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The Use of Oodlu to Improve Critical Thinking and Collaboration Skills of Fifth Graders at State of Elementary School Pasirhuni

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ABSTRACT

21st-century advances have influenced the education sector, so learning not only makes students excel but needs skills in dealing with the progress, the 4C skills. This research focuses on critical thinking and collaboration, and Indonesian is still considered one of the most important subjects. But the effort was still lacking. Students become passive, mingle less, and are not quite ready for progress. It is necessary to make efforts to use appropriate technology-based methods and media, using game-based learning with Oodlu. This research aims to know the use and the results of Oodlu's use in improving students' critical thinking and collaboration skills in Indonesian language learning. Using the CAR method of Kemmis and Mc. Taggart, test and observation, 30 students of V State of Elementary School (SD Negeri) Pasirhuni as the subjects. The results showed that students' skills improve in each cycle. Cycle I critical thinking of group 1 and group 3 40%, group 2 80%, group 1 collaboration was lacking, group 2 and group 3 were good. Cycle II critical thinking group 1 60%, group 2 80%, group 3 40%, collaboration group 1 was good, group 2 and group 3 were very good. Cycle III critical thinking of Group 1 and Group 3 80%, group 2 90%, the collaboration of Group 1 to Group 3 was very good. Thus the use of Oodlu in game-based learning can improve students' critical thinking and collaboration skills. This research implied that the Oodlu with GBL could be solutive to improving other relevant essential skills.

Keywords: *Improving Critical Thinking, Collaboration Skills, Oodlu*

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INTRODUCTION

In the 21st century, learning activities aimed at making outstanding students are deemed insufficient because of the need for skills that can assist students in dealing with the progress that occurs. Greenstein (in Sugiyarti et al., 2018) suggests that students must master science, and metacognitive skills, be able to think critically and creatively and be able to communicate or collaborate effectively so that learning activities must be carried out by applying 21st-century skills, namely skills 4C which consists of critical thinking, communication, collaboration, and creative thinking. Rosnaeni (2021) explained that in 21st-century learning, technology-based learning is required to balance the demands of what is happening with goals so that students will

be familiar with the progress that occurs in the 21st-century life sector which is associated with the era of the industrial revolution 4.0 which has an impact on education. Innovative learning is a necessity to deliver to boost essential competencies at all educational levels (Indriani et al., 2021; Alismail, 2023).

Critical thinking skills according to Sugiyarti et al. (2018) are processes that use the knowledge and skills possessed to solve a problem that occurs, by making decisions, analyzing, and logically reviewing a problem based on existing data and information so that produce the desired conclusion, but the reasons expressed can be accepted by reason or logic (R. T. N. Nabila & Kamaludin, 2023). Meanwhile, according to Eliana Crespo (in Zakiah & Lestari, 2019), critical thinking is a general term given to various cognitive and intellectual skills. Critical thinking skills learned in the classroom definitely have an impact on future learning in the workplace. Once learned, these skills imprint deeply and critically on life issues (Murawski, 2014s; Aliah et al., 2023; Fauzi et al., 2023)

Collaboration skills are also one of the skills that must be achieved. As explained by Conklin (in Widodo & Wardani, 2020) collaboration is an activity carried out jointly by two or more people to achieve the same goal, and all parties have their respective responsibilities and roles that are clearly described. One effort that can be made to improve students' collaboration skills is to divide students into groups to solve a problem in groups (Setyaningrum et al., 2018). At the elementary school level, instilling critical thinking and collaboration is essential to help students to make sense or that is based on logic focusing on determining what to believe and to do (Fuad et al., 2017; Andersen & Rustad, 2022). In addition, technological developments in the 21st century also affect the education sector, namely the development of methods and media used in learning. However, in the ongoing progress, the Indonesian language is still one of the most important subjects to learn. As the purpose of Indonesian language subjects according to Susanto (2013) is so that students can enjoy and utilize literary works to develop their personalities, broaden their horizons of life, and improve their knowledge and language skills. And according to (Amelia et al., 2023; Rohman et al., 2023; Syufi et al., 2023) states that in language learning two components must be studied, namely the problem of meaning and form, and these two components must be present.

