JP2SD (Jurnal Pemikiran dan Pengembangan Sekolah Dasar) Vol. 12, No. 1, April 2024, Hlm. 137-151
p-ISSN: 2338-1140, e-ISSN: 2527-3043 // *http://ejournal.umm.ac.id/index.php/jp2sd*

UNIVERSITAS MUHAMMADIYAH MALANG
JP2SD (JURNAL PEMIKIRAN DAN PENGEMBANGAN SEKOLAH DASAR)
http://ejournal.umm.ac.id/index.php/jp2sd
p-ISSN: 2338-1140 e-ISSN: 2527-3043

Teacher Thinking Process in Providing *Scaffolding* in the form of Questions in Mathematics Learning

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INFORMASI ARTIKEL

Riwayat:
Diterima *6 Mei 2024*
Revisi *14 Mei 2024*
Dipublikasikan *20 Mei 2024*

Kata kunci:
Proses Berfikir guru, Scaffolding, Pembelajaran Matematika, Dominan kontingen Analitis, Dominan Kontingen Intuitif

ABSTRAK

Untuk mewujudkan profesionalisme guru ada dua hal yang perlu diperhatikan yaitu proses berpikir dan tindakan guru. Kedua hal ini sangat penting dan saling mempengaruhi. Aktivitas guru dalam memberikan scaffolding pertanyaan kepada siswa merupakan suatu tindakan yang tentunya memerlukan proses berpikir. Penelitian yang telah dilakukan diantaranya adalah tindakan guru dalam memberikan scaffolding, namun belum terdapat pengungkapan proses berpikir guru dalam membantu siswa yang mengalami kesulitan dalam menyelesaikan soal berhitung. Dengan diterapkannya pemberian scaffolding bertanya dalam pembelajaran akan membantu guru menciptakan pembelajaran yang lebih baik dan memperkaya pengetahuan. . Penelitian ini bertujuan untuk mengungkap bagaimana proses berpikir guru dominan kontingen ketika memberikan scaffolding pertanyaan kepada siswa. Penelitian ini menggunakan scaffolding proses berpikir guru yang belum pernah diteliti sebelumnya. Penelitian ini menggunakan pendekatan tipe kualitatif (grounded theory design) yang dilaksanakan dalam konteks pembelajaran matematika. Subyek penelitian adalah dua orang guru yang masing-masing mempunyai karakteristik dominan kontingen analitis (GA) dan dominan kontingen intuitif (GI). Pemilihan kedua subjek ini didasarkan atas hasil observasi yang sangat panjang terhadap 12 orang guru di Malang Raya dan yang memenuhi kriteria penelitian hanya dua orang. Hasil penelitian menunjukkan bahwa proses berfikir guru dalam memberikan *Scaffolding* berupa soal dalam pembelajaran matematika dapat merangsang siswa untuk mengoptimalkan kemampuan siswa dalam memecahkan masalah. Disarankan bagi guru terutama dalam pembelajaran matematika dapat menciptakan lingkungan yang interaktif dan memotivasi siswa untuk berfikir kritis dan aktif mencari solusi. Selanjutnya proses berfikir guru dalam menyusun soal seharusnya memperhatikan variasi kemampuan siswa.

Keywords:
Teacher thinking process; scaffolding; mathematics learning, Analytical contingent dominant, Intuitive contingent dominant

ABSTRACT

*Two things must be considered to realize teacher professionalism: the teacher's thinking process and actions. These two things are very important and influence each other. The teacher's activity in providing scaffolding for students' questions is an action that certainly requires a thinking process. Among the research that has been carried out is teacher actions in providing scaffolding; however, there is no disclosure of teachers' thinking processes in helping students with difficulties in solving numeracy questions. Implementing questioning scaffolding in learning will help teachers create better learning and enrich the body of knowledge***.** *This research reveals how the teacher's thinking process is predominantly contingent when scaffolding questions to students. This research uses* scaffolding of *teachers' thinking processes, which has never been researched before***.** *This research uses a qualitative approach (grounded theory design), which is carried out in the context of mathematics learning***.** *The research subjects were two teachers with dominant analytical contingent (GA) and intuitive contingent dominant (GI) characteristics. These two subjects were selected based on the results of very long observations of 12 teachers in Malang Raya, and only two met the research criteria. In general, it can be concluded that optimizing students' abilities to solve problems can be stimulated through the teacher's thinking process in providing scaffolding in the form of questions in mathematics learning.*

