students are confident in the entire learning process. 10, 19 Strength Strong self-confidence in students' potential to complete tasks. 13, 9 Self-confidence in the form of a fighting spirit and not giving up easily when experiencing obstacles in problem-solving. 11, 14, 16 Confidently in the form of a strong commitment to complete the task well. 20, 17 The questionnaire uses a Guttman scale to make it easier for primary school students to fill in the questionnaire. In this, for positive statements, there are two categories of scores: score 1 is given if students disagree with the statement and their behavior does not match the statement. While a score of 2 is given if students agree with the statement and their behavior is in accordance with the statement. Meanwhile, for negative statements, the scoring is the opposite of positive statements. Before the self-efficacy questionnaire was used, researchers conducted validity and reliability. In addition, the instrument was also validated by two validators. The first validator is an expert in the field of mathematics learning and the second validator is an expert in the field of measurement. The validity test was conducted with a significance level of 5%. If the significance value exceeds 0.05, the data is declared valid. Conversely, if the value is less than 0.05, the data is considered invalid. As for the reliability test using the Cronbach's Alpha value, the instrument is declared reliable if the value exceeds 0.6. Based on the analysis results, the 20 statements tested obtained a significance value of more than 0.05. Regarding the reliability test, the Cronbach's Alpha value is 0.891, which exceeds 0.6. Thus, the self-efficacy questionnaire is valid and reliable to use. Data Analysis Data analysis used descriptive statistics by calculating the mean, standard deviation (SD) and presenting a bar chart to illustrate the distribution of data on the experimental and control class self-efficacy scores. In addition, inferential analysis was conducted through hypothesis testing. Hypothesis testing was conducted to determine whether there is a significant difference in students' self-efficacy based on the learning treatment given. The null hypothesis (H0) states that there is no significant difference between the different learning groups, while hypothesis one (H1) states that there is a significant difference between the groups. The decision to accept or reject the null hypothesis (H0) is based on the p-value of the ANOVA analysis results. If the p-value < 0.05, then H0 is rejected and H1 is accepted, which means there is a significant difference between the learning groups. Conversely, if the p-value ≥ 0.05, then H0 is accepted, indicating that there is no significant difference between the tested learning groups. Furthermore, a post hoc test was conducted to determine which group experienced the difference.

3. RESULT AND DISCUSSION

This study determined the effectiveness of guided inquiry learning implementation with scaffolding techniques on students' self-efficacy. This study was measured from the self-efficacy questionnaire scores of the fourth-grade students. The posttest score in this questionnaire was used to measure students' self-efficacy after the treatment. A one-way ANOVA analysis was used to test whether the three classes have different characteristics based on the analysis of the three classes (two experimental and one control class). Table 4 provides information on a significant difference in the questionnaire results between the three classes. Table 4. Self-efficacy scores of experimental and control classes Inter-Within-Groups SS df MS F P Inter-groups 144.245 2 72.123 17.804 <,001 Within-groups 315.977 78 4.051 Total 460.222 80 Description SS: Sum of Squares df: Degrees of Freedom MS: Mean Square F: F-Ratio P: P-value Based on the results of the one-way ANOVA test in Table 4. The analysis was based on two statistical hypotheses (H0 and H1). H0 is that students' self-efficacy from both experimental and conventional classes is not significantly different or equal. H1 is that students' self-efficacy from both experimental and conventional classes is significantly different or not the same. It appears that the p-value < 0.05 so that H0 is rejected and H1 is accepted, or it can be concluded that the self-efficacy of the two experimental and the control classes is significantly different or not the same. After that, the post hoc analysis was continued to determine the differences in the self-efficacy of each student in the two experimental classes and one control class in detail in Table 5. Table 5. Results of post hoc analysis (i) (j) Mean Difference (i-j) SE p Lower Bound Upper Bound Guided inquiry with scaffolding technique Guided inquiry without scaffolding technique .352 .453 .718 -.74 1.45 Conventional learning 3.041* .589 <.001 1.60 4.48 Guided inquiry without scaffolding technique Guided inquiry with scaffolding technique -.352 .453 .718 -1.45 .74