However, based on the results of the researchers' observations while participating in Kampus Mengajar Angkatan 1 Tahun 2021 at SDN Pasirhuni, it turns out that the school has not carried out learning activities by applying 4C skills to students, namely in critical thinking skills and collaboration supported by using technology media in Indonesian language learning. The problem that occurs is the lack of effort made in improving students' critical thinking skills and collaboration in learning activities, such as still using the lecture method when carrying out learning activities and not yet applying the HOTS principle in making learning designs, which results in students lacking in honing their brain skills to think critically and students unaccustomed to collaborating. In addition, the lack of facilities that support technology-based media and Indonesian language learning is still under-appreciation.

As according to Keyness (in Zakiah & Lestari, 2019) suggests that the role of critical thinking skills is to assess and identify information obtained to see and justify any claims made based on information that has been evaluated it. Meanwhile, collaboration skills play a role in helping in social life, adjusting to other people, obeying agreed rules, and working together in groups. So it can be seen that these two skills play an important role for students in continuing to the next level of education

(Anggraeni et al., 2023). Reflecting on the case, the role of the teacher to provide and promote the long life skill should be accounted for since in basic education the learning skill is influenced by dominantly teachers' learning decisions (Chaiyasut et al., 2014; Saragih, 2023). Critical thinking skills as student skills in how students analyze, think, reason, and solve a problem. Meanwhile, collaboration skills are students' skills in cooperating compactly with others to achieve common goals. So that if students do not have the 4C skills, then students will be left behind in facing the progress that is happening in the 21st century, and the 4C skills that students must have are not achieved (Shaheen, 2016). So it is urgent to instill and improve critical thinking and collaboration skills in elementary school.

Thus, the researcher intends to offer ideas that are considered capable of helping improve students' critical thinking and collaboration skills in learning Indonesian, using technology-based learning methods and media, namely game-based learning methods and Oodlu learning media. As explained by Prensky (in Maulidina et al., 2018) game-based learning can create a learning environment that is motivating and fun and enhances student creativity while Oodlu can be used as a supporting medium. Also game based learning according to Wibawa, Mumtaziah, Sholihah, and Hikmawan is a game-based learning method so that learning activities using game-based learning methods must be able to adapt to teaching materials and be assisted by technology that displays some of the achievements achieved by students (Wibawa et al., 2021). Those two gaps and potential drive into urgency to investigate an effort to intervene the critical thinking and collaboration skill of elementary school students using Oodlu. The lack of critical thinking and collaboration in elementary school is important to be intervened since the impact toward other learning and also become the recent skill to face disruptive era of information (Norris et al., 2023).

Several relevant studies have been carried out before this research such as the research conducted by Arif, Faiz & Septiani (2022) entitled Using Quizizz Media as a Tool for Developing Students' Critical Thinking; Junita & Wardani (2020) entitled The Effectiveness of STAD and CIRC Learning Models on Improving Collaboration Skills for Class V Elementary School Students of Gugus Joko Tingkir on Thematic Subjects; Sunbanu, Mawardi & Wardani (2019) entitled Improving Student Collaboration Skills Using the Two Stay Two Stray Cooperative Learning Model in Elementary Schools; and Suci, Firman & Neviyarni (2019) entitled Improving Students' Critical Thinking Skills Through a Realistic Approach in Elementary Schools.

The similarities between previous research and what researchers will examine are research variables, namely critical thinking skills and using fifth-grade students as research subjects. No research simultaneously addressed critical thinking and collaboration skills. Most of the previous research looked at these two skills separately. This research looks at the integration of these two skills with the game-based learning treatment because it sees the allusions and opportunities for improving both with one game-based learning activity and technology (Robberts & Van Ryneveld, 2022). This research tries to answer the practical gap and address the real problem of those two essential skills that need to be improved that happened in primary school.

The game-based learning method and Oodlu were chosen as alternative learning media because they were considered relevant to the results of previous research. The game-based learning method is an interactive learning method in which its implementation uses game applications or games as media and is specially designed to make learning activities easier, and interactive (Seftiana & Delia, 2021), can train cooperation and new thinking, more effective and efficient as well as fun. Whereas

Oodlu, specifically, is the intended application and website to make test questions (Sari, 2022) interspersed with games when working on them (Tasya et al., 2023).

Oodlu has features that can be used by both teachers and students as well as current applications by parents so that it is comprehensive and closes the lack of game-based learning which requires flexibility and supervision without enhanced technological content knowledge (Meileni et al., 2021). The Oodlu feature facilitates reward and punishment activities in addition to a variety of game features (Giana & Adnan, 2022). In addition, on the Oodlu page, group management can be made for interaction during the gaming process. On the final side, Oodlu's analytical features allow student performance and activities to be recorded in full. These features intersect with collaboration skills and critical thinking. By using Oodlu as an alternative learning media, it is expected to be able to attract students' interest so that it increases students' critical thinking skills and collaboration are achieved. Based on these problems, researchers are interested in conducting a research entitled "The Use of Oodlu To Improve Critical Thinking and Collaboration Skills of Fifth Graders at Sekolah Dasar Negeri Pasirhuni in Indonesian Language Learning".

