# Application of the STAD Learning Model Assisted by the Gamasia Module to Improve Students' Understanding of Concepts

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| Article Info | Abstract |
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| | The learning models and media have not been fully employed by teachers to optimize students' understanding of concepts. This research aimed to describe the application of the STAD model assisted by the Gamasia module to increase the conceptual understanding of fifth-grade elementary school students at the State Elementary School of Karang in natural science and Indonesian content. This classroom action research was carried out in the fifth grade with research subjects totaling 43 students. The research was conducted in two cycles, each consisting of planning, implementation, observation, and reflection. Data collection techniques employed included observation, documentation, and evaluation tests. Data analysis techniques then utilized quantitative and qualitative analyses. Based on data analysis, students' conceptual understanding in cycle I was 78 and increased in cycle II to 87. Then, the results of each indicator revealed that (1) restating a concept with a score of 82 increased to 84, (2) classifying objects according to certain traits with a score of 68 rose to 89, (3) giving examples and non-examples with a score of 79 grew to 85, (4) presenting concepts in various forms of mathematical representation with a score of 75 raised to 87, (5) developing requirements need or enough of a concept with a score of 87 boosted to 92, (6) using, utilizing, and selecting certain procedures with a score of 86 improved to 91, and (7) applying a concept with a score of 71 enlarged to 81. Thus, it can be concluded that the application of the model STAD assisted by the Gamasia module can improve fifth-grade students' understanding of concepts in natural science and Indonesian subjects. |
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## Info Artikel

## Abstrak

Penerapan model dan media pembelajaran belum dimanfaatkan oleh guru untuk mengoptimalkan pemahaman konsep siswa. Oleh karena itu, penelitian ini bertujuan untuk mendeskripsikan penerapan model STAD berbantuan modul Gamasia untuk meningkatkan pemahaman konsep siswa sekolah dasar kelas V SDN Karang muatan IPA dan Bahasa Indonesia. Penelitian tindakan ini dilakukan di kelas V dengan subjek penelitian 43 siswa. Penelitian dilakukan dalam dua siklus yang terdiri atas perencanaan, pelaksanaan, observasi, dan refleksi. Teknik pengumpulan data yang digunakan yaitu observasi, dokumentasi, tes evaluasi. Teknik analisis data menggunakan analisis kuantitatif dan kualitatif. Berdasarkan analisis data, pemahaman konsep siswa pada siklus I sebesar 78 dan meningkat pada siklus II menjadi 87, sedangkan hasil tiap indikator yaitu (1) menyatakan ulang sebuah konsep dengan skor 82 meningkat menjadi 84, (2) mengklasifikasikan objek-objek menurut sifat-sifat tertentu dengan skor 68 meningkat menjadi 89, (3) memberi contoh dan bukan contoh dengan skor 79 meningkat menjadi 85, (4) menyajikan konsep dalam berbagai bentuk representasi matematis dengan skor 75 meningkat menjadi 87, (5) syarat mengembangkan perlu atau cukup dari suatu konsep dengan skor 87 meningkat menjadi 92, (6) menggunakan, memanfaatkan dan memilih prosedur tertentu dengan skor 86 meningkat menjadi 91, (7) menerapkan konsep dengan skor 71 meningkat menjadi 81. Dengan demikian dapat disimpulkan bahwa penerapan model STAD berbantuan modul gamasia dapat meningkatkan pemahaman konsep siswa kelas V SDN Karang pada mata pelajaran IPA dan Bahasa Indonesia.

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**INTRODUCTION**

Education is an effort to change the mindset and potential that exists in society for the better. Education is vital to enhance the quality of human resources so they can compete in the era of globalization. Education in the 21st century is a primary and important need that every individual must meet, as it is a determining factor in a person's life and future (Susanti et al., 2022). Education is also one way of developing human resources to produce quality human resources (Siregar et al., 2022). Apart from that, education is a process of learning the knowledge, skills, and habits of a group of people, which are passed on from one generation to the next through teaching, training, and research (Halean et al., 2021).

The existence of education is inseparable from the curriculum since teachers are mediators between the curriculum and students, and efforts to change the curriculum must consider their role. Currently, the government has implemented the 2013 Curriculum with integrative thematic learning. Integrative thematic learning with a scientific approach is very closely related to natural science learning (Suratno et al., 2022).

