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THE IMPLEMENTATION OF THE SCAFFOLDING METHOD USING THE CONCRETE-PICTORIAL-ABSTRACT (CPA) APPROACH TO ENHANCE MATHEMATICAL CONCEPTUAL MASTERY AMONG GRADE V STUDENTS AT GLR CHRISTIAN ELEMENTARY SCHOOL SURABAYA

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Abstract

This study aims to improve the mastery of mathematical concepts among grade V elementary school students through the implementation of the scaffolding method combined with the Concrete-Pictorial-Abstract (CPA) approach. The research employs a Classroom Action Research (CAR) design, consisting of two cycles. Each cycle includes four stages: planning, action implementation, observation, and reflection. Data were collected through tests, observations, reflections, and interviews. Data analysis was conducted using a combination of quantitative and qualitative methods. The results of the study indicate an improvement in students' conceptual mastery of mathematics. Test scores increased from 73.9% in the pre-cycle to 86.9% in the first cycle, and further to 100% in the second cycle. Analysis of observation sheets, reflections, and interviews showed improvements in all measured indicators from the first to the second cycle: (1) the percentage of students able to restate concepts increased from 90% to 100%; (2) the ability to distinguish between objects reached 100%; (3) the ability to visualize concepts rose from 80% to 100%; (4) students' ability to follow procedures reached 100%; and (5) the ability to apply learned concepts to solve problems improved from 60% to 80%.

Keywords: Scaffolding, Concrete-Pictorial-Abstract (CPA), Conceptual Mastery, Elementary School Students

INTRODUCTION

Mathematics is one of the core subjects encountered at every level of education due to its crucial role in developing logical thinking skills and serving as a foundation for understanding other scientific disciplines (Najoan, 2019). However, many students, across generations, have consistently experienced difficulties in mastering mathematical concepts, even from the elementary level. This challenge is largely attributed to the abstract nature of mathematics, which poses significant difficulties, particularly for students who have not yet developed a solid grasp of its foundational concepts.

Mawaddah and Maryanti (2016) assert that mastery of mathematical concepts represents a key indicator of a student's comprehension of the material being taught. Such mastery includes the ability to restate the concept, classify objects based on certain attributes, provide examples and non-examples, present the concept through mathematical representations, apply specific procedures, and utilize the concept to solve problems during mathematics instruction.

A lack of conceptual mastery in mathematics can hinder students' ability to solve more complex problems and ultimately lead to suboptimal academic performance. Many students rely on rote memorization of formulas and procedures without truly understanding the underlying principles. Consequently, effective instructional methods and appropriate pedagogical approaches are essential to help students grasp mathematical concepts more easily and enjoyably.

This issue was similarly observed by the researcher during mathematics instruction in the fifth grade at GLR Christian Elementary School in Surabaya. Many students in this class struggled to master mathematical concepts, particularly those related to spatial understanding and word problems. Although students often responded with, "I understand, Miss," after lessons and question sessions, their actual performance indicated otherwise. The researcher employed interactive activities and online games to assess comprehension. The results were varied: some students responded quickly and accurately, some attempted answers but made conceptual errors (e.g., using addition in a subtraction problem), and others passively waited for classmates' responses due to a lack of understanding.

Students were then instructed to attempt the exercises in their workbooks independently before a group discussion. Despite clear instructions, several students approached the researcher again to ask how to complete the tasks. When presented with similar problems containing only different numbers, some students continued to struggle. These findings highlight a lack of conceptual mastery and an overreliance on memorized procedures rather than understanding. Suryanto (2015) outlines three indicators of poor conceptual mastery: (1) students cannot accurately explain the steps for solving a problem, (2) they are unable to identify the relevant concept to apply, and (3) they merely memorize formulas or procedures without understanding the underlying rationale.

In addition, the results of assessments on the topic of cube and cuboid volume showed that only 73.9% of the students achieved mastery, with six out of twenty-three students failing. The researcher identified that those who did not pass had limited spatial abilities, which affected their conceptual mastery and academic outcomes. This was further supported by the results of a spatial reasoning test, where only 69.6% of students passed, and seven out of twenty-three failed. Notably, four students failed both the mathematics and spatial tests.

