



Fostering Critical Thinking in Early Childhood: Teacher Scaffolding Strategies for Children Aged 5–6

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Abstract:

Critical thinking is an essential skill that needs to be developed from an early age to support children's cognitive development and problem-solving abilities. This study aims to explore teacher scaffolding strategies in fostering critical thinking among children aged 5–6 years in early childhood education settings. The research employed a qualitative approach using a case study design. Data were collected through classroom observations, teacher interviews, and documentation of learning activities. The data were analyzed using an interactive analysis model consisting of data condensation, data display, and conclusion drawing and verification. The findings reveal that teachers apply several scaffolding strategies to stimulate children's critical thinking, including questioning techniques, guided interaction, modeling, and gradual assistance. These strategies encourage children to express ideas, analyze situations, and develop simple problem-solving abilities during learning activities. The study implies that effective scaffolding practices can create interactive learning environments that support children's cognitive engagement and critical thinking development. Therefore, integrating scaffolding strategies into daily teaching practices is important for promoting meaningful learning experiences and supporting early childhood cognitive development.

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INTRODUCTION

The development of critical thinking skills in early childhood has become an important concern in contemporary education. In an era characterized by rapid information exchange, children are expected not only to memorize knowledge but also to analyze, question, and interpret information critically (Gulo & Tapilaha, 2024; Kim, 2024). Critical thinking helps individuals evaluate information, make reasoned decisions, and solve problems in everyday life. Therefore, introducing these skills from an early age is considered essential to prepare children for future academic and social challenges. Educational experts emphasize that the foundation of higher-order thinking begins during early childhood, when children actively explore their surroundings and construct understanding through interaction and experience (Hefniy & Alwahedi, 2025; Holidi, 2025; Khofsah, 2025). However, the stimulation of critical thinking in early childhood education often depends on how teachers guide and facilitate children's thinking processes during learning activities. Without proper guidance, children may only engage

in surface-level learning without deeper reflection. Thus, examining teaching strategies that can effectively stimulate critical thinking at an early age is crucial for improving the quality of early childhood education and supporting children's long-term cognitive development.

Despite the growing awareness of the importance of critical thinking, many early childhood education practices still focus primarily on routine learning activities such as memorization, repetition, and teacher-directed instruction (Hikmah & Mudarris, 2026; Manshur, 2026). These approaches may limit children's opportunities to explore ideas, ask questions, and engage in deeper thinking processes. As a result, children may become passive learners who rely heavily on instructions rather than actively constructing their own understanding. This situation reflects a broader challenge in early childhood education, where teachers may prioritize completing learning tasks instead of facilitating meaningful cognitive engagement (Kusumawati, 2025; Syafiih, 2025). Furthermore, some educators may have limited understanding of strategies that can effectively stimulate critical thinking in young learners. The lack of appropriate pedagogical approaches can hinder children's ability to develop reasoning skills and curiosity about their environment. Therefore, identifying effective teaching strategies that support children's thinking processes is necessary. Understanding how teachers can guide children to analyze, question, and reflect during learning activities becomes an important step in addressing this educational challenge.

In classroom practices, children aged five to six years often demonstrate curiosity through questioning, observing objects, and expressing opinions about situations around them. However, these natural tendencies do not always receive adequate support from teachers during learning activities (Fanani & Hidayah, 2024; Hidayat et al., 2024). In several early childhood classrooms, learning interactions tend to be dominated by teacher explanations, while children are expected to follow instructions and complete assigned tasks. As a result, opportunities for children to express ideas, analyze problems, or discuss their reasoning may be limited. Observations in early childhood learning environments indicate that children sometimes require guidance to articulate their thoughts and connect new information with their prior experiences (Holid, 2025). When teachers provide appropriate guidance, such as asking probing questions or offering hints, children become more engaged in exploring solutions and expressing their understanding. These interactions highlight the importance of teacher support in facilitating children's cognitive development. Therefore, understanding how teachers provide such support through scaffolding strategies becomes essential in examining how critical thinking can be fostered effectively in early childhood classrooms.