How to cite: Yayuk, E., Deviana, T., & Wahyuni, I. (2024). Teacher Thinking Process in Providing Scaffolding in the form of Questions in Mathematics Learning. *Jurnal Pemikiran dan Pengembangan Sekolah Dasar (JP2SD), 12*(1). *doi:* https://doi.org/10.22219/jp2sd.v12i1.33466

INTRODUCTION

Effective learning is the goal of every professional teacher. To achieve this, teachers need to have in-depth knowledge of the material being facilitated, understand the student learning process and be able to encourage student learning (NCTM, 2000). In addition, teachers must base their learning actions through clinical practice related to the material and teacher professionalism (Nurul Indika Dkk.,, 2021) Therefore, teachers need to have important ideas related to decisions or learning actions taken because they will affect the student's learning process.

In reality, teachers often only focus on the material students are learning rather than providing the best learning strategies for students to learn (Clara, 2022); (Feifei, 2021). Teachers are more busy taking care of their personal interests than thinking seriously about learning practices (José, 2022; Marsela, 2018). In fact, teacher actions are closely related to the teacher's thinking process. To understand in depth the learning carried out by teachers, these two things can be studied together. Therefore, exploring teachers' thinking processes to better understand learning activities needs to be explored further, as suggested by (Kennedy, 2008).

Several researchers suggest the importance of research related to teacher thinking. Maria (2021) suggests knowing 'how' the teacher thinks in addition to 'what' the teacher thinks and does. Reflection and analysis need to be carried out through research into teacher thinking because this is an important and relevant issue related to pedagogy. In the future, research is needed on teacher thinking to support teacher professionalism. Ankur (2022); Yenice (2011) have examined the differences in critical thinking of two teachers regarding what is done in the classroom in relation to student learning outcomes. The research findings underscore the importance of teachers having instructional practices that are responsive to the diversity of students in the classroom. Therefore, the teacher's thinking process is an important issue to study further. This is because research on teacher thinking not only helps understand teacher thinking but also helps understand what teachers do (Jose, 2022).

In mathematics learning, mathematical thinking is thinking about mathematical processes (Marta, 2020). Mathematical thinking is not only important for solving mathematical problems and learning mathematics, but also important for teaching mathematics (Zahra. dkk., 2022). Stacey added that a teacher needs to think mathematically to analyze lesson material, plan lesson objectives, and anticipate student responses. Apart from that, teachers also need to provide opportunities for students to develop thinking skills (Krulik, 2003); (Li, 2022). Therefore, good mathematics learning requires teachers to think seriously.

In providing scaffolding, there are two things that teachers need, namely conceptual knowledge and pedagogy (Jose, 2022). Sometimes there are teachers who are able to provide scaffolding but are limited to certain methods and are not varied. (Anghileri, 2006). Teachers who have good conceptual and pedagogical knowledge will be able to guide students towards deep and meaningful understanding. It certainly feels different when teachers who do not have good knowledge and pedagogy will actually create difficulties for the teachers themselves in helping their students' difficulties.

In general, the research results show that scaffolding is an effective learning strategy (Nazli, 2021; Thompson, 2013; Ünal, 2012). However, all of these studies do not specifically address scaffolding in mathematics education (Dials, 2008). Research on scaffolding has been studied more in the field of literacy but still less in mathematics (Van de Pol, 2010). Therefore, researchers feel it is important to study the provision of scaffolding in mathematics learning.

Future research challenges need to analyze the provision of scaffolding because the provision of scaffolding is something new in current educational research (Van de Pol, 2010) . Analysis was carried out by examining fragments of learning interactions between teachers and students when the teacher provided scaffolding. A learning interaction fragment is a dialogue between the teacher and students when providing scaffolding by the teacher to students who ask questions. The match between the provision of teacher scaffolding and student understanding in a fragment of interaction is known as contingency. According to (Van de Pol, 2012), contingency is a requirement for scaffolding and is the main characteristic of scaffolding. Furthermore, a teacher is said to act contingently when the teacher adapts his or her assistance to the student's level of understanding (Yiming, 2023).