Conventional learning 2.689* .637 <.001 1.14 4.23 Conventional learning Guided inquiry with scaffolding technique -3.041 .589 <.001 -4.48 -1.60 Guided inquiry without scaffolding technique -2.689* .637 <.001 -4.23 -1.14 Table 5 shows a difference between guided inquiry implementation with scaffolding techniques and guided inquiry implementation without scaffolding techniques in students' self-efficacy (p < 0.05). There is a difference between guided inquiry implementation with scaffolding techniques and conventional learning implementation in students' self-efficacy (p < 0.05), and there is a difference between guided inquiry implementation without scaffolding and conventional learning in students' self-efficacy (p < 0.05). To make it easier to see the comparison of self-efficacy scores in the three classes, the following comparison is presented in Figure 1. Figure 1. Comparison of average self-efficacy scores Figure 1 displays the average self-efficacy score between classes. The highest average self-efficacy score is obtained by guided inquiry with scaffolding technique with a score of 3.72, followed by Guided inquiry without scaffolding technique class with a score of 3.69, and the lowest is conventional class learning with a score of 3.48. This result shows that guided inquiry with scaffolding technique is more effective in enhancing students' self-efficacy compared to guided inquiry without scaffolding technique and conventional learning. Based on the results of the assumption test of the two experimental classes, a one-way ANOVA test was conducted through a significant level of α = 0.05. After data processing, the output display can be seen in Table 6. Table 6. Self-efficacy in guided inquiry with and without scaffolding Inter-Within-Groups SS df MS F P Inter-group 1,737 1 1,737 ,617 ,435 Within-group 151,977 54 2,814
Total 153,714 55

Description SS: Sum of Squares df: Degrees of Freedom MS: Mean Square F: F-Ratio P: P-value Based on the results of the one-way ANOVA test in Table 6. The analysis is based on two statistical hypotheses (H0 and H1). H0 is that students' self-efficacy in guided inquiry implementation with scaffolding techniques is not better or equal to students in inquiry implementation without scaffolding techniques. H1 is that students' self-efficacy in guided inquiry implementation with scaffolding techniques is not better or equal to students in inquiry implementation without scaffolding techniques. The p-value < 0.05 so that H0 is rejected, H1 is accepted, it can be concluded that the self-efficacy in the implementation of guided inquiry with scaffolding techniques is better than the implementation of guided inquiry without scaffolding techniques. Based on the results of the assumption test of the two classes, namely the implementation of inquiry with scaffolding techniques and the implementation of conventional learning, the one-way ANOVA test was conducted through a significant level of α = 0.05. After data processing, the output display can be seen in Table 7. Table 7. Self-efficacy in guided inquiry with scaffolding and conventional learning Inter-Within-Groups SS df MS F P Inter-groups 124.190 1 124.190 28.919 <,001 Within-groups 223.310 52 4.294 Total 347.500 53 Description SS: Sum of Squares df: Degrees of Freedom MS: Mean Square F: F-Ratio P: P-value Based on the results of the one-way ANOVA test in Table 7. The analysis is based on two statistical hypotheses (H0 and H1). H1 is that students' self-efficacy in implementing guided inquiry with scaffolding techniques is not better or the same as in implementing conventional learning. H1 is that students' self-efficacy in guided inquiry implementation with scaffolding techniques is better than students in conventional learning implementation. The p-value < 0.05 appears, so H1 is rejected, and H1 is accepted. It can be concluded that self-efficacy in guided inquiry implementation with scaffolding techniques is better than conventional learning implementation. Based on the results of the assumption test of the two classes, namely the implementation of guided inquiry without scaffolding techniques and the implementation of conventional learning, the one-way

ANOVA test was conducted through a significant level of α = 0.05. After data processing, the output display can be seen in Table 8. Table 8. Self-efficacy in guided inquiry without scaffolding and conventional learning Inter-Within-Groups SS df MS F P Inter-groups 93.853 1 93.853 18.283 <,001 Within-groups 256.667 50 5.133 Total 350.519 51

