



## **Increasing Interest and Learning Outcomes of Fifth-Grade Students in Science Subjects Using Quizizz Media with a Scientific Approach at SDN 03 Bengkayang**

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(Received: August 06, 2024; Reviewed: October 10, 2024; Accepted: October 30, 2024;  
Available online: October 31, 2024; Published: October 31, 2024)



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### **ARTIKEL INFO**

#### **Keywords:**

*Increasing Interest;  
Learning outcomes;  
Quizizz Media;  
Scientific Approach*

**Abstract.** *This research aims to increase students' interest and learning outcomes in science subjects. Using Quizizz media with a scientific approach. The method applied in this research is Classroom Action Research. With 30 students consisting of 15 male students and 15 female students. This research was carried out as an effort to overcome various problems experienced in the classroom. This method is implemented in four stages, namely planning implementation, and observing and reflecting on actions. These four stages are cycles that occur repeatedly and are carried out in the same stages and are focused on using the Quizizz media with a scientific approach. Based on the results of research that has been carried out on the science learning process, it can be concluded that there is an increase in student interest and learning outcomes in science subjects using Quizizz media with a scientific approach. In the first cycle, the N-Gain calculation was carried out on students' interest in learning, obtaining an average score of 85.6 with a score of 57.2, which was in the quite effective category, then the students' learning results were 27 out of 30 students obtained a completeness score of  $\geq 70$  and the results N-Gain calculations obtained an average value of 82 with a score of 56.2 in the quite effective category. In cycle II, the N-Gain calculation of interest in learning averaged 93 and reached a score of 80.9% in the effective category. The results of the N-Gain calculation resulted in an average learning score of 91.36 and a score of 81.39%.*

## INTRODUCTION

Science education is a subject closely related to concepts (Lubis, 2023). Concepts are abstract human thoughts that summarize numerous experiences, meaning that concepts arise from a variety of experiences encountered in various events or phenomena in everyday life. To enhance students' interest and learning outcomes in accessing and understanding the information presented by educators, relevant media and approaches are essential to avoid mere verbal comprehension. Post COVID 19, educators are required to effectively apply various technology-based tools and resources to engage students in learning.

Learning that incorporates technology-based media includes all tools that can be applied to deliver messages or information in the teaching and learning process, helping to focus attention and improve students' interest and learning outcomes, (Saleh, 2023; Purnasari, 2019). To achieve learning objectives, educators are encouraged to enhance creativity in designing and managing instructional media, especially those involving technology-based tools. Additionally, an appropriate learning approach at the elementary level can contribute to students' understanding, provide engaging and reliable data, and ultimately improve learning outcomes.

In the Indonesian Dictionary (KBBI), "interest" is defined as a strong inclination or enthusiasm toward something, (Nurulhidayah, 2024). Learning interest is a psychological aspect that influences an individual's attitude, (Rina Dwi, 2022). The presence of learning interest in students will naturally impact the improvement of learning outcomes. Learning outcomes refer to achievements obtained after undergoing various learning processes. Both of these aspects can be optimized with the contribution of relevant media and learning approaches.

Media encompasses various tools that can be used to convey information, (Wulandari, 2023). The use of media increases the likelihood of clarity in messages exchanged between sender and receiver. In line with this, Wibowo (2023) asserts that media is considered essential in information activities, particularly in the learning process.

The learning approach is one of the most critical aspects of classroom management for an educator. A professional educator will use an approach that aligns with the students' context. There are many approaches educators can apply, one of which is the Scientific Approach. As an instructional approach, it is grounded in the scientific method, involving activities such as data collection, information processing, analysis, formulation, and hypothesis testing, (Suparsawan, 2020; Sadewo et al., 2020; Saputro et al., 2024).

There are several challenges encountered in teaching and learning activities using technology-based media, (Widya Sari, 2020; Purnasari, 2020). These include uneven distribution of resources and infrastructure across regions (Baalwi, 2023), as well as limited competencies among educators and students in operating technology-based instructional media, (Magdalena, 2021; Sadewo, 2021; Gea, 2023). Additionally, inconsistent internet access across areas makes it difficult for educators to implement technology-based learning activities, (Amelia, 2021; Purnasari et al., 2024). However, despite these challenges, many changes were experienced during the COVID-19 pandemic.