Natural sciences are one of the main contents in the education curriculum in Indonesia, combined with other material contents, especially at the elementary school level. Natural sciences is related to finding out about nature systematically so that it is not only a collection of knowledge in the form of facts but a process of discovery in the form of understanding concepts is also applied (Rahmawati et al., 2023).

In this case, the mandatory content in elementary school education is not only natural science but also Indonesian. Indonesian language content is deemed crucial for students because they are expected to have good language skills. Language skills are required since students are social creatures who need to interact and communicate. Language skills that must be possessed in teaching Indonesian include listening, speaking, reading, and writing skills (Rahmah et al., 2020).

Through learning natural science and Indonesian, it is anticipated that students can gain experience in the form of the ability to understand natural science and Indonesian concepts. It is also hoped that the acquired abilities can later be used to communicate and uncover phenomena that occur in everyday life. Therefore, students need the ability to understand concepts. Understanding concepts has an essential role in the learning process and is the basis for achieving satisfactory learning outcomes. Cairin and Sund (in Utaminingsih & Pratiwi, 2019) stated that understanding is the ability to explain and interpret something, which means that someone who has understood something or has gained understanding will be able to explain or re-explain what happened. Arrahim & Fatimah (2018) further elucidated a concept as something in the heart that is attached to a person and is reflected in thoughts, ideas, or an understanding.

Based on observations made by researchers on January 14, 2023, in fifth grade at the State Elementary School of Karang, classroom learning has not yet led to the habit of group discussions. Because the teacher used the lecture method, learning was still teacher-centered. Students tended to be passive in the learning process. Students' curiosity is also inclined to be low regarding the material being taught, which could be seen from the lack of enthusiasm of students to ask questions, express opinions during the learning process, or answer questions from the teacher. In the learning process, the teacher also did not utilize media, so the learning atmosphere in the classroom was monotonous and boring.

The researchers also conducted interviews in fifth grade at the State Elementary School of Karang. The results of the interview revealed that the learning process at the State Elementary School of Karang has not used a learning model that could activate students, and the media used has not been utilized optimally. Teachers experienced difficulties in teaching because there were many students in one class, and many students tended to be passive in learning and less active in expressing opinions in class. Teachers never created study groups in learning so that there was less cooperation between students and learning inclined to be monotonous using lecture methods and giving assignments. Much material made students easily bored in

learning, so they did not understand the learning material.

The pre-cycle results that the researchers have carried out further uncovered that students' understanding of concepts remained low. It could be observed that of the 43 students, 19 students, or 41.86% of students, got a score above the minimum completeness criteria (KKM), and the remaining 24 students, or 58.14% of students, received a score below the KKM. Data on students' ability to understand concepts was shown with the lowest score of 47 and the highest score of 87, with a class average of 70.93, while the KKM score at the State Elementary School of Karang was 75.00. The results of interviews with students exposed that students liked natural science and Indonesian lessons, but they felt bored and unenthusiastic when learning in class. Moreover, from the results of observations, it was known that the presentation of material has not been supported using interesting learning media. Teachers still used the lecture method without using learning models.

This problem was caused by teachers' limitations in using learning models and learning media. Applying an interesting model and media in a lesson can also stimulate students to study harder. Departing from these problems, the researchers provided a solution, i.e., by implementing the Student Teams Achievement Division (STAD) learning model with the help of the Gamasia module.

By implementing the STAD learning model, it is expected that students can work together in groups to solve problems by utilizing their skills. Students can also collaborate in groups to overcome tasks given by the teacher by discussing with group members. This concept aligns with the views of Shoimin (in Tobia & Kristin, 2020), who stated that the STAD learning model is the most basic cooperative approach. This also agrees with Slavin (2010: 143), asserting that STAD is one of the simplest cooperative learning methods and is the best model to start with for teachers who are new to using a cooperative approach. According to Slavin's theory (in Isnaini & Kurniawan, 2020), the STAD model involves placing students in heterogeneous groups that include variations in gender, performance, and background. The STAD model includes five core elements: in-class presentations, group work, quizzes, individual evaluations, and group awards.