Previous studies have highlighted the importance of scaffolding strategies in supporting children's cognitive development. Scaffolding refers to the temporary assistance provided by teachers to help learners accomplish tasks that they cannot yet complete independently. Through scaffolding, teachers guide children's learning by providing prompts, questions, demonstrations, or feedback that support their thinking processes. Research has shown that scaffolding strategies can enhance children's problem-solving skills, reasoning abilities, and engagement in learning activities (Badriyah, 2025; F. S. Rahman et al., 2023). In early childhood education, scaffolding often occurs through interactive dialogue between teachers and children, where teachers encourage children to reflect on their ideas and explore alternative perspectives. Several studies also emphasize that effective scaffolding involves gradually reducing assistance

as children gain greater independence in their learning (A. Z. Rahman et al., 2024). These findings suggest that scaffolding plays an important role in fostering critical thinking by encouraging children to analyze situations, evaluate information, and construct knowledge through guided interaction with teachers.

Although previous research has demonstrated the positive impact of scaffolding on children's learning, many studies focus primarily on general cognitive development rather than specifically examining how scaffolding strategies stimulate critical thinking in early childhood contexts (Khotimah & FahmiSuhermanto, 2024). Some studies also emphasize the theoretical aspects of scaffolding without providing detailed descriptions of how teachers implement these strategies during classroom interactions. As a result, there is limited understanding of how scaffolding practices occur in real learning environments and how they influence children's critical thinking behaviors. Additionally, research in early childhood education often focuses on elementary or secondary education settings, leaving early childhood classrooms less explored in terms of critical thinking development. This gap indicates the need for further research that examines teacher scaffolding strategies in authentic early childhood learning environments. Understanding these practices can provide valuable insights into how teachers support children's thinking processes and how such strategies contribute to the development of critical thinking from an early age.

This study seeks to contribute to the existing literature by examining how teacher scaffolding strategies are implemented specifically to foster critical thinking among children aged five to six years. Unlike previous studies that mainly discuss scaffolding in general learning contexts, this research focuses on the interactional processes between teachers and children during classroom activities that stimulate critical thinking. The study explores how teachers guide children through questioning, prompting, modeling, and supportive dialogue to encourage deeper thinking and reasoning. By analyzing these interactions in an early childhood classroom, the research aims to provide a more detailed understanding of how scaffolding strategies function in practice. This perspective offers valuable insights into the pedagogical approaches that teachers can use to support children's cognitive engagement and critical thinking development. Consequently, the findings are expected to enrich discussions on effective teaching strategies in early childhood education and highlight the role of responsive teacher support in promoting meaningful learning experiences.

Based on the issues and gaps identified in previous studies, this research focuses on exploring how teachers implement scaffolding strategies to stimulate critical thinking in children aged five to six years. The central research problem addresses how teacher guidance and interaction during learning activities support children in analyzing situations, expressing ideas, and solving simple problems. The study assumes that appropriate scaffolding strategies can encourage children to think more actively and reflectively during classroom interactions. Through supportive questioning, guidance, and gradual assistance, teachers may create learning environments that stimulate children's curiosity and reasoning abilities. Therefore, examining teacher scaffolding practices becomes important to understand how critical thinking can be effectively fostered in early childhood education settings. The findings of this study are expected to provide practical insights for educators on how to design interactive learning experiences that support children's cognitive development while also contributing to the broader discussion on critical thinking development in early childhood education.

RESEARCH METHODS

This study employed a qualitative research approach using a case study design. Qualitative research was chosen because it allows researchers to explore social phenomena in depth and understand participants' experiences, perspectives, and interactions within their natural settings (Niam et al., 2024; Pregoner, 2024). A case study design was considered appropriate because the research focuses on examining a particular phenomenon, namely teacher scaffolding strategies in fostering critical thinking among children aged 5–6 years within a specific educational context. Through this design, the researcher was able to obtain comprehensive and contextual insights into how teachers provide scaffolding and how children respond during the learning process. The case study approach enables an in-depth exploration of teacher practices and classroom dynamics that support the development of critical thinking in early childhood education settings.

This research was conducted at TK Pertiwi, located in Probolinggo, East Java, Indonesia. The location was selected purposively based on several considerations. First, the school implements active and interactive learning activities that encourage children's participation during classroom interactions. Second, teachers at this institution frequently apply supportive teaching approaches that involve guidance, questioning, and assistance during learning activities. These practices are relevant to the concept of scaffolding in early childhood education. Additionally, the accessibility of the research site allowed the researcher to conduct observations and data collection effectively.