During the COVID-19 pandemic, learning was conducted online, prompting educators and students to operate technology-based media to support the learning process, (Syaiful Ahmadi, 2022). This shift led to significant advancements, enabling educators and students to effectively use various technology-based learning media. Although learning has now returned to face-to-face formats, technology-based media such as Google Classroom, Google Meet, Zoom, Wordwall, and Quizizz continue to be used to support learning activities in elementary schools. However, not all elementary schools have yet implemented these tools.

Quizizz is a web tool used to design interactive quiz games in classroom teaching and learning, (Purnasari, 2020; Seca, 2024). The interactive quizzes created in Quizizz offer four answer choices, including both correct and incorrect options, and allow for background customization for each question.

Based on the explanation above regarding the phenomenon of educational advancements, the researcher aims to increase the interest and learning outcomes of fifth-grade students in science subjects by using Quizizz media with a Scientific Approach at SDN 3 Bengkayang. This school is an educational institution located in the center of Bengkayang Regency and has adequate facilities and infrastructure.

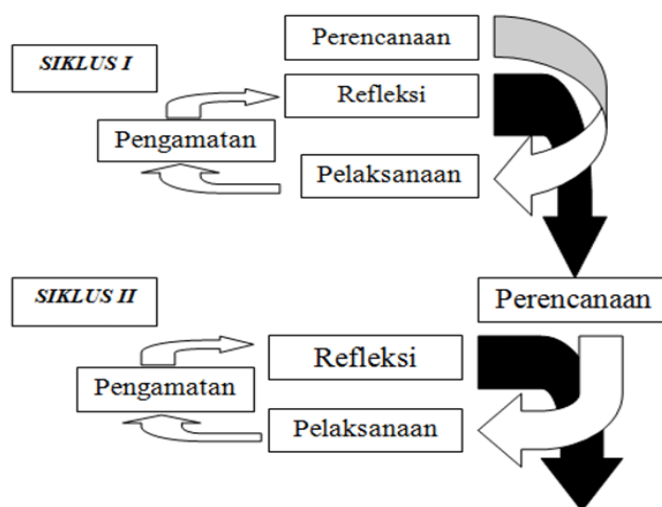
The reason the researcher chose to conduct the study at SDN 03 Bengkayang is that the Quizizz application is not yet widely recognized, particularly regarding its implementation process. Initial findings from the researcher revealed that students at SDN 03 Bengkayang already possess some level of technological competency, as evidenced by the presence of WhatsApp groups for each class. However, their understanding of technology is limited to merely answering questions and searching for answers on Google, completing manual assignments at home and sending photos via WhatsApp groups, and using Google Forms for summative assessments.

Based on the results of observations and interviews with fifth-grade teachers, problems were identified in science subjects, specifically a lack of interest that negatively affects students' learning outcomes. In the teaching and learning process (KBM) for science, educators tend to use lecture methods along with conventional media, leading students to spend most of their time taking notes. This approach has adversely affected students' interest and learning outcomes, resulting in a decline in their engagement during KBM. Additionally, in the Mid-Semester Summative Assessment (STS), out of 30 students in the fifth grade, 15 students met the Minimum Competency Criteria (KKM), while 15 students did not meet the KKM standards. In the Mid-Semester Summative Assessment (SAS), 25 out of 30 students scored below the KKM. These statements indicate a decline in both students' interest and learning outcomes.

Given these issues, there is a clear need for media and approaches that can encourage and enhance students' interest and learning outcomes, particularly in science subjects. Based on the background of the problems identified, the author is interested in conducting classroom action research (CAR) titled "Increasing Interest and Learning Outcomes of Fifth-Grade Students in Science Subjects Using Quizizz Media with a Scientific Approach at SDN 03 Bengkayang" for the second semester of the 2023/2024 academic year.

## **METHOD**

The type of research used is Classroom Action Research (CAR). Classroom Action Research (CAR) is a deliberate scientific process aimed at improving educators' professionalism, (Azizah, 2021). According to Machali (2022), Classroom Action Research (CAR) is a structured intervention designed to address issues occurring in the classroom. From the above statements, it can be concluded that CAR is a type of research that can be conducted by professional educators as a wise approach to addressing classroom challenges. In this study, the research will be conducted collaboratively, meaning that the research process will involve collaboration with the fifth-grade homeroom teacher at SDN 3 Bengkayang for the second semester of the 2023/2024 academic year. The researcher and the teacher will discuss the existing issues and determine the progress of actions. Data collection will begin with a pretest, and the research will also be participatory, meaning the researcher will be assisted by peers in the implementation process of the study.