Aside from using the STAD learning model, increasing understanding of concepts in natural science and Indonesian language content can also be done by using learning media to attract attention and increase students' enthusiasm for learning. The learning media used by the researchers was module media, which predominantly contains pictures. Puspitasari (2019) believes that a module is a teaching material that is arranged mathematically in easily understood language by students according to their level of knowledge and age so that they can learn independently with minimal assistance or guidance from educators. Meanwhile, according to Utami & Rahman (2018), a picture is a certain shape that has striking colors to attract children's attention and interest. The pictures in the module are used to attract students' interest in learning so that they will be interested and enthusiastic in participating in learning.

The Gamasia media module used in this study is an abbreviation for the name *Gambar Materi Siklus Air* (water cycle material image) module. The Gamasia module mostly contains images. The images in the module relate to the water cycle material contained in natural science and Indonesian subjects. The Gamasia module itself functions as independent teaching material without depending on the teacher and as an evaluation tool to measure students' mastery of the material they have studied. Also, the Gamasia module can be used as a reference source or other reference so that students can easily understand the content of the material in the module and enhance their understanding of concepts. The researchers created the Gamasia module because they were motivated by several similar developmental research by Fauzi & Nugraha (2022) and Khoirudin (2022) which are equipped with pictures related to real examples so that students can more easily understand the learning material. Specifically, the Gamasia module has the characteristics of being able to attract students' attention, increase students' understanding of concepts, be used independently, study the material completely,

and be able to stand alone without relying on other teaching materials/media.

Furthermore, the application of the STAD learning model can increase students' understanding of concepts, which can be proven according to research conducted by Arum et al. (2020), with research results that students' understanding of concepts in cycle I obtained an average of 73.4, and in cycle II, it reached 80.6. The findings of the research concluded that the STAD-type cooperative learning model could improve the conceptual understanding of fifth-grade students at the State Elementary School of Pati Wetan 03. This was also confirmed by Septian et al. (2020), with research findings showing that the application of the STAD-type cooperative learning model could enhance students' understanding of concepts. Also, the application of learning module media could improve students' understanding, as verified by Lumbantobing (2023), with the results of using the Sigil module, which could be an alternative for training students' conceptual understanding because most of the indicators of conceptual understanding have improved well. For student responses to the use of the Sigil e-module, the results obtained were 73.94% of students happy using the Sigil e-module during the learning process. This indicates that the use of the Sigil module exerted a positive effect on increasing elementary school students' understanding.

Moreover, the implementation of learning modules has also been performed by several researchers and proven effective. Research by Julia et al. (2022) also found that developing modules like this can increase students' interest in learning, make it easier for students to process learning material, make learning fun, and improve student learning outcomes. It can be seen from the evaluation questions or quizzes given which is proven by 87% learning completion. Another research by Nopiani et al. (2021) employed a picture-based e-module that is effective in improving learning outcomes.

Research conducted by Danggus (2020) also evidenced that the application of the STAD learning model based on modules could increase student learning outcomes. It was shown that of the 34 students in cycle I, they achieved learning completeness of 27.27%,

increased to 51.43% in cycle II, and rose to 77.78% in cycle III. Hence, the application of the STAD learning model could improve student learning outcomes in chemical equilibrium material for class XI MIPA at SMA Negeri 2 Pontianak.

For this reason, this research aims to describe the increase in students' conceptual understanding using the STAD model assisted by the Gamasia module for fifth-grade students at the State Elementary School of Karang.

**METHODS**

This research was classroom action research (CAR), consisting of four stages: planning, action, observation, and reflection stages. This research was conducted in two cycles, with each cycle comprising two meetings. The research was conducted at the State Elementary School of Karang from January 2023 to June 2023. The subjects of this research were fifth-grade students at the State Elementary School of Karang for the 2022/2023 academic year, totaling 43 students; they consisted of 24 male students and 19 female students.

Data collection techniques used non-test and test techniques. The technical test with evaluation aimed to measure students' abilities in cognitive aspects or level of mastery of learning material, using bloom taxonomy indicators C2–C6. In comparison, the test carried out in this study employed a description test with a total of 14 questions. This technique was conducted at the end of each cycle to obtain two data: data from cycle I and cycle II. Meanwhile, non-test techniques included interviews, documentation, and observation. Data analysis was then carried out using quantitative and qualitative data analysis techniques.