Data in this study were collected through several techniques to obtain comprehensive information regarding teacher scaffolding strategies. The first technique was classroom observation, which aimed to capture real interactions between teachers and children during learning activities. Observations focused on how teachers provide guidance, ask questions, and assist children in solving problems or expressing their ideas. The second technique was interviews with teachers to explore their perspectives, experiences, and teaching strategies used to stimulate children's critical thinking. Semi-structured interviews were conducted to allow participants to provide detailed explanations while still focusing on the research objectives. The third technique was documentation, which included lesson plans, learning materials, classroom activity records, and photographs related to the learning process. Documentation was used to support and strengthen the data obtained from observations and interviews (Salmona & Kaczynski, 2024).

Data analysis in this study followed an interactive analysis model consisting of data condensation, data display, and conclusion drawing or verification (Takona, 2024). Data condensation involved selecting, focusing, simplifying, and transforming raw data obtained from observations, interviews, and documentation. At this stage, the researcher identified relevant information related to teacher scaffolding strategies and children's critical thinking behaviors. After the data were condensed, the information was organized and presented in the form of narrative descriptions and tables to facilitate understanding and interpretation. Data display allowed the researcher to identify patterns, relationships, and themes related to the implementation of scaffolding strategies in the classroom (Danford, 2023). The final stage involved drawing conclusions based on the patterns and findings identified during the analysis process, and these conclusions were continuously verified by reviewing the collected data to ensure consistency and accuracy of interpretation. To ensure the validity and credibility of the data, several strategies were

applied, including triangulation by comparing information from observations, interviews, and documentation, member checking with participants, and prolonged engagement and persistent observation to obtain a deeper understanding of classroom interactions and teaching practices. These procedures helped strengthen the trustworthiness and reliability of the research findings.

RESULTS AND DISCUSSION

Teacher Questioning Strategies to Stimulate Children's Thinking

One of the scaffolding strategies observed in the classroom was the use of questioning techniques by the teacher to stimulate children's thinking. During learning activities, the teacher frequently asked open-ended questions that encouraged children to express their opinions and explain their reasoning. This approach allowed children to explore ideas rather than simply providing short answers. The teacher often guided children's thinking by asking follow-up questions such as "Why do you think that?" or "What will happen if we try it another way?" These questions helped children reflect on their ideas and consider different possibilities.

Based on classroom observations, children showed increased engagement when teachers used questions that invited them to think and respond. For example, during a learning activity involving picture cards, the teacher asked children to observe the pictures and explain what they thought was happening in each scene. Several children raised their hands and shared their interpretations, demonstrating their ability to analyze and describe situations.

The interview with the teacher also confirmed the use of questioning strategies as a way to encourage critical thinking. The teacher explained that asking guiding questions helps children become more active in learning.

Interview excerpt:

"Usually I try to ask questions that make children think, not just answer yes or no. When I ask why or how something happens, they start explaining their ideas and sometimes they even ask more questions."

These findings indicate that questioning strategies function as an important scaffolding technique that encourages children to analyze information, express their opinions, and participate actively during classroom discussions.

Guided Interaction Between Teacher and Children

Another scaffolding strategy identified in this study was guided interaction between the teacher and children during learning activities. Guided interaction refers to the way teachers support children's thinking processes through dialogue, prompts, and encouragement. During classroom observations, the teacher often interacted closely with children while they were completing tasks such as solving simple problems or discussing learning materials.

For instance, during a group activity involving sorting objects based on color and shape, some children initially showed confusion about how to categorize the objects. Instead of directly providing the answer, the teacher approached the children and gave hints that helped them reconsider their choices. The teacher asked questions such as, "What do these two objects have in common?" or "Can you find another object that looks similar to this one?"

Through these interactions, children gradually understood the concept being taught and were able to complete the task independently. The observation showed that children became more confident when teachers provided supportive guidance rather than direct instructions.

The teacher also described the importance of interacting with children during learning activities in the interview.

Interview excerpt:

"Sometimes children need a little help to understand something. I usually sit with them and ask them to look again or think about what they see. When they find the answer themselves, they feel more confident."

These findings suggest that guided interaction allows teachers to support children's cognitive development by encouraging them to analyze situations and construct their own understanding.