Researchers have conducted research first introduction to mathematics learning at SDN Kauman I and SDN Beji 1 Poor. The results of this research showed that three teachers showed differences in the contingency of learning interactions when providing scaffolding, namely: contingent dominant, non-contingent dominant, and pseudo-contingent. Teachers whose learning interactions are declared to be dominantly contingent on providing scaffolding when there are more contingent interaction fragments occur rather than non-contingent interaction fragments. The opposite is called dominant non-contingent. However, teachers whose learning interactions are stated as pseudo-contingent (false) if fragments of teacher learning interactions lead to Learning interactions are predominantly contingent but the teacher is wrong or hesitant in understanding the concepts it facilitates.

To support the first preliminary study, researchers conducted a study The second preliminary was for 9 teachers at SD Muhammadiyah 4, SD Muhammadiyah 8, SDN Sumbersari 1 and SDN Tlogomas in Malang. Same as the first preliminary research, second preliminary research done naturally. The naturalness of learning includes: approach learning, grade level, teacher experience, and material provided. Results The research shows that almost 50% of teachers have learning interactions which is dominantly contingent. Based on this research, researchers have identified two teachers, namely GA and GI, each teacher who has interactions learning that is predominantly analytical contingent and predominantly intuitive contingent.

Previous research investigated the provision of scaffolding , ways to introduce it, and evaluated it in social studies material (Dika, 2022). Next (Vanessa, 2023) analyzed the scaffolding of prospective teachers in mathematics learning in elementary schools. Meanwhile, the research that will be carried out will produce a theory of teachers' thinking processes in providing scaffolding in mathematics learning in elementary schools. This research is also to find the contingency of elementary school mathematics teachers' learning interactions when providing scaffolding.

The importance of this research is carried out considering two things. First, following up on research Van de Pol (2012), researchers has carried out research related to the provision of scaffolding in learning mathematics. Second, assignments are a product of teacher thinking used when providing scaffolding so that students can independently understand or solving problems in mathematics learning.

METHOD

This research uses a qualitative approach (grounded theory design) carried out in the context of mathematics learning. The research subjects were 2 elementary school mathematics teachers, each of whom had dominant analytical contingent (GA) and intuitive contingent dominant (GI) characteristics when providing scaffolding. The selection of material and the two subjects was based on the results of long-term observations carried out by researchers on learning carried out by 32 elementary school mathematics teachers in the East Java Region.

Research data collection was carried out by the researcher himself as the main instrument. Researchers recorded the subjects' learning using video. Recording focuses on when the teacher provides *scaffolding* to students who ask questions. Next, the researcher selected one equivalent *scaffolding fragment each from the two* subjects *for interview activities.* Interviews were conducted using the stimulated recall method, namely playing back videos about fragments of the subject's provision of *scaffolding* . The interview was intended to reveal the subject's thought process in generating ideas, clarifying ideas, and assessing the reasonableness of ideas based on Swartz's stages of thinking. Interviews were conducted at least twice, which was useful for checking the validity of the data, finding out the consistency of the subject's thought process, and filling in data gaps. Furthermore, all recorded interviews were transcribed for data analysis purposes.

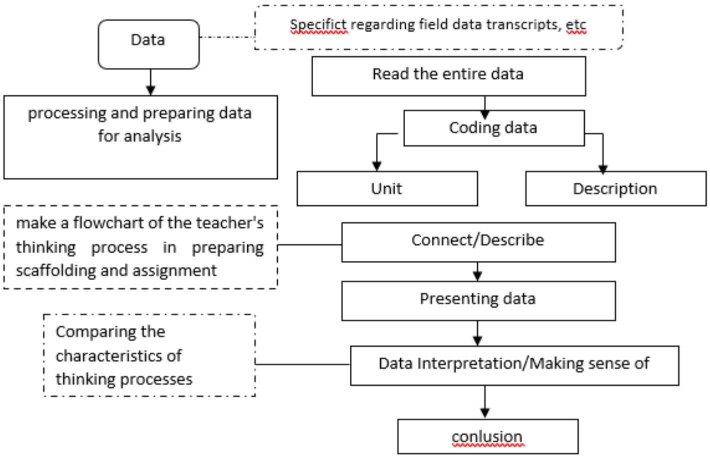

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Figure 1. Research Flow Diagram

RESULT AND DISCUUSION

Results

Based on the results of video analysis of mathematics learning in elementary schools related to the teacher's thinking process in providing *scaffolding* in the form of questions, the following results can be obtained.