**RESULTS AND DISCUSSION**
**Results**

Classroom action research using the STAD (Student Teams Achievement Division) learning model assisted by the Gamasia module aimed to increase elementary school student's understanding of concepts, which was carried out in two cycles.

Each cycle used the same STAD learning model steps, namely starting from a class presentation, where the teacher explained the learning material briefly, group work, where the teacher divided students into several groups, and each group received a Gamasia module to work on LKPD (student worksheet). Next, each group presented the results of their discussion. Then, an oral quiz was held, and if students could answer, they would be given a score for their group. Following that, evaluations were performed individually, and the last was a group award to the three groups who got the highest final scores.

However, there was a difference between cycle 1 and cycle 2; namely, in cycle 2, the teacher ensured that students understood the material explained by accompanying students during group discussions or working on LKPD.

At each cycle, the teacher measured students' conceptual understanding abilities by giving an evaluation test at the end of each cycle. The conceptual understanding evaluation questions given to students were 14 descriptive questions, where two questions represented an indicator of conceptual understanding. Based on the calculation results on the observation sheet for each cycle, understanding of the concept increased, as seen in Figure 1.
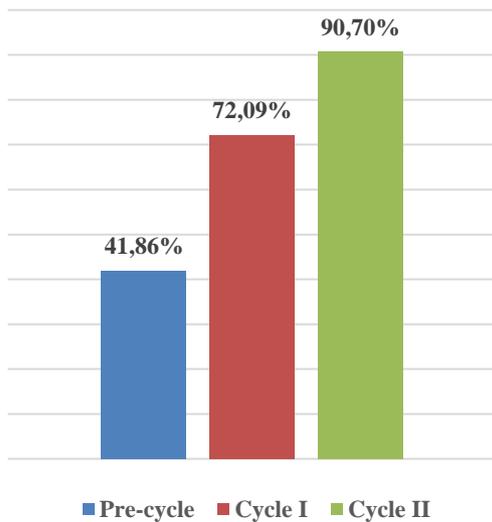
Figure 1 depicts the percentage of completeness based on the results obtained from understanding the concept using the STAD model assisted by the Gamasia module in cycle I to cycle II, which has achieved improvement. The completion resulting from the pre-cycle obtained a percentage of 41.86%, with the criteria of needing guidance. After being implemented with the STAD model assisted by the Gamasia module, it increased to a percentage of 72.09% with sufficient criteria, and in cycle II, it rose to a percentage of 90.70% with good criteria. Based on the increase in understanding of the concept, it can be concluded that the researchers have achieved the predetermined success indicators, namely 75%, increasing to 90.70%, with good criteria.

Afterward, the researchers analyzed students' conceptual understanding of each indicator. The results of cycle I and cycle II evaluation tests for each indicator of concept understanding can be observed in Figure 2.
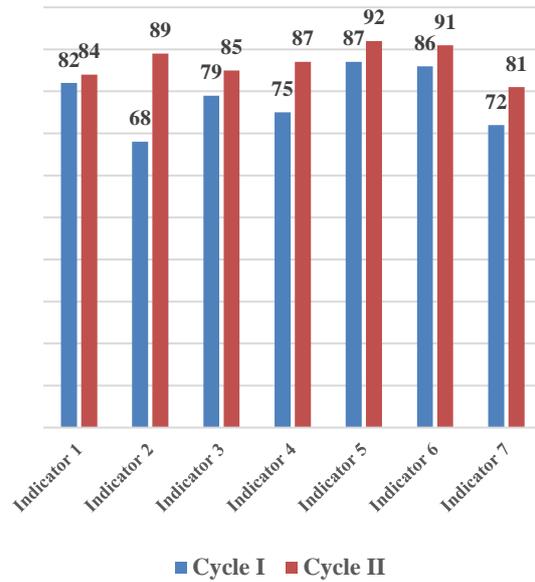
**Figure 2.** Evaluation Test Results of Understanding Concepts on Cycle I and Cycle II

Indicators of understanding the concept studied, according to Jihad (in Pebriana & Hidayah, 2019) include (1) restating a concept, (2) classifying objects according to certain traits (in accordance with the concept), (3) giving examples and non-examples, (4)

**Figure 1.** Increased completeness of concept understanding

presenting concepts in various forms of mathematical representation, (5) developing necessary or sufficient conditions for a concept, (6) using, utilizing, and selecting certain procedures, and (7) applying concepts or algorithms to problem-solving. Figure 2 illustrates an increase in understanding of the concept in each indicator.