The researcher recognizes that a good teacher is a fundamental pillar of education. Teachers play a vital role as guides, facilitators, and evaluators in the learning process (Saumi et al., 2021). A competent teacher sees each student as a valuable individual entrusted by God and understands their developmental stages. Mastery is a crucial aspect of a student's learning development. According to Jean Piaget, elementary school students are generally in the concrete operational stage (ages 7–11), where they begin to think logically but are still limited to concrete or tangible situations. When teachers understand this, they can better fulfill their roles. Students are not empty vessels to be filled with knowledge; rather, they are individuals endowed with reason, potential, and talent from birth. One of the teacher's responsibilities is to encourage each student to recognize and develop these attributes in accordance with their developmental stage and learning needs. In mathematics instruction, for example, teachers can use concrete or visual materials before introducing abstract concepts, enabling students to understand more easily by directly engaging with their learning environment.

Previous studies have demonstrated the effectiveness of the scaffolding method and the Concrete-Pictorial-Abstract (CPA) approach in improving students' conceptual mastery in mathematics. Research conducted by Aulia, Fitraini, and Risnawati entitled "The Effect of Implementing the Scaffolding Learning Model on Junior High School Students' Mathematical Concept Understanding Based on Self-Efficacy" revealed that students who were taught using the scaffolding learning model scored higher on post-tests than those taught using the scientific learning approach. Specifically, the average score of students' conceptual mastery in the scaffolding group was 65.9, compared to 54.6 in the scientific learning group. This supports the notion that students' mastery of mathematical concepts significantly influences learning outcomes.

In a similar study, Nursanti explored "The Implementation of the Scaffolding Method to Improve Mathematics Learning Outcomes Among Grade XI Science Students at SMA Negeri 1 Bungkal in the 2018/2019 Academic Year." Her research reported a steady improvement in learning outcomes across cycles, from 62.85% in the pre-cycle to 72% in Cycle I, and 80.9% in Cycle II. These findings further confirm that scaffolding can enhance both student learning outcomes and conceptual mastery in mathematics.

Additionally, Elfrida Nainggolan, a student at Universitas Pelita Harapan, conducted a study titled "The Implementation of the Concrete-Pictorial-Abstract (CPA) Approach to Improve Responsibility, conceptual mastery, and Mathematical Problem-Solving Skills at SDS XYZ Jakarta." Her research emphasized gains in students' conceptual mastery across learning cycles. The data demonstrated progressive improvement: 73.3% in Cycle I, 74.5% in Cycle II, and 80.2% in Cycle III, indicating that the CPA approach effectively fosters students' conceptual mastery in mathematics.

The scaffolding method involves providing structured support to students during the initial stages of learning, which is gradually withdrawn as students gain independence and take on greater responsibility in their learning process (Chairani, 2015). According to Damayanti (2016), scaffolding is implemented by educators to assist students in completing tasks or understanding concepts that they initially cannot master independently.

Hughes (2015), in his book Teaching and Learning Mathematics, emphasizes the effectiveness of the CPA approach in building stronger conceptual foundations in mathematics. He argues that beginning with concrete objects allows students to develop a solid base for understanding more abstract concepts. The pictorial stage then serves as a bridge, enabling students to transition more smoothly into abstract thinking in a way that is accessible and meaningful. Through this gradual progression, students can more easily grasp mathematical concepts that might otherwise be difficult to comprehend.

Considering the challenges outlined above and the success of prior studies in applying scaffolding and CPA to strengthen conceptual mastery in mathematics, the researcher—who also serves as a mathematics teacher at SD Kristen GLR Surabaya—undertook an action research project entitled **"The Implementation of the Scaffolding Method using the Concrete–Pictorial–Abstract (CPA) Approach to Enhance Mathematical Conceptual Mastery Among Grade V Students at GLR Christian Elementary School Surabaya."**

SCAFFOLDING

The scaffolding method refers to the provision of assistance to children during the early stages of their development, with such support gradually reduced as the children gain the ability to assume greater responsibility for their own learning (Chairani, 2015). Scaffolding is also understood as a process whereby teachers assist students in completing tasks or grasping concepts that they would initially be unable to handle independently (Damayanti, 2016).