Table1. Teacher Thinking Process in Providing Scaffolding in the form of Questions in Mathematics Learning

Teacher Thinking Process	Scaffolding	Research result
Generating Ideas *(Generating Ideas)*	Diagnostic Strategy	*The generating ideas* stage in the diagnostic strategy sees the teacher asking questions by: 1. Ask who has worked on the problem in question. 2. Ask about students' performance achievements in solving problems in the questions. 3. Provide differentiation questions to identify students' level of difficulty Based on the results of learning analysis, this needs to be done to determine students' initial abilities in solving problems.
	Intervention Strategy	The intervention strategy at *the generating ideas stage* is seen when the teacher asks questions by: 1. Ask about the difficulties faced by students when solving problems. 2. Provide comparative questions to test students' overall understanding 3. Provide detailed questions to direct students in developing more structured steps.
	Diagnostic Examination Strategy	The generating ideas stage in mathematics learning is a crucial time for developing understanding of concepts and numeracy skills. Scaffolding, or a tiered support approach, can be used to guide students through this stage. Diagnostic probing strategies that use questions can be an important element in providing scaffolding to ensure in-depth understanding. 1. Providing reflective questions to test students' conceptions, and can direct students to identify errors in work.

Teacher Thinking Process	Scaffolding	Research result
		2. Provide open questions, so students can be creative and generate their own ideas.
Clarifying Ideas *(Clarifying Ideas)*	Diagnostic Strategy	*The clarifying ideas* stage in the diagnostic strategy can be seen as follows. 1. Provide clarifying questions to guide students in explaining ideas in working on questions 2. Provide structured questions with clear steps to guide students systematically. 3. Provide progressive questions from simple to complex to provide gradual challenges to students. 4. Provide reflection questions that can help students reflect on the answers given after being directed by the teacher. By integrating these diagnostic strategies, teachers can create a mathematics learning environment that supports, facilitates, and strengthens students' understanding of complex mathematical ideas.
	Intervention Strategy	The intervention strategy of providing scaffolding in the form of questions to clarify ideas in mathematics learning is an important step to help students who experience difficulties or confusion. The following is an analysis regarding intervention strategies in this context. 1. Ask what information is known in the question 2. Ask what is asked in the question 3. Then ask about the relationship between some information that is already known and what is being asked. 4. Provide questions that support students in reformulating understanding of problem solving. By implementing appropriate intervention strategies, teachers can provide the necessary support to students who have difficulty understanding mathematical concepts, thereby increasing the effectiveness of their learning.
	Diagnostic Examination Strategy	The diagnostic examination strategy in providing scaffolding in the form of questions to clarify ideas in mathematics learning has an important role in understanding students' needs and level of understanding. The following is an analysis related to this strategy. 1. Ask students again which sentences are perceived as known variables and which sentences can be perceived as the thing being asked. 2. Ask questions that accommodate the development of metacognitive thinking, such as a. How do you know that your answer is correct? b. What makes you doubt? 3. Provide questions that stimulate student awareness of difficulties or errors that students may experience. By implementing effective diagnostic checking strategies, teachers can gain deep insight into students' understanding and design appropriate scaffolding to help them clarify ideas in mathematics learning.
Assessing the Reasonableness of Ideas (*Assessing*	Diagnostic Strategy	The diagnostic strategy at the stage of assessing *the reasonableness of ideas* is carried out by the teacher with the following questions:

Teacher Thinking Process	Scaffolding	Research result
The Reasonableness of Ideas)		1. Ask again whether the answer given by the participant is correct or if there is still room for improvement 2. The next question is given to another friend, whether the student's answer is in accordance with what has been done. 3. Asking questions that encourage students to predict or anticipate the results of the problem solving steps in the problem, such as a. What are the next steps in solving the problem in this question? b. What happens if these steps are changed in solving the problem in this problem? At this stage, these questions are asked by students to carry out *self-assessment* and *peer* assessment. This question needs to be given to students so that the assessment is not solely carried out by the teacher, but also themselves and other friends.
	Intervention Strategy	Questions in the stage of assessing *the reasonableness of ideas* using this intervention strategy are carried out after the diagnostic strategy questions are given. Questions given by the teacher at this stage include the following: 1. Providing questions that help students connect or associate student ideas with broader mathematical concepts. 2. Provide questions that guide students in formulating problem solving strategies 3. Provide questions that ask students to provide more details about the steps or student thinking. The implementation of this intervention strategy must be responsive to individual student needs. Scaffolding through these questions can help build solid understanding and ensure that students not only know the steps, but also understand the underlying mathematical concepts.
	Diagnostic Examination Strategy	The diagnostic examination strategy in providing scaffolding in the form of questions in mathematics learning at the Assessing *the Reasonableness of Ideas stage* aims to identify students' understanding, check the correctness of their steps, and detail their thinking processes. The following is an analysis of several diagnostic examination strategies that can be applied. 1. Provide verification questions to ensure that each step taken by the student is correct and in accordance with correct mathematical concepts. a. How do you know that the steps are correct? b. Can you provide evidence or reasons for the steps you have taken? 2. Ask questions that invite students to evaluate the correctness of students' answers critically. a. What could be the downside of this solution? b. Are there alternative steps that might be better? 3. Asking questions that lead to students' ability to generalize the concepts studied. a. How can these steps be applied to other mathematical situations?

Teacher Thinking Process	Scaffolding	Research result
		b. Is there a pattern you can identify from these solutions? Implementing this diagnostic examination strategy can help teachers understand students' understanding more deeply, detect thinking errors, and provide more appropriate guidance according to students' individual needs in the Assessing the Reasonableness of Ideas stage.

The teacher's thinking process in providing scaffolding/question assistance in Mathematics learning in its implementation involves communication and interaction that is not only *person to person* between the teacher and students. Question interactions occur between teachers and students, and between students and other students. These questions help students to help each other understand the problem, and know how to solve the problem, and can assess each other in the solving process.

Scaffolding is a method that teachers can use to minimize students' difficulties in learning mathematics or in solving mathematical problems (Yayuk dkk., 2020). One of *the scaffolding that can be used is by the teacher asking* questions to stimulate the activity and involvement of all students in solving mathematical problems.

Proses Berfikir Guru Menggunakan Scafolding Pertanyaan pada Pembelajaran Matematika

In general, it can be concluded that optimizing students' ability to solve problems can be stimulated through the teacher's thinking process in providing *scaffolding* in the form of questions in mathematics learning. In general, the questions that teachers can give to provide *scaffolding* in the form of questions in the stages of the teacher's thinking process can be explained as follows.

1. Stage of Generating Ideas (*Generating Ideas*)

a. Opening *Questions* _

Teachers can use initial questions to gauge students' general understanding of the material to be studied. These questions can help teachers identify students' initial understanding before providing specific question *scaffolding* .

b. Clarification *Questions* _
Teachers can use questions to guide students in detailing or clarifying their ideas. For example, "Can you explain the steps in more detail?" or "What makes you sure that your answer is correct or there is an error?"

c. Comparative Questions (*Comparative Questions*)
Teachers can compare students' ideas with correct mathematical concepts. For example, "Why is your answer different from your friend's answer?" or "What are the similarities and differences between the steps you performed and the correct way to complete them?"

d. Reflective Questions (*Reflective Questions*)
Teachers can use questions to encourage students to reflect on their thinking processes. For example, "Are there any particular steps or concepts that are confusing you?" or "How does your answer relate to the concepts we studied previously?"

e. Predictive Questions (*Predictive Questions*)
Teachers can ask questions that encourage students to predict or anticipate the results of the steps taken. For example, "What do you think the next step will be?" or "What would happen if we changed one step in your solution?"

f. Synthesis *Questions* _
Teachers can ask questions that lead to reorganizing students' ideas into a more complete conclusion. For example, "What conclusions did you get from the work steps you have carried out?"

g. Evaluative *Questions* _
Teachers can ask questions that lead to evaluation of students' answers or solutions. For example, "Does your answer match the question in the question?" or "How do you know your answer is correct?"