Description SS: Sum of Squares df: Degrees of Freedom MS: Mean Square F: F-Ratio P: P-value Based on the results of the one-way ANOVA test in Table 8. The analysis is based on two statistical hypotheses (H0 and H1). H1 is that students' self-efficacy in guided inquiry implementation without scaffolding techniques is not better or the same as in conventional learning implementation. H1 is that self-efficacy in guided inquiry implementation without scaffolding techniques is better than that of students in conventional learning implementation. The p-value <0.05 appears, so H1 is rejected, and H1 is accepted. It can be concluded that self-efficacy in implementing guided inquiry without scaffolding techniques is better than implementing conventional learning. Based on the results of post hoc analysis of score distribution based on self-efficacy indicators from when the class is produced in detail in Table 9. Table 9. Distribution of scores on the self-efficacy dimension Class Magnitude (M±SD) Generality (M±SD) Strength (M±SD) Guided inquiry with scaffolding technique 13.66 ± 0.55 11.93 ± 0.26 50.59 ± 1.59 Guided inquiry without scaffolding technique 13.63 ± 0.56 11.78 ± 0.51 50.00 ± 2.48 Conventional learning 12.96 ± 1.24 11.16 ± 0.99 46.92 ± 3.83 Table 9 shows that there are differences in self-efficacy scores among the three learning groups in the dimensions of magnitude, generality, and strength. In the magnitude dimension, which measures the level of **task difficulty** that students can face, the guided inquiry group with scaffolding techniques had the highest score (M = 13.66, SD = 0.55), followed by guided inquiry without scaffolding (M = 13.63, SD = 0.56), and conventional learning had the lowest score (M = 12.96, SD = 1.24). This shows that students who received scaffolding were more confident in facing mathematical challenges than the other two groups. In the generality dimension, which reflects the extent to which students' self-confidence applies in various situations, the guided inquiry with scaffolding group also had the highest score (M = 11.93, SD = 0.26), slightly higher than Guided Inquiry without Scaffolding (M = 11.78, SD = 0.51), while the **conventional learning** group had the lowest score (M = 11.16, SD = 0.99). This difference shows that the guided inquiry approach, especially with scaffolding, helps students feel more confident in various aspects of mathematics learning.

On the other hand, in the strength dimension, which measures the extent to which students' confidence persists in facing challenges, the guided inquiry group with scaffolding again showed the highest score (M = 50.59, SD = 1.59), followed by guided inquiry without scaffolding (M = 50.00, SD = 2.48), and conventional learning had the lowest score (M = 46.92, SD = 3.83). This indicates that the use of scaffolding in **guided inquiry** not only enhances students' confidence in solving math problems but also makes them more persistent in dealing with them. Thus, the guided inquiry approach with scaffolding techniques proved to be more effective than the other two methods in enhancing the three dimensions of students' self-efficacy. Thus, the strength dimension experienced the most significant enhancing with the largest score difference between the guided inquiry with scaffolding and conventional learning groups (50.59 vs. 46.92). This suggests that this approach is most effective in enhancing students' resilience in facing mathematical challenges. The magnitude dimension came in second, with moderately high enhancing (13.66 vs. 12.96), indicating that students were more confident in completing mathematical tasks. The generality dimension showed the least enhancement (11.93 vs. 11.16), although it was still better than the other methods, indicating that this approach also helped students to apply their beliefs in various situations. Thus, the order of influence from greatest to least is strength, magnitude, generality. The first finding of our study shows that guided inquiry approach with scaffolding techniques is most effective in enhancing students' mathematical self-efficacy compared to guided inquiry alone and conventional learning. This finding is in line with Amelia & Nindiasari (2022) study which found that inquiry learning with scaffolding strategies significantly enhances the mathematical communication skills of vocational school students. Similarly, Nofiansyah study (2021) shows that the implementation of scaffolding is effective in enhancing students' self-efficacy in economic mathematics courses. However, a study by Sopari et al. (2022) found that although the use of worksheets based on the guided inquiry method was effective in enhancing students' mathematical communication skills, there was no significant change in students' self-efficacy.

Meanwhile, the second finding found that the influence on the dimensions of self-efficacy **in mathematics** on primary school students in a row from the largest to the smallest is strength, magnitude, and generality. This finding is in line with Herzamzam (2021), which shows that the implementation of problem-based learning can enhance motivation and self-efficacy in learning mathematics in primary school students, with significant enhancement in the strength aspect. Similarly, the study by Negara et al. (2023) revealed that the problem-based learning approach effectively enhances students' mathematics self-efficacy, especially on the **strength dimension, which** reflects students' confidence in completing mathematical tasks. However, the study by Arifin et al. (2018) found that although a realistic mathematics approach can develop students' overall self-efficacy, the enhancement on the generality dimension was not as strong as on the other dimensions, suggesting that students still face challenges in applying their mathematical skills in a broader context.