Similarly, Badriyah et al. (2017) define scaffolding as a learning process that supports students in achieving their educational goals. It involves providing structured assistance that gradually encourages learners to become active and independent in their learning. This is consistent with Chairani (2015), who describes scaffolding as guidance provided by teachers during the learning process through methods such as group discussions, enabling students to exchange ideas and collaboratively solve problems related to the learning material. This guidance does not consist merely of delivering content continuously, but may also take the form of demonstrations, providing concrete examples or objects, giving step-by-step problem-solving strategies, or prompting students to connect problems with their prior knowledge or personal experiences. Such approaches aim to facilitate students' independent mastery of the targeted concepts.

In addition, Stuyf (2002) identifies six forms of scaffolding: (1) providing motivation to students when completing tasks, (2) simplifying tasks to make them more manageable, (3) offering cues or hints to help students remain focused on their learning objectives, (4) clarifying the performance standards students are expected to meet, (5) reducing frustration and risk through engaging instructional activities, and (6) modeling and clearly defining the tasks to be performed so that students can follow them effectively.

Based on the aforementioned expert perspectives, it can be concluded that the scaffolding method is a form of guided assistance provided by teachers to help students complete tasks or understand concepts that are initially beyond their independent capabilities. This process involves the gradual adjustment of support according to the learners' developmental stage, with the aim of fostering autonomy in learning. Scaffolding encompasses more than the delivery of content; it includes a variety of strategies such as group discussions, demonstrations with concrete materials, and instructional prompts that stimulate active engagement. These techniques collectively enable students to master concepts and solve problems independently.

CONDRETE-PICTORIAL-ABSTRACT (CPA)

The Concrete-Pictorial-Abstract (CPA) approach, as described by Hoong, is an instructional method adapted from Bruner's model (Nurlia & Zainal, 2023). This approach comprises three instructional stages designed to support students—particularly those who struggle with mathematics—by guiding them progressively through conceptual mastery. These stages are: *concrete*, which involves manipulation of tangible objects; *pictorial*, which serves as a transitional stage using visual representations; and *abstract*, which introduces symbols, notation, and numerical expressions to reflect mathematical ideas.

Radiusman and Simanjuntak (2020) provide a detailed explanation of this approach:

1. **Concrete Stage**: In this initial phase, students engage with real, physical objects or manipulatives that allow them to experience and observe mathematical concepts firsthand. For example, students may use counting blocks or other teaching aids to understand operations such as addition and subtraction. The purpose of this stage is to offer direct, hands-on experiences that help students build foundational understanding of the mathematical concepts being taught.
2. **Pictorial Stage**: Following the concrete stage, students progress to working with images or visual representations. These may include drawings, diagrams, or graphs that illustrate the mathematical concepts previously explored through concrete objects. This stage helps students make connections between the physical experience and more abstract mathematical ideas, facilitating a smoother transition from tangible understanding to symbolic thinking.
3. **Abstract Stage**: The final stage involves the use of mathematical symbols, such as numbers and formulas, to solve problems. At this level, students operate with abstract representations without relying on physical objects or visual aids. This stage underscores the symbolic nature of mathematics and its function as a language for representing relationships and patterns in the real world.

According to Nurlia and Zainal (2023), the CPA approach is particularly essential in teaching mathematical concepts to children, as they tend to grasp mathematical ideas more effectively when they begin with concrete experiences. These experiences serve as a foundation upon which they can build visual understanding, and subsequently, symbolic reasoning. This approach proves especially beneficial in early mathematics education.

Based on the perspectives outlined above, it can be concluded that the Concrete-Pictorial-Abstract (CPA) approach is an effective pedagogical method for facilitating students' understanding and mastery of mathematical concepts in a gradual and structured manner. It begins with direct engagement through concrete objects, transitions through visual representation, and culminates in the use of abstract mathematical symbols.

CONCEPTUAL MASTERY

Mastery represents a higher level of competence than mere understanding. At this level, students are expected to internalize the meaning, concepts, contexts, and facts they have acquired. In this regard, mastery goes beyond verbal memorization, requiring a deeper comprehension and command of concepts (Mulyono & Hapizah, 2018). According to the *Kamus Besar Bahasa Indonesia* (KBBI), mastery is defined as the ability to explain and interpret something. It implies more than just knowing isolated facts—it entails a comprehensive understanding that makes learning more meaningful. The root word *"kuasai"* (understanding))denotes being knowledgeable and fully understanding a subject, or having intellectual ownership of an idea.