Picture 1. Classroom Action Research

In the diagram above, the research process to be conducted is outlined, beginning with Cycle I, which includes planning activities such as preparing materials, media, and teaching methods. This is followed by the implementation of learning that applies a scientific approach to stimulate students. At the end of the learning session, a reflection is conducted to assess the progress and success level of using Quizizz media. This reflection aims to inform the planning for the next cycle, Cycle II. In Cycle II, the design will be based on the results of the previous cycle's reflection while maintaining the same structure, with the objective of further improving learning outcomes.

## RESULTS AND DISCUSSION

### Research Results

In the discussion section of this research, a detailed explanation will be provided, covering everything from students' learning interest to their learning outcomes in the fifth grade at SDN 03 Bengkayang. The following is a breakdown of this discussion:

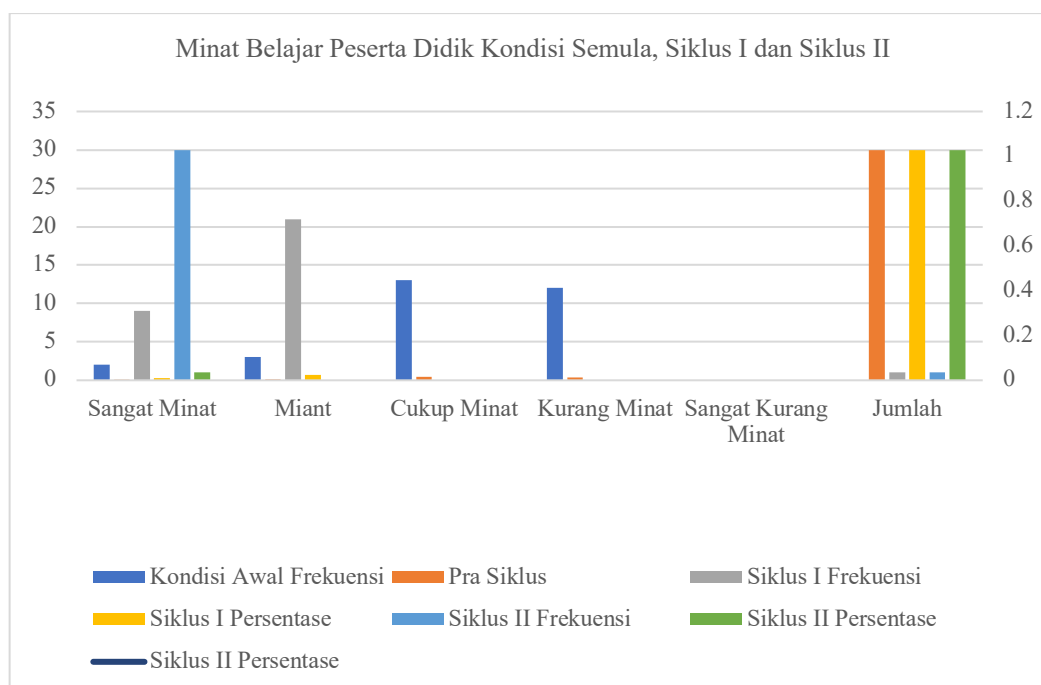
### Learning Interest

In the learning process, there is a palpable enthusiasm and interest from the students. This indicates that the students are engaged in the learning activities using Quizizz media with a scientific approach. This can be seen in the following table:

**Table1. Comparison of Learning Interest in Pre-Cycle, Cycle I, and Cycle II**

NO	Category	Pre-Cycle		Cycle I		Cycle II	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1.	Very Interested	2	6,6%	9	30%	30	100%
2.	Interested	3	10%	21	70%	0	0%
3.	Quite Interested	13	43,3%	0	0%	0	0%
4.	Less Interested	12	40%	0	0%	0	0%
5.	Very Less Interested	0	0%	0	0%	0	0%
	Jumlah	30	100%	30	100%	30	100%

Based on the table 1 above, the interest category only had 3 frequencies at 10% in the pre-cycle. In Cycle I, the highest frequency was observed in the interest category, while in Cycle II, the highest frequency shifted to the very interested category. This indicates that learning through Quizizz media with a scientific approach can enhance students' learning interest. A more detailed recap of the increase in learning interest from the pre-cycle, Cycle I, and Cycle II can be seen in the following diagram:



**Figure 2. Learning Interest of Students in Initial Conditions, Cycle I, and Cycle II**

The following presents the results of the N-Gain calculations for student learning outcomes from Cycle I and Cycle II.