Modeling as a Scaffolding Strategy

Modeling was another strategy used by the teacher to support children's thinking and learning processes. Modeling refers to the practice of demonstrating a task or showing an example so that children can observe and understand how to approach a problem or activity. Based on classroom observations, the teacher frequently demonstrated how to complete certain tasks before asking children to try them independently.

For example, during an activity involving storytelling, the teacher first modeled how to describe a picture by explaining what she observed and asking questions about the characters and events in the story. After observing the teacher's explanation, children were invited to describe other pictures and share their interpretations.

This modeling process helped children understand how to express their thoughts and organize their ideas. Many children began to imitate the teacher's approach by explaining what they saw in the pictures and offering their own interpretations.

The interview results also supported this observation. The teacher stated that modeling is important because young children often learn by observing adults.

Interview excerpt:

"Children learn a lot by watching what we do. If I show them how to explain something or how to solve a problem, they usually try to do it the same way."

The following table summarizes the observed examples of teacher modeling during classroom activities.

Learning Activity	Teacher Modeling Practice	Children's Response
Storytelling activity	Teacher demonstrated how to describe picture scenes	Children began describing pictures using similar explanations
Sorting objects	Teacher showed how to group objects based on similarities	Children followed the example and sorted objects correctly
Problem-solving tasks	Teacher explained how to think about possible solutions	Children attempted to suggest their own solutions

These results show that modeling provides children with concrete examples that help them understand how to think through tasks and express their reasoning.

Gradual Assistance and Encouraging Independence

The final scaffolding strategy observed in this study was gradual assistance, where teachers initially provided support and then slowly reduced their guidance as children became more capable. This approach allowed children to gain confidence and independence while still receiving support when needed.

During classroom observations, the teacher first provided clear instructions and guidance at the beginning of learning activities. However, as children started to understand the tasks, the teacher stepped back and encouraged them to complete the activities independently. For instance, during a simple problem-solving activity, the teacher initially guided children through the steps of identifying the problem and discussing possible solutions. Afterward, children were encouraged to try solving similar problems on their own.

The observation showed that children gradually became more confident in sharing ideas and attempting solutions without direct assistance from the teacher. Some children even helped their peers by explaining what they had learned.

The teacher also emphasized the importance of giving children opportunities to think independently during the interview.

Interview excerpt:

"At first I help them understand the activity, but after that I try to let them think by themselves. Sometimes they surprise me with their ideas."

These findings indicate that gradual assistance helps children develop independence and confidence in their thinking processes. By slowly reducing support, teachers create opportunities for children to apply their reasoning skills and engage more actively in learning activities.

Discussion

The findings of this study demonstrate that teacher scaffolding strategies play an important role in fostering critical thinking among children aged 5–6 years. One of the prominent strategies identified was the use of questioning techniques that encourage children to reflect on their ideas and express their reasoning. Open-ended questions used by teachers during classroom interactions allowed children to analyze situations, make interpretations, and communicate their thoughts. Such questioning practices are widely recognized as an effective way to stimulate higher-order thinking because they encourage learners to explore different possibilities and articulate their understanding (Yadav & Singh, 2026). In early childhood education, questioning not only stimulates cognitive engagement but also supports language development as children learn to express their ideas and reasoning through dialogue with teachers and peers (Bouwer et al., 2024). The results of this study indicate that when teachers ask guiding questions such as “why” and “how,” children become more actively involved in the learning process and show greater curiosity in exploring new ideas.

Another important finding is the role of guided interaction between teachers and children during learning activities. The observations revealed that teachers frequently provided prompts and hints rather than directly giving answers when children encountered difficulties. This approach aligns with the concept of scaffolding in which teachers provide temporary support to help learners complete tasks that they cannot yet accomplish independently (Bouwer et al., 2024). Through guided interaction, teachers create opportunities for children to construct knowledge through dialogue and

exploration. Such interaction supports the development of reasoning skills because children are encouraged to reconsider their responses, compare ideas, and develop explanations. Previous studies have emphasized that interactive learning environments where teachers actively engage with children can significantly enhance cognitive development and promote deeper understanding of learning materials (Clemente-Suárez et al., 2024). Therefore, guided interaction becomes an essential component of scaffolding that supports the development of critical thinking in early childhood education.