In alignment with this view, Zein, Mas'ud, and Darto (2017), in their book Evaluasi Pembelajaran Matematika (Evaluation of Mathematics Learning), state that mastery refers to an individual's ability to understand something and to know how to apply it. It encompasses the ability to grasp the meaning of learning material—whether in the form of words, numbers, or explanations of causal relationships.

Pradella and Bahri (2020) assert that mathematical conceptual mastery develops in line with cognitive maturity and broader learning experiences. They argue that simple and concrete mathematical concepts serve as the foundation for understanding more complex and abstract ideas. Students learn more effectively when they are given the opportunity to engage in critical thinking and to make connections between previously acquired concepts.

Mawaddah and Maryanti (2016) define students' mastery of mathematical concepts as the students' cognitive ability to understand a concept to the extent that they can restate it, classify objects based on specific attributes, provide examples and non-examples, represent the concept mathematically, use particular procedures, and apply the concept to problem-solving in the mathematics learning process.

Based on the aforementioned perspectives, it can be concluded that **conceptual mastery** involves a dynamic cognitive process in which students do more than simply memorize facts or verbal information. Rather, they are able to comprehend, connect, and apply mathematical concepts. This process evolves in tandem with cognitive development and increasingly complex learning experiences, enabling students to construct deeper, more meaningful understandings of mathematical ideas.

RESEARCH HYPOTHESES

If the scaffolding method is implemented appropriately and in accordance with students' needs using the Concrete-Pictorial-Abstract (CPA) approach, it has the potential to enhance the mathematical conceptual mastery among grade V students at GLR Christian Elementary School in Surabaya.

RESEARCH METHOD

The research model employed in this study is action research, as developed by Kemmis and McTaggart. This model consists of four key phases: planning, action, observation, and reflection. These four stages are conceptualized as a continuous cycle. In this context, a cycle refers to a sequence of activities encompassing these four stages. This research model is considered distinctive in that the action and observation phases are not separate but occur simultaneously (Arikunto et al., 2016).

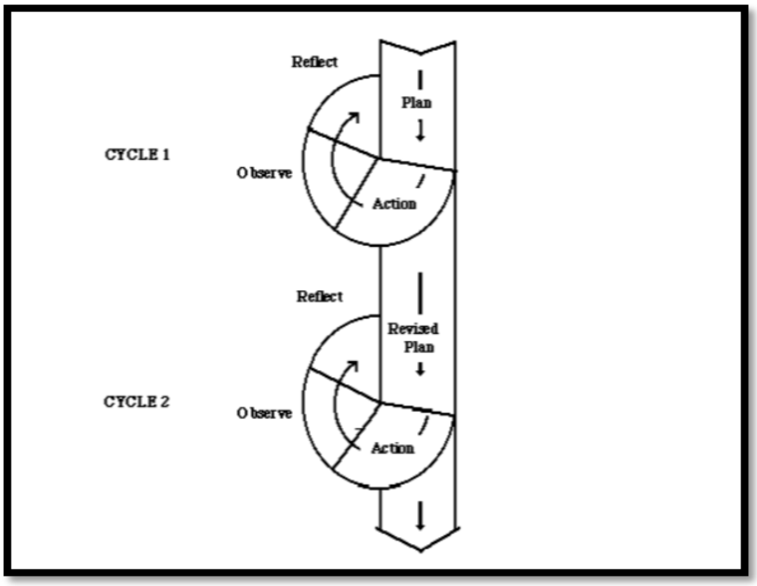


Figure 1 - Action Research by Kemmis dan McTaggart

The subject of this study consisted of 23 grade V students (Class VC) at GLR Christian Elementary School in Surabaya. The group comprised 11 male students and 12 female students. These students exhibited diverse academic abilities and learning styles, including varying levels of proficiency in mastering the mathematical concepts taught by the researcher during instruction.