**Discussion**

Figure 2 displays that the first indicator, restating a concept, in cycle I obtained an average of 82% with sufficient criteria and increased in cycle II to 84% with good criteria. In cycle I, students still had difficulty in restating their language. Then, there was an increase in cycle II by involving students directly in discovering a concept so that they could understand the meaning of the concept itself. This agrees with Suteja et al. (2022), who stated that a student will be able to explain the material he has studied again based on his understanding so that learning will be more meaningful.

The second indicator, classifying objects according to certain traits, obtained an average of 68% in cycle I with the criteria of needing guidance and increased in cycle II to 89% with good criteria. In cycle I, some students still had difficulty classifying objects based on their properties. Then, there was an increase in cycle II; the experiments they had done could increase their understanding of the concept. Students could understand the material in real conditions. This agrees with Mariya (2023) that the experimental method is suitable for natural science learning because this method can provide learning conditions that can develop students' critical thinking abilities and creativity.

In cycle I, the third indicator, namely giving examples and not examples, obtained an average of 79% with sufficient criteria and increased in cycle II to 85% with good criteria. In cycle I, students were not yet able to give examples. Then, there was an increase in cycle II through the teacher providing examples of daily activities so that students could understand them better. By having teachers provide real examples and non-examples in everyday life, it was easier for students to answer questions related to their experiences.

This corroborates with Juwantara (2019), who stated that children are mature enough to use logical thinking but only for currently existing physical objects.

The fourth indicator, i.e., presenting concepts in various forms of mathematical representation, in cycle I had an average of 75% with sufficient criteria and rose in cycle II to 87% with good criteria. In cycle I, there were still obstacles in presenting the concept in other forms. Thus, for cycle II to improve, students were given examples, and students who had difficulty were guided. This is in harmony with the opinion of Dharma et al. (2018), who found that the STAD learning model can motivate students, encourage and help each other, and master the skills presented by the teacher.

Then, the fifth indicator, developing necessary or sufficient conditions for a concept, in cycle I received an average of 87% with good criteria, and in cycle II, it was 92% with very good criteria. In this indicator, teachers continued to guide and motivate students so they could solve the problems given with various solutions. This aligns with Murnaka & Manalu (2018) and Hermawan et al. (2021) who stated that students must know a concept, some of which need to be known first, namely the conditions, both necessary and sufficient conditions.

The sixth indicator, namely using, utilizing, and selecting certain procedures, obtained an average of 86% in cycle I with good criteria and improved in cycle II to 91% with good criteria. In cycle II, students could not conclude. However, for better results, teachers guided students who had difficulty and motivated them to conclude. This supports Arumsari & Adirakasiwi (2023) stating that if students understand the concept, they will be able to solve problems by utilizing certain procedures and operations.

The seventh indicator, i.e., applying concepts, got an average of 71% in cycle I with the criteria of needing guidance and rose in cycle II, obtaining an average of 81% with sufficient criteria. In cycle I, students still had difficulty applying concepts. Hence, the teacher guided students to make temporary guesses that led to concepts. This is consistent with Radiusman (2020) that when students

understand the concept, they will easily solve problems in learning.

This research indicates that a similar learning model, namely the STAD learning model, with a cooperative approach, is still effective in increasing students' understanding of concepts. Further research can be looked at in more depth in the research of Janah et al. (2023), which showed that the STAD model assisted by diorama media can increase students' understanding of concepts.

## CONCLUSION

Based on the results of classroom action research carried out in the fifth grade at the State Elementary School of Karang, it can be concluded that the application of the STAD model assisted by the Gamasia module could improve students' understanding of concepts. Students' understanding of concepts increased by 9. In cycle I, the average was 78 with sufficient criteria and rose in cycle II to 87 with good criteria. In other words, the STAD learning model assisted by the Gamasia module can improve students' understanding of concepts. This model is recommended as a practical alternative for teachers to improve students' conceptual understanding. Also, teachers can use the Gamasia media module to create active and innovative learning in the learning process so that learning activities can run effectively.

## ACKNOWLEDGMENT

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