The study also found that modeling is an effective scaffolding strategy that helps children understand how to approach tasks and express their thinking processes. When teachers demonstrated how to describe a picture, organize ideas, or solve a problem, children were able to observe the process and imitate similar strategies during their own learning activities. Modeling allows teachers to provide concrete examples that illustrate how thinking processes occur, making abstract concepts more accessible for young learners (Dahshan & Galanti, 2024). For children in early childhood education, observing the actions and explanations of adults plays a crucial role in learning because they tend to imitate behaviors and strategies demonstrated by more knowledgeable individuals (). This finding supports the view that modeling can serve as an effective pedagogical approach to guide children's reasoning and encourage them to adopt similar cognitive strategies when engaging with learning tasks.

Another significant finding relates to the gradual reduction of teacher assistance as children become more capable of completing tasks independently. This strategy reflects the core principle of scaffolding, where support is provided temporarily and then gradually withdrawn as learners gain greater competence (Maftuna, 2025). The results of this study show that when teachers initially provide guidance and later encourage children to solve problems independently, children become more confident in expressing their ideas and exploring possible solutions. Such practices help children develop autonomy in learning while still benefiting from teacher support when needed. The gradual transition from guided assistance to independent thinking allows children to internalize cognitive strategies and apply them in different learning situations (Steinberg et al., 2024). As a result, children not only complete tasks successfully but also develop stronger reasoning and problem-solving skills.

Furthermore, the implementation of scaffolding strategies in the classroom appears to create a learning environment that encourages active participation and curiosity among children. The combination of questioning, guided interaction, modeling, and gradual assistance enables children to engage more deeply with learning activities and explore their ideas through discussion and experimentation. This interactive environment aligns with constructivist perspectives on learning, which emphasize that knowledge is constructed through social interaction and meaningful experiences (Robertson et al., 2024). When teachers provide appropriate scaffolding, children are more likely to engage in reflective thinking and develop a deeper understanding of the learning material. These findings highlight the importance of teacher responsiveness in recognizing children's learning needs and providing support that stimulates cognitive engagement.

Overall, the findings of this study suggest that teacher scaffolding strategies are essential in fostering critical thinking in early childhood education settings. By applying supportive questioning, interactive dialogue, modeling, and gradual assistance, teachers

can create learning experiences that encourage children to analyze information, express ideas, and solve simple problems. These strategies help children move beyond passive learning toward more active and reflective engagement with their learning environment (Patall, 2024). Therefore, integrating scaffolding practices into early childhood teaching can significantly contribute to the development of critical thinking skills and support children's cognitive growth from an early age. The results of this study also highlight the need for teachers to be aware of their role as facilitators of learning who guide children's thinking processes through meaningful interactions and supportive instructional strategies (Zhu et al., 2024).

CONCLUSION

This study highlights the important role of teacher scaffolding strategies in fostering critical thinking among children aged 5–6 years. The findings indicate that several strategies such as questioning techniques, guided interaction, modeling, and gradual assistance can effectively stimulate children's thinking processes during learning activities. Through these strategies, teachers create opportunities for children to analyze situations, express ideas, and explore solutions independently. The study shows that when teachers actively guide children's thinking through supportive dialogue and interaction, children become more engaged and confident in sharing their perspectives. The main insight gained from this research is that critical thinking in early childhood can be nurtured through responsive teacher support that encourages curiosity, reasoning, and exploration. In terms of academic contribution, this study enriches the literature on early childhood education by providing a clearer description of how scaffolding strategies are implemented in classroom practices to stimulate critical thinking development.

However, this study also has several limitations that should be acknowledged. The research was conducted in a single early childhood education setting, which may limit the generalization of the findings to other educational contexts. In addition, the focus of the study was primarily on teacher strategies and classroom interactions, while other factors that may influence children's critical thinking development such as learning environments, parental involvement, or curriculum design were not explored in depth. Therefore, future research is recommended to examine scaffolding strategies across different early childhood institutions and include a broader range of participants. Further studies may also investigate how collaborative learning, digital learning tools, or family engagement contribute to the development of critical thinking in young children. Expanding research in these areas will provide a more comprehensive understanding of how critical thinking can be effectively fostered in early childhood education.

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