Table 1 - Classification of Students' Academic Abilities and Learning Styles

No	Classifications
1	Demonstrates strong mathematical calculation and spatial reasoning skills
2	Exhibits strong mathematical calculation skills but weak spatial reasoning
3	Displays weak mathematical calculation skills but strong spatial reasoning
4	Demonstrates weak skills in both mathematical calculation and spatial reasoning
5	Understands concepts immediately after a single explanation
6	Requires repeated explanations due to reliance on memorized procedures or formulas
7	Tends to remain silent when asked questions or when concepts are not undestood

Data Analysis

"Data analysis is the process of systematically searching for and organizing data obtained from interviews, field notes, and other sources so that they can be easily understood and the findings communicated to others" (Bogdan, as cited in Sugiyono, 2015, p. 334). In this study, the researcher employed a combination of quantitative and qualitative data analysis techniques, each of which is described below:

1. Quantitative Data Analysis

Quantitative data were derived from pre-cycle tests (worksheets and spatial tests) and cycle assessments (exercises and worksheets). The analysis techniques applied were as follows:

- Tests (Exercises and Worksheets)

The researcher evaluated student responses using a rubric to determine the percentage of students who met the minimum passing grade (KKM), which was set at 68. The percentage of students who passed was calculated using Formula 1:

$$S = \frac{A}{B} x\ 100\%$$

Notes:
S: Percentage of students who passed
A: Number of students who met or exceeded the KKM
B: Total number of students

- Observation Sheets

The observation sheets were completed by the researcher and a colleague to ensure that the implementation of the method followed the predetermined steps and to monitor improvements in students' conceptual mastery. The observation of the implementation of the **scaffolding method using the Concrete-Pictorial-Abstract (CPA) approach** was analyzed using a rubric based on a Likert scale with options 5, 4, 3, 2, and 1.

The observation sheet for the implementation of the scaffolding method using the CPA approach was analyzed using Formula 2:

$$MS = \frac{S}{T} x\ 100\%$$

Notes:
MS: Percentage of successful implementation of the scaffolding method using CPA
S: Total score obtained
T: Maximum possible score

The observation sheet for **conceptual mastery** was analyzed using Formula 3:

$$PK = \frac{S}{T} x\ 100\%$$

Notes:
PK: Percentage of conceptual mastery
S: Total score obtained
T: Maximum possible score

- Reflection Sheets

Reflection is a process in which an individual attempts to understand the procedures, problems, and challenges encountered during strategic action (Arikunto et al., 2016). According to Kemmis, reflective journals offer significant benefits for teachers, as they serve as personal records of observations, feelings, interpretations, intuitions, reflections, hypotheses, and explanations.

Students completed reflection sheets at the end of the learning sessions to evaluate their understanding conceptual through the implementation of the scaffolding method with the CPA approach. These sheets were presented in checklist form for each indicator. The success of the method's implementation was calculated by dividing the number of students who checked each indicator statement by the total number of students and multiplying the result by 100%, as shown in Formula 3:

$$SP = \frac{P}{W} x\ 100\%$$

Notes:
SP: Percentage of conceptual mastery
P (Part): Number of students who checked the indicator statement
W (Whole): Total number of students

In addition, the researcher conducted daily reflections after each lesson in the form of journals or notes related to the research process. These reflective journals helped the researcher evaluate instructional practices, identify challenges or shortcomings encountered during the learning process, and develop more effective strategies for future planning.

- Interview Sheets

The researcher analyzed interview results descriptively in narrative form. The primary focus was to verify whether the method was implemented according to the prescribed procedures and to assess improvements in students' conceptual mastery. Interview responses that supported the research questions became focal points in analyzing this instrument.

2. Qualitative Data Analysis

Qualitative data were obtained from observations, student reflection sheets, and interviews with colleagues. This analysis was conducted through the following steps:

- Data Presentation

The researcher organized the data into tables to facilitate analysis of changes across cycles.

- Drawing Conclusions

The researcher examined patterns of improvement in students' conceptual mastery based on specific indicators, including: the ability to restate concepts, classify or differentiate objects, represent concepts using symbols or diagrams, follow procedures, and apply concepts to real-world problem-solving.

The credibility of qualitative data was strengthened through **source triangulation**, by comparing data from teacher observations, student reflections, and interviews with peer collaborators.