2. Stage of Clarifying Ideas (*Clarifying Ideas*)

a. Support Questions *(Supportive Questions)*
Teachers can present questions that provide direct support for student understanding. For example, "What makes you doubt the steps to solve this problem?" or "How can I help explain this math concept more clearly?"

b. Detailed Questions *(Detailed Questions)*
Ask questions that ask students to provide more details about the steps or their thinking. For example, "Can you provide more examples of this step?" or "What happens at each step in more detail?"

c. Corrective Questions *(Corrective Questions)*
Teachers can use questions to guide students toward correct understanding. For example, "What could possibly go wrong with this step?" or "Can you find errors in your own steps?"

d. Problem Solving Questions *(Problem-Solving Questions)*
Asking questions that guide students in formulating problem-solving strategies. For example, "What do you do if you have trouble?" or "What is another way to approach this problem?"

e. Connecting *Questions*
Teachers can help students relate students' ideas to broader mathematical concepts. For example, "How do the steps for solving this problem relate to the concepts we studied previously?" or "How can these solution steps be applied to other math problems?"

f. *Divergent* Questions
Ask questions that stimulate creative and exploratory thinking. For example, "Is there another way to produce the same answer?"

3. Stage of Assessing the Reasonableness of Ideas (*Assessing the Reasonableness of Ideas*)

a. Verification Questions
Teachers can use questions to ensure that each step taken by students is correct and in accordance with correct mathematical concepts. For example, "How do you know that your solution step is correct?" or "Can you provide evidence or reasons for this resolution step?"

b. Clarification Questions
Ask questions to clarify steps or student thinking that may be ambiguous or unclear. For example, "Can you explain this step in more detail?" or "What is meant by this concept in the problem?"

c. Analysis Questions
Teachers can use questions to analyze students' thinking processes more deeply. For example, "Why do you use workaround steps like this?" or "What solution steps can you take based on the information given in the problem?"

d. Evaluative Questions (Evaluative Questions)
Ask questions that invite students to critically evaluate the correctness of their answers. For example, "What are the downsides of this solution?" or "Are there alternative work steps that might be better?"

e. Critical Questions (Critical Questions)
Teachers can ask questions that encourage students to question the assumptions or premises underlying the steps in solving the problem. For example, "Is there a particular opinion that you can express in solving this problem?"

f. Retrospective Questions (Retrospective Questions)
Ask questions that help students reflect on their steps after solving the problem. For example, "What can we learn from this settlement?" or "In solving this problem, what did you do well and what could be improved?"

g. Generalization Questions (Generalization Questions)
Asking questions that lead to students' ability to generalize the concepts learned. For example, "How can this concept be applied in other mathematical situations?"

Discussion

The findings in this research illustrate that teachers in providing *scaffolding* vary. Teachers often apply principles *scaffolding* such as continuity, intersubjectivity, and contingency during teaching (Zahra, 2023) . Another study found that experienced teachers mostly used questions as *scaffolding talk* , while novice teachers relied more on modeling (Yiming, 2023) . Additionally, teachers have been found to play an important role in *scaffolding* by offering both hard and soft scaffolds, with the combination allowing for more support to students who need it (Dika, 2022) . In terms of cognitive attention, teachers were found to focus more on the cognitive aspects of students' learning processes than on the social aspects (Vanessa, 2023) . Furthermore, teachers' perceived skills and behavior during *scaffolding* are influenced by factors such as the tasks performed, teaching experience, and beliefs (Ferguson, 2010) . Overall, these findings highlight the importance of teachers' active engagement and adaptability in providing effective *scaffolding support to students.*

Based on the results of learning analysis, it is important to assess students' initial abilities in solving problems (Yuliana, 2022). These initial skills can help determine starting points for instruction and identify areas where students may need additional support. However, it is also important to note that students' abilities can change over time and may tend to decline (Jose, 2021). Therefore, ongoing assessment and support is necessary to ensure continued growth and development in problem-solving skills. Additionally, it is important to consider the learner's prior knowledge, experience, and needs as part of the analysis process (Yong, 2019; Johnson; 2005). This information can help tailor instruction to meet the specific needs of individual learners and promote more effective learning outcomes.