METHOD

The research design used in this research is Classroom Action Research (CAR). Classroom action research is carried out in the classroom during learning activities to improve or improve the quality of learning and focus on classes or learning activities that take place in the classroom. The classroom action research design model according to Kemmis and McTaggart was used in this study. This research was carried out in several stages, namely pre-cycle and cycle, where the cycle in this study was carried out three times. The pre-cycle stage is carried out as an initial step to find out the initial conditions of what will be studied, while for the cycle stage, there are activities that are seen as a spiral cycle starting from planning, implementing actions, observing, and reflecting followed by the next cycle until the end of the cycle achieved the expected results or objectives, namely in this study to determine the use of Oodlu in improving critical thinking and collaboration skills of elementary school students in Indonesian language learning and to find out the results of using Oodlu in improving critical thinking and collaboration skills of elementary students in Indonesian language learning.

This research was conducted at SDN Pasirhuni which is located at Jl. Serang-Pandeglang, Pasirhuni, Pancalaksana, Curug, Serang, Banten. Respondents or research subjects involved in this study were all fifth-grade students of SDN Pasirhuni totaling 30 students, consisting of 16 male students and 14 female students. Class V students were selected based on the information that has been obtained that there is still a lack of critical thinking skills and student collaboration in learning Indonesian as well as introducing technology media to students before going to the next grade level.

The technique used for data collection in this research is a test using Oodlu to determine the achievement of students' critical thinking skills and observation to determine the achievement of students' collaboration skills when doing tests using Oodlu. So that the instrument used in this study was a test item on Oodlu in the form of multiple choice and true/false questions with five questions each and an observation sheet on collaboration skills assisted by a fifth-grade teacher as an observer. Critical thinking was obtained from aspects of analyzing information on advertising through electronic media and exposing advertising information on media print. Thus, the collaboration was observed by the aspect of the capability to adjust to

another member, mingle with members and responsibilities in carrying out the task and obey the rules agreed upon in the group.

The results of research data that have been collected are then analyzed, data analysis in this study uses data analysis steps according to Miles and Huberman (in Sugiyono, 2013), namely data reduction, data presentation, as well as drawing conclusions, and verification. The success criteria used in this study in critical thinking skills are when achieving a minimum performance result of 70% which means that students can not answer seven questions correctly using Oodlu as the KKM set by the school and for collaboration, skills achieving a minimum score of 2 on the observation sheet with a sufficient category that has been determined by the class teacher. If the two success criteria can be achieved, then the implementation of the cycle can be stopped and the research can be said to be successful.

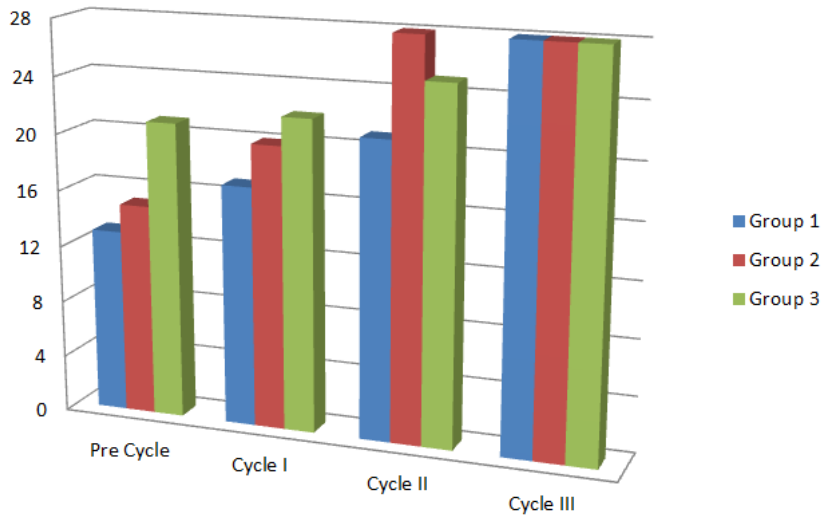
RESULT AND DISCUSSION

Table 1. Student Group Performance Results from Pre-Cycle to Cycle III

Group	Pre Cycle	Cycle I	Cycle II	Cycle III
1	40%	40%	60%	80%
2	80%	80%	80%	90%
3	90%	40%	40%	80%

The results of the performance of the student groups above are the results of students taking tests using Oodlu in groups each cycle to determine the improvement of students' critical thinking skills starting from the pre-cycle, cycle I to cycle III.