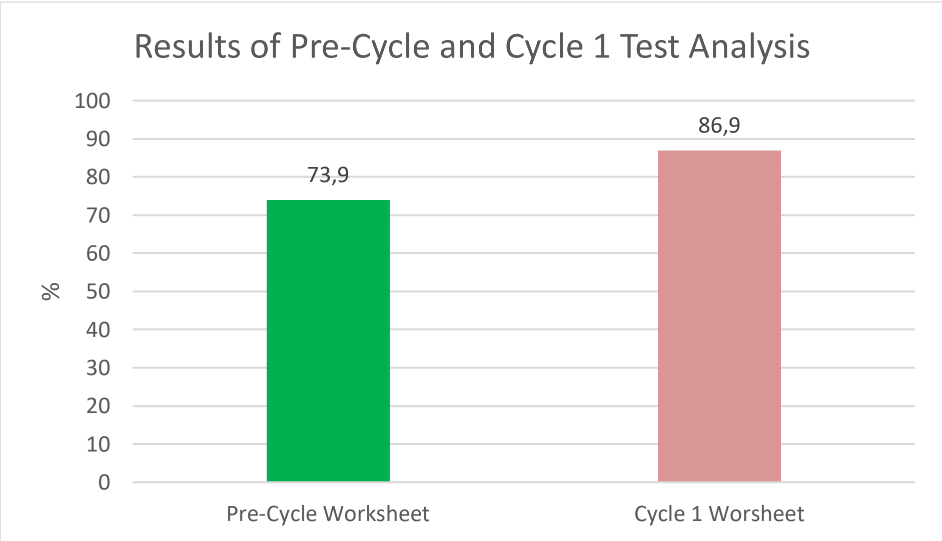
INDICATORS OF SUCCESS

The researcher established a success threshold of good or minimum achievement within a range of 65% to 75% for each indicator analyzed in relation to the implementation of the scaffolding method using the Concrete-Pictorial-Abstract (CPA) approach and students' conceptual mastery. This percentage range was selected based on the researcher's assessment that it reflects a satisfactory level of performance. Furthermore, a benchmark score of 75% was used as the minimum passing grade for student assessments and as the standard for determining the success of each indicator across the various instruments employed in the study (Arikunto et al., 2016).

ANALYSIS AND INTERPRETATION

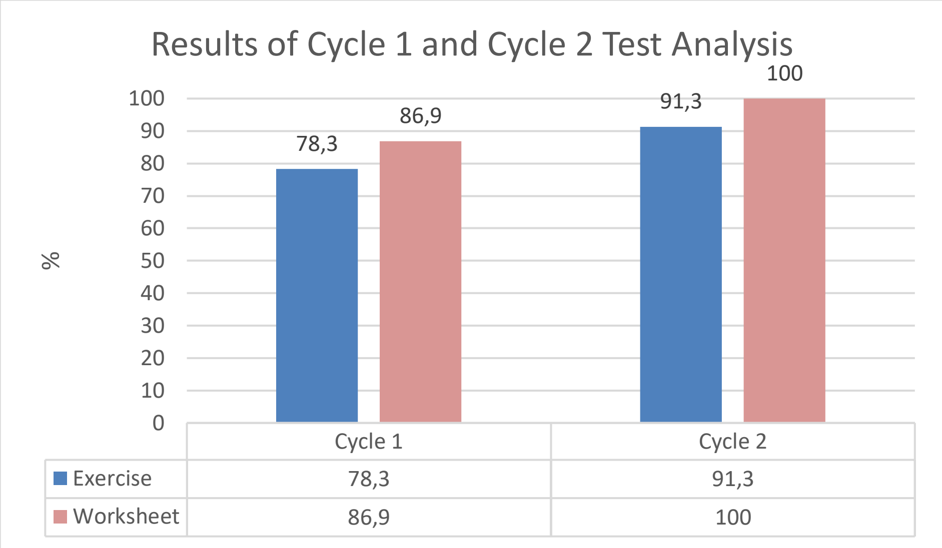
1. Test (pre-cycle, cycle 1, cycle 2)

Figure 2 – Results of Pre-Cycle and Cycle 1 Test Analysis



The data presented above show the percentage of students in a class who achieved the minimum passing grade (KKM) of ≥ 68. The results of the pre-cycle worksheet indicated that only 73.9% of the students met the criterion, which falls short of the established success standard of 75%. In contrast, the results from Cycle 1 showed an improvement, with 86.9% of students meeting or exceeding the KKM, thereby surpassing the success threshold. It can thus be concluded that there was a 13% increase in student achievement following the implementation of the Scaffolding method with the Concrete-Pictorial-Abstract (CPA) approach, as reflected in the Cycle 1 results. This outcome exceeds the minimum success benchmark of 75% as recommended by Arikunto et al. (2016).