**Table 2. Recapitulation of N-Gain Calculation for Students' Learning Interest**

N-Gain Calculation for Students' Learning Interest Scores in Cycle I							
Ket	Post Test	Pretest	Post-Pre	Ideal Score (100-Pre)	N Gain Score	N Gain Score (%)	Category
Average	85,3666	60,166	25,2	39,8333333	0,5729889	57,2988945	Quite Effective
N-Gain Calculation for Students' Learning Interest Scores in Cycle II							
Ket	Post Test	Pretest	Post-Pre	Skor Ideal (100-Pre)	N Gain Score	N Gain Score (%)	Category
Average	93	60,16	32,83	39,83	0,809	80,9	Effective

The data above is a recap of the results from Cycle I and Cycle II. In Cycle I, the calculations were performed using the N-Gain score formula, which is:

$$N-GAIN = \frac{Skor\ Posttest - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretest}$$

Continuing with the calculation of learning interest scores, we start with the overall average posttest score of 85.36667, from which we subtract the pretest score of 60.1667, resulting in a difference of 25.2. Next, the ideal score of 100 minus the average pretest score gives us a value of 39.8333333.

In the second cycle, the calculation of the learning interest score begins with the overall average posttest score of 93. The posttest score is then subtracted by the pretest score of 60.16, followed by the calculation of the ideal score, which is 100 minus the average pretest score of 32.83, resulting in 0.809. From this N-Gain score, we then calculate the percentage: 0.809 multiplied by 100%, yielding a score of 80.9%, which falls into the effective category.

### Learning Outcomes

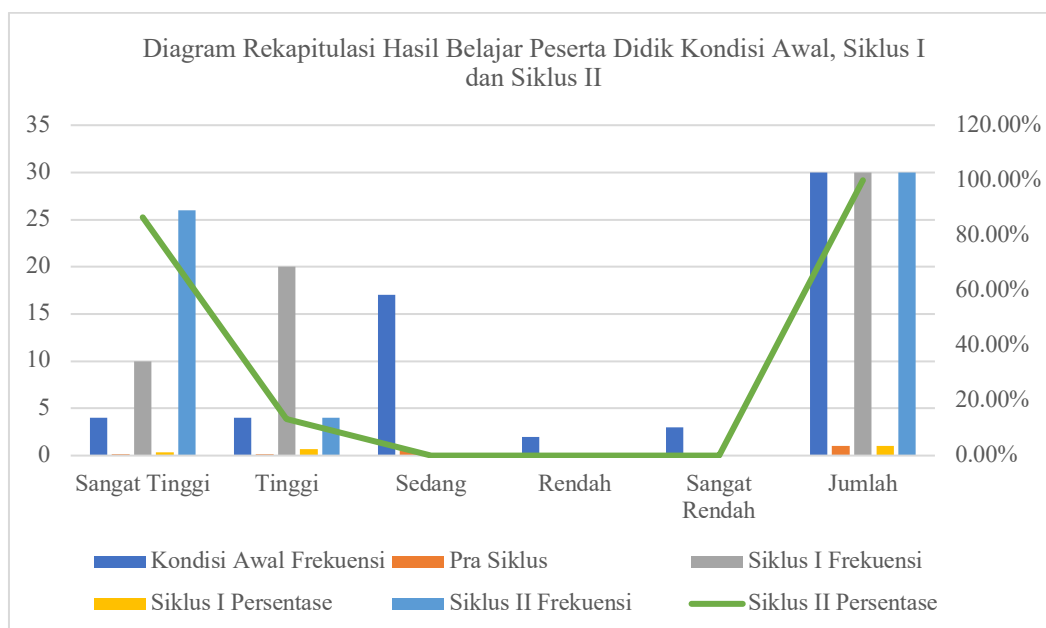
The learning outcomes of students based on the Final Semester Summative Assessment (SAS) in the Pre-Cycle, post-test Cycle I, and Cycle II consistently show significant improvement. This can be seen in the table below:

**Table 3. Recapitulation of Completeness Scores in Pre-Cycle, Cycle I, and Cycle II**

NO	Category	Pre-Cycle		Cycle I		Cycle II	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1.	Very High	4	13,3%	10	33,3%	26	86,6%
2.	High	4	13,3%	20	66,6%	4	13,3%
3.	Medium	17	56,6%	0	0%	0	0%
4.	Low	2	6,6%	0	0%	0	0%
5.	Very Low	3	10%	0	0%	0	0%
	Sum	30	100%	30	100%	30	100%

From the table 3, summarizing the grouping of student learning outcomes, it can be observed that there has been an improvement in science learning outcomes. Initially, before the intervention, only 5 students achieved the Minimum Completeness Criteria (KKM) with a score of  $\geq 70$ . In Cycle I, the number of students who met the criteria increased to 27, and in Cycle II, all 30 students achieved the KKM. This demonstrates that learning using the Quizizz media with a Scientific approach can enhance students' learning outcomes. In the classification of students who did not meet the criteria, there were initially 25 students. However, by Cycle I, the number of students who did not meet the criteria decreased to 3, and after Cycle II, all students achieved the KKM. A more detailed recap of the learning outcomes from the Pre-Cycle and in Cycles I and II using Quizizz media is illustrated in the following diagram:





**Figure 3. Recapitulation of Student Learning Outcomes: Pre-Cycle, Cycle I, and Cycle II**

**Table 4. Student Learning Outcomes Completion in Pre-Cycle, Cycle I, and Cycle II**

No	Criteria	Pre-Cycle		Cycle I		Cycle II	
		Frequency	%	Frequency	%	Frequency	%
1	Complete	5	17	27	90	30	100
2	Incomplete	25	83,3	3	10	0	0
	Sum	30	100	30	100	30	100

Here is the presentation of the N-Gain calculation results for student learning outcomes from Cycle I and Cycle II.

**Table 5. N-Gain Calculation Recap for Student Learning Outcomes in Cycle I and Cycle II**

Calculation of N-Gain Score for Student Learning Outcomes in Cycle I							
Ket	Post Test	Pretest	Post-Pre	Ideal Score (100-Pre)	N Gain Score	N Gain Score (%)	Category
Average	82	58,16	23,83	41,83	0,5625	56,25	Quite Effective
Perhitungan N-Gain Skor Hasil Belajar Peserta Didik Siklus II							
Ket	Post Test	Pretest	Post-Pre	Ideal Score (100-Pre)	N Gain Score	N Gain Score (%)	Category
Average	91,36	58,36	33	41,63	0,813	81,39	Effective

## Discussion

In Cycle I, the calculation of N-Gain for learning outcomes begins with the overall score, or the average posttest score of 82, minus the pretest score of 58.1, resulting in a value of 23.83. Next, the ideal score, calculated as 100 minus the average pretest score of 41.83, yields a value of 0.5625. From this N-Gain score, we then compute the percentage by multiplying 0.5626 by 100%, resulting in a figure of 56.26%, which falls into the category of moderately effective. In Cycle II, the calculation of N-Gain for learning outcomes starts with the overall score, or the average posttest score of 91.36, minus the pretest score of 58.36, resulting in a value of 33. Next, the ideal score, calculated as 100 minus the average pretest score of 41.63, yields a value of 0.813. From this N-Gain score, we then compute the percentage by multiplying 0.813 by 100%, resulting in a figure of 81.39%, which falls into the category of effective.

The results of this study are relevant to the analysis conducted by Ariani & Suharso (2022) titled "Improving Motivation and Learning Outcomes in Science through Quizizz Media." The findings can be summarized as follows: 1) The Quizizz media effectively enhances the motivation of fifth-grade students at SD Negeri 3 Palar, Trucuk District, Klaten Regency, for the academic year 2021/2022; 2) With the assistance of quiz media, the learning outcomes of fifth-grade students in science at SD Negeri 3 Palar, Trucuk District, Klaten Regency, for the academic year 2021/2022, improved significantly.

The growth in student motivation in the science subject has reached a performance standard of 80%, as reflected in the percentage increase from the pre-cycle (40%), Cycle I (60%), and Cycle II (78%). Meanwhile, the learning outcomes in science achieved a success indicator of 80%, with the level of completeness in the pre-cycle at 44%, Cycle I at 72%, and Cycle II at 94%. This demonstrates that the hypothesis stating, "Motivation and learning outcomes are greater in Science Learning through Quizizz Media for Fifth-Grade Students at SD Negeri 3 Palar in the 2021/2022 academic year" is indeed confirmed.