Guided inquiry with scaffolding techniques is effective in enhancing the magnitude dimension of self-efficacy compared to conventional learning because it provides a structured challenge in learning mathematics. In problem orientation, students face contextual problems supported by offering explanations to help initial understanding (Calleja et al., 2024). In hypothesis design and designing experiments, students formulate predictions and develop problem-solving strategies, assisted by inviting student participation and modeling of desired behaviors, which enhances their confidence (Riben et al., 2024). During conducting experiments, the teacher applies verifying and clarifying student understanding so that students understand the solution steps better (Amelia & Nindiasari, 2022). Finally, in making conclusions, students draw conclusions by inviting students to contribute clues, so that they are more confident in solving math problems independently (Diani et al., 2024). The Generality dimension of self-efficacy in learning mathematics increases through guided inquiry with scaffolding, because students are accustomed to applying problem solving in various contexts. At the problem orientation stage, students are introduced to various problems by offering explanations, so that they understand the relevance of concepts in various situations (Suryani et al., 2021). In hypothesis design and designing experiments, inviting student participation encourages students to think flexibly in designing solutions that can be applied in real life (Chinn, 2021). During conducting experiments, students test their strategies and are supported by verifying and clarifying student understanding, ensuring broader concept implementation (Aynufa et al., 2020). Finally, in making conclusions, students draw conclusions by inviting students to contribute clues, so that they have confidence that the skills learned can be used in various mathematical and real-life situations (Oers, 2020). The strength self-efficacy dimension increases in guided inquiry with scaffolding, because students are encouraged to persist in solving mathematical challenges independently. In problem orientation, students face initial challenges that are assisted by offering explanations, building strong conceptual understanding (Langdon & Pandor, 2020). In hypothesis design and designing experiments, modeling of desired behaviors helps students develop more persistent thinking strategies when facing difficulties (Sichangi, 2024). During conducting experiments, verifying and clarifying student understanding ensures students do not give up easily by providing constructive feedback (Amelia & Nindiasari, 2022). In making conclusions, inviting students to contribute clues allows students to reflect on their success, strengthening their resilience in facing future mathematical challenges (Sulistiyo & Wijaya, 2020). Enhancing students' self-efficacy in this study is in line with Bandura's theory (1997), which emphasizes the role of success experiences, vicarious experiences, social persuasion, and physiological and emotional conditions. The guided inquiry approach with scaffolding provides success experiences through offering explanations and verifying and clarifying student understanding, which allows students to build understanding gradually (Anwar et al., 2020). Modeling of desired behaviors strengthens the vicarious experience by providing examples of problem-solving strategies that students can emulate (Wang et al., 2021). Inviting student participation and inviting students to contribute clues enhancing social persuasion, which has been proven to enhance students' confidence in solving math problems (Oktarianto et al., 2024). In addition, scaffolding strategies help reduce academic anxiety and enhance students' resilience in facing challenges, which is in line with previous studies on the effectiveness of inquiry-based approaches in building self-efficacy (Chinn, 2021; Guo et al., 2023). This study makes a unique contribution to primary school mathematics education by integrating guided inquiry and scaffolding for enhancing students' self-efficacy, which were previously studied separately (Dorier & Maass, 2020; Guo et al., 2023). Practically, the results of this study can help teachers in designing inquiry-based learning with appropriate scaffolding strategies, such as verifying and clarifying student understanding for enhancing students' self-efficacy. Scientifically, this study enriches the literature on the effectiveness of integrated approaches in building students' self-efficacy in mathematics. Future study recommendations are to test variations of scaffolding, such as dynamic scaffolding, and explore digital technology in inquiry-based learning. In addition, the results of this study can be a reference in the development of primary school mathematics curriculum that emphasizes exploratory approaches to enhancing students' self-efficacy.

4. CONCLUSION Based on the study's results, it can be concluded that guided inquiry learning with scaffolding techniques can enhance primary students' self-efficacy. In this case, there are differences in the results in each class and different interferences have been given. The class results better when an intervention is given through guided inquiry-based learning with scaffolding techniques. More specifically, the increase in self-efficacy was significant in the strength, magnitude, and generality dimensions, respectively. On the other hand, although the study's results showed positive results, this study was conducted with a relatively small sample of participants. Therefore, researchers recommend that future studies conduct further studies on guided inquiry learning with scaffolding techniques and involve a broader research sample.