Figure 3 – Results of Cycle 1 and Cycle 2 Test Analysis



The data above illustrates the percentage of students in a class who achieved the minimum mastery criterion (KKM) of ≥ 68. The practice results showed an improvement from Cycle 1 to Cycle 2 by 13%, while the final test results increased by 13.1%. These findings indicate an enhancement in students' conceptual mastery of the volume of cubes and cuboids following the implementation of the Scaffolding method with the CPA (Concrete–Pictorial–Abstract) approach. In Cycle 2, the percentage of students achieving mastery reached 100%.

Mastery represents a higher level of competence than mere understanding, wherein students are expected to grasp the meaning, concepts, situations, and facts they have learned. In this context, students not only recall information verbally but also demonstrate a conceptual mastery of the problems or facts. Strong test performance indicates that students have effectively mastered the taught concepts (Mulyono & Hapizah, 2018). These results surpass the minimum threshold for successful learning outcomes, which is set at 75% (Arikunto et al., 2016).

2. Observation Sheets

The following presents the researcher's analysis regarding the observation sheets on the implementation of the method and the mastery of concepts used in Cycle 1 and Cycle 2.

Observation Sheet on the **Implementation of the Scaffolding Method with the CPA Approach** in Cycles 1 and 2

Table 2 – Analysis Result of the Observation Sheet on the Implementation of the Scaffolding using the CPA Approach in Cycle 1 and 2

No	Steps of Method	Percentage of Cycle 1		Percentage of Cycle 2	
		Researcher	Colleague	Researcher	Colleague
1	Selection of material and	100%	100%	100%	100%

	prior knowledge introduction				
2	Determination and grouping based on the Zone of Proximal Development (ZPD)	100%	100%	100%	100%
3	Gradual task design (concrete, pictorial, abstract)	95%	100%	100%	100%
4	Monitoring and gradual reduction of support	95%	100%	95%	100%
5	Evaluation of achievement and learning independence	90%	100%	100%	100%

The results demonstrate a significant improvement, exceeding the minimum completeness criterion of 75% (Arikunto et al., 2016). One of the advantages of the scaffolding method combined with the CPA approach is that, when implemented with appropriate and engaging steps, it positively impacts students by enhancing their conceptual mastery, improving learning outcomes, and increasing their enthusiasm and confidence in participating in the learning process (Damayanti, 2016).

Observation Sheet on conceptual mastery in Cycles 1 and 2

Table 3 – Analysis Result of the Observation Sheet on conceptual mastery in Cycle 1 and 2

No	Indicators	Percentage of Cycle 1		Percentage of Cycle 2	
		Researcher	Colleague	Researcher	Colleague
1	Students can explain the learned concepts in their own words	100%	80%	100%	100%
2	Students can distinguish which objects are cubes or cuboids and which are not, and know how to calculate their volume (concrete)	100%	100%	100%	100%
3	Students can represent or concepts in the form of	80%	80%	100%	100%

	mathematical symbols or images related to cubes an cuboids (pictorial)				
4	Students can correctly follow the steps or procedures (method implementation) used in the learning process	100%	100%	100%	100%
5	Students can apply the learned concepts to solve problems related to the volume of cubes and cuboids (abstract)	60%	60%	80%	80%

Conclusion: These results demonstrate a significant improvement and exceed the minimum completeness criterion of 75% (Arikunto et al., 2016).

This indicates an enhancement in students' conceptual mastery from Cycle 1 to Cycle 2 following the application of the scaffolding method with the CPA approach. This aligns with the definition of mastery as a higher level of ability beyond mere understanding, where students are expected to grasp the meaning, concepts, situations, and facts they have learned. In other words, students are not merely memorizing but truly mastering the concepts studied (Mulyono & Hapizah, 2018). According to the Complete Indonesian Dictionary (KBBI), mastery refers to the ability to explain and interpret something. Mastery is not merely knowing or recalling past experiences and restating what has been learned.