Based on the thought processes of GA and GI in this research, it shows that both of them are actually reactive teachers. Both teachers, as usual, are able to respond to student requests, both in the form of questions and assistance, to serve students every minute of learning. However, sometimes teachers don't think enough about how the assistance should be provided. According to (Danilenko, 2010) , teachers are sometimes motivated by concerns to help students directly (not for long-term interests), and are concrete and procedural (not abstract and general). This is like what happened to GI. With the help of using fast thought processes, GIs seem to be motivated only by immediate interests of the moment, not the long term. GI's thinking process is more concrete and procedural in getting results rather than abstract and general.

As teachers with less than ten years of experience, the two teachers in this study belonged to the group of novice teachers (Morten, 2022). The thinking process of teachers at this age is usually better than that of new teachers. As their experience increases, they become more mature in preparing and thinking about efforts to handle learning problems in the classroom, especially when providing scaffolding .

According to (Nurul dkk., 2022; Tyas dkk.,2021), recognizing students can encourage students to learn better and students become more motivated to learn. He added, to achieve effective learning according to students' needs, teachers need to know the skills students have. However, York added that there was no significant relationship between teacher educational background, certification, teaching experience and teacher knowledge of individual student skills.

What was researched by (Rico, dkk., 2022) is also in accordance with what was researched by (Yong, 2022) that students have different motivations, attitudes about learning, and differences in responding to their learning activities. Felder & Brand added that the more teachers understand their students' differences, the more observant teachers will understand their students' differences; the greater the opportunity for teachers to meet the diverse learning needs of students. These three categories of differences will have implications for learning between differences in student learning styles (characteristics of obtaining and processing information), learning approaches (depth and strategy, and level of intellectual development (attitudes towards knowledge and how to obtain and evaluate it). Therefore, teachers need know these differences. There are several similarities between the GA and GI thought processes in providing scaffolding to students who ask questions. First, both subjects hope that students follow what the teacher thinks and does. Students are expected to imitate what the teacher does as much as possible. Also , for GA, when using the blackboard, GA hopes that students will follow this method.Secondly , it was also found that teachers sometimes generate thinking ideas to limit students' work when solving problems.

Both teachers in this study had thought processes for generating ideas that limited students' work in almost the same way. This may be because they stem from the characteristics of experienced or novice teachers (Nazli, 2021). According to Meyer, as novice teachers they will ask a lot of questions about the students' initial knowledge. Teachers at this age will find it difficult to maintain the direction of learning when responding to student questions. As a result, teachers often create new problems when providing assistance to students. The teacher's thinking process in providing *scaffolding* , even though it is contingent, should still balance the use of positive inspection and intervention strategies. Positive intervention is meant as a form of coercion given by teachers to students to guide or direct the student's subsequent abilities (Li, 2022; Kharisma, dkk. 2023). This method is known as probin.

CONCLUSION

Research on Teachers' Thinking Processes in Providing Scaffolding in the form of Questions in Mathematics Learning in Elementary Schools provides an in-depth understanding of the teacher's role in guiding students through the learning process. In general, it can be concluded that optimizing students' ability to solve problems can be stimulated through the teacher's thinking process in providing *scaffolding* in the form of questions in mathematics learning. In general, the questions that teachers can give to provide *scaffolding* in the form of questions in the stages of the teacher's thinking process include 1) *Generating* Ideas Stage ; 2) Clarifying Ideas Stage (*Clarifying Ideas*) ; and 3) Stage of Assessing *the Reasonableness of Ideas* , where in all these stages 3 strategies are used including 1) diagnostic strategy, intervention strategy; and 3) diagnostic examination strategy.

Teachers have a very important role in shaping students' understanding of mathematics. The teacher's thinking process in composing questions as a form of scaffolding helps students understand mathematical concepts better. Scaffolding, especially in the form of questions, has proven to be an effective method for guiding students through learning stages appropriate to the student's cognitive level. These questions help students to develop deeper understanding.

By structuring questions carefully, teachers encourage students' active involvement in mathematics learning. This creates an interactive learning environment and motivates students to think critically and actively seek solutions. The teacher's thinking process in composing questions as a form of scaffolding takes into account variations in student abilities. This way, students with different backgrounds and abilities can get appropriate support.

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