Based on the research results by Wulandari (2023), it is concluded that the Quizizz application can enhance both the learning outcomes and interest of students in the IPAS subject in grade IV at SDN Katikan 2. The average scores were as follows: the pre-cycle average score was 50, the average for Cycle I was 60, and the average score for Cycle II was 82. Furthermore, in Cycle I, the percentage of students achieving completeness in learning was 29%, whereas in Cycle II, the percentage jumped to 86%. In terms of student interest, during Cycle I, there were 6 students with a percentage of 86% and 1 student with a percentage of 14%, indicating that the average interest in learning was still low. In Cycle II, 2 students (28%) fell into the moderate interest category, while 4 students (68%) were

classified as having high interest in learning. The conclusion of the research by Siti Faedah (2023) titled "The Implementation of a Scientific Approach and Learning Community Model to Improve Science Learning Outcomes" indicates that in Cycle I, the average score was 77.03, with 66.62% of students achieving mastery. In Cycle II, the average score improved to 82.97, with 90.62% of students achieving mastery.

Based on the description and findings of the research conducted in class V at SDN 03 Bengkayang during the 2023/2024 academic year, it can be concluded that there was an increase in both student interest and learning outcomes in the learning activities of Cycle I and Cycle II using Quizizz media with a Scientific Approach. This is evident from the mastery of student learning outcomes in the Science subject from Cycle I to Cycle II. The use of Quizizz media with a Scientific Approach has shown a notable effect on students' affective domain; in Cycle I, students began to show engagement in the learning process, although they were not yet accustomed to using Quizizz. Therefore, improvements were made in Cycle II. By Cycle II, student engagement in both learning and the use of Quizizz had significantly increased compared to the previous cycle. This can be seen in the Scientific Approach process: during the observation phase, students focused on the material presentation. In the questioning phase, students actively participated in discussions, particularly in asking and answering questions about the learning material. During the information gathering phase, students were proactive in following the teacher's instructions to summarize the material. The most prominent aspect was during the associating phase, where students displayed enthusiasm while participating in the Quizizz game. In the final phase, which involved communicating, students who scored the highest were given the opportunity to share tips on how to achieve such scores, and they were very enthusiastic about it. From the above explanation regarding student interest and learning outcomes, it can be stated that the use of Quizizz media with a Scientific Approach has a significantly positive impact on enhancing both student interest and learning outcomes.

Based on the explanation provided above, we can identify both theoretical and practical implications, Theoretical Implications: The use of Quizizz media in conjunction with a Scientific Approach can be implemented and further developed within the educational process to enhance student interest and learning outcomes in Science subjects, Practical Implications: The implementation of learning using Quizizz media with a Scientific Approach can serve as a method for schools to improve student interest and learning outcomes in Science. Furthermore, this approach can facilitate educators in exploring innovative teaching strategies in the learning process. By utilizing Quizizz media

with a Scientific Approach, students become more active participants in the learning process.

## CONCLUSION

Based on the research conducted by the author titled “Improving Interest and Learning Outcomes of Fifth Grade Students in Science Subjects Using Quizizz Media with a Scientific Approach at SDN 03 Bengkayang,” the following conclusions can be drawn: There was an increase in student interest after participating in the learning process using Quizizz media with a Scientific Approach. In Cycle I, the majority of students fell into the interest category, while in Cycle II, the majority were classified as very interested. Furthermore, the percentage of interest based on N-Gain calculations in Cycle I reached 57.2%, categorized as effective, and in Cycle II, it increased to 80.9%, also categorized as effective. Additionally, there was an increase in student learning outcomes following the implementation of the learning process using Quizizz media with a Scientific Approach. In Cycle I, student learning outcomes showed a percentage increase in completeness, with 25 out of 30 students not achieving the minimum passing score (KKM) of  $\geq 70$  during the pre-cycle phase. This significantly improved in Cycle I, where 27 out of 30 students met the KKM criteria. In Cycle II, all students achieved a completion rate of 100%. The N-Gain calculation for student learning outcomes in Cycle I reached 56.2%, categorized as quite effective, while in Cycle II, it improved to 81.3%, categorized as effective.

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