3. Reflection Sheets

The following table presents the results of the analysis of students' reflection sheets from Cycle 1 and Cycle 2.

Table 4 - Analysis Results of Students' Reflection Sheets in Cycles 1 and 2

No	**Indicators**	**Cycle 1**		**Cycle 2**	
		Percentage	**Absent who answered NO**	**Percentage**	**Absent who answered NO**
1	I can explain the concepts learned in my own words	91%	19, 23	100%	-
2	I can distinguish which	100%	-	100%	-

	objects are cubes or cuboids and which are not, and know how to calculate their volume (concrete)				
3	I can represent or write the concepts in the form of mathematical symbols or images related to cubes and cuboids (pictorial)	100%	-	100%	-
4	I can correctly follow the steps or procedures (method implementation) used in the Learning Process	95.6%	2	100%	-
5	I can apply the concepts learned to solve problems related to the volume of cubes and cuboids (abstract)	100%	-	100%	-

The results have shown a significant improvement and have exceeded the minimum mastery criterion of 75% (Arikunto et al., 2016).

4. Interview Sheets

The researcher used interview sheets as a supporting instrument to ensure that the steps of the method implementation were carried out accurately and to observe the development of students' conceptual mastery in Mathematics lessons.

Table 5 - Interview Results with Peer Reviewer in Cycle 1 and 2

No	**Questions**	**Cycle 1**	**Cycle 2**
1	Has the researcher implemented all the steps of the Scaffolding Method with the Concrete-Pictorial-Abstract (CPA) approach?Metode *Scaffolding* dengan pendekatan *Concrete-Pictorial-Abstract (CPA)*?	Yes, all steps have been implemented accordingly, as evidenced by the observation sheet of method implementation.	Yes, all steps have been implemented accordingly, as evidenced by the observation sheet of method implementation.
2	Were there any steps omitted	No, all steps were	No, all steps were

	during implementation?	implemented as planned, as shown by the observation sheet of method implementation.	implemented as planned, as shown by the observation sheet of method implementation.
3	Have all students mastered the taught material? (See conceptual mastery observation)	Some students still require reinforcement and improvement on indicators 3 and 5, as shown by the conceptual mastery observation sheet.	Two students still require reinforcement on indicator 5. The researcher can provide story problems with a higher level of difficulty than before, as evidenced by the conceptual mastery observation sheet.
4	Are there any suggestions for improvement for the next cycle?	Pay attention to indicators 3 and 5 for conceptual mastery and focus more on students who are still facing difficulties.	Everything is satisfactory. Continue to maintain the good progress and may it always be a blessing, Ms.

The interview results with the peer reviewer indicate that students have effectively followed the stages of the method and that all students have shown improvement in their conceptual mastery. It is noted, however, that two students require additional support to achieve optimal learning outcomes.

CONCLUSIONS AND SUGGESTIONS

1. Conclusions

Based on the results of the analysis and interpretation, the researcher concludes that the implementation of the scaffolding method with the Concrete–Pictorial–Abstract (CPA) approach can improve students' conceptual mastery, particularly in mathematics learning on the topic of the volume of cubes and cuboids. This improvement occurs through five stages: selection of material and prior knowledge introduction, determination and grouping based on the Zone of Proximal

Development (ZPD), CPA task design, monitoring and gradual reduction of support, and evaluation of achievement and learning independence.

2. Suggestions

A. Practical Suggestions

Schools as educational institutions and teachers as facilitators need to continuously innovate in improving the quality of education by implementing appropriate methods and approaches tailored to students' needs. The scaffolding method with the Concrete–Pictorial–Abstract (CPA) approach can be considered as one of the effective methods in mathematics instruction, particularly to enhance students' conceptual mastery on the topic of volume of cubes and cuboids.

B. Suggestions for Future Research

A detailed study of the stages of method implementation is necessary, including thorough preparation of teaching materials and learning media. Use engaging and challenging exercises for students, with progressively increasing levels of difficulty. Organize students into heterogeneous groups to encourage peer assistance during group activities. Motivation and support are essential to encourage students' enthusiasm in participating in activities and completing worksheets.

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