Figure 1. Recapitulation of Collaborative Skills Observation Results from Pre-Cycle to Cycle III



The diagram is the result of observations made to determine the improvement of students' collaboration skills when taking tests and playing games with their groups using Oodlu in each cycle, starting from the pre-cycle, cycle I to cycle III.

The research was conducted at Pasirhuni Elementary School from May to June 2022. The classroom action research carried out in the form of using Oodlu to improve critical thinking skills and collaboration of fifth-grade elementary school students in learning Indonesian, lasted for three cycles. Before entering the cycle stage, the researcher carried out the pre-cycle stage first. From the implementation of the pre-

cycle and the three cycles, it can be seen that there is an increase in students' critical thinking skills and collaboration in the use of Oodlu. This is reinforced by observations of learning activities from cycle to cycle, and tests conducted using Oodlu at the end of the cycle in the form of multiple choice and true/false questions with five questions each.

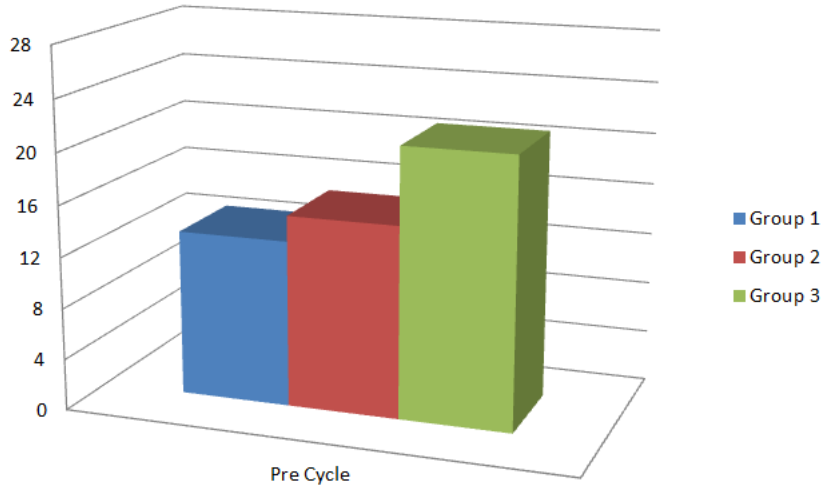
1. Pre Cycle

The pre-cycle was held on Monday, May 30, 2022. In the pre-cycle, the researchers conducted observation and reflection activities to find the initial condition of the students, namely the lack of critical thinking skills and student collaboration in learning Indonesian. Also in the pre-cycle, the researcher formed three groups of students consisting of ten students who were randomly selected as group members. This is done so that students mingle not only with close friends in class but also with other classmates so that it is easier to find out how students are achieving critical thinking skills and collaboration in groups.

Table 2. Pre-Cycle Student Performance Results

Group	Pre Cycle
1	40%
2	80%
3	90%

Figure 2. Results of Observation of Pre-Cycle Students' Collaborative Skills



Based on the results of the performance in Table 2 and Figure 2 by the researchers in the pre-cycle to determine the initial conditions, it can be seen that there was an increase and decrease in each cycle for students' critical thinking skills and collaboration with the use of Oodlu. In the pre-cycle carried out, two groups had achieved the criteria for critical thinking skills of 70%, namely group 2 and group 3, with performance results of 80% and 90%, but group 1 had not reached the success criteria with performance results of 40%. And based on the results of observations for collaboration skills, two groups have achieved the criteria for successful collaboration skills, namely group 2 and group 3, but group 1 has not yet achieved the criteria for successful collaboration skills as shown in Figure 2. So that in the pre-cycle it can be seen that the skills of students' critical thinking and collaboration still have not reached the criteria of success, this is because the previous learning activities were teacher-

centered, the delivery of material only used the lecture method, and the lack of use of learning media.

Figure 3. Pre Cycle Documentation

After the pre-cycle was implemented and deficiencies were found, then the researcher made an action plan to be implemented in the first cycle. The action plan in the first cycle was student-centered learning activities, delivery of material using game-based learning, and using Oodlu as a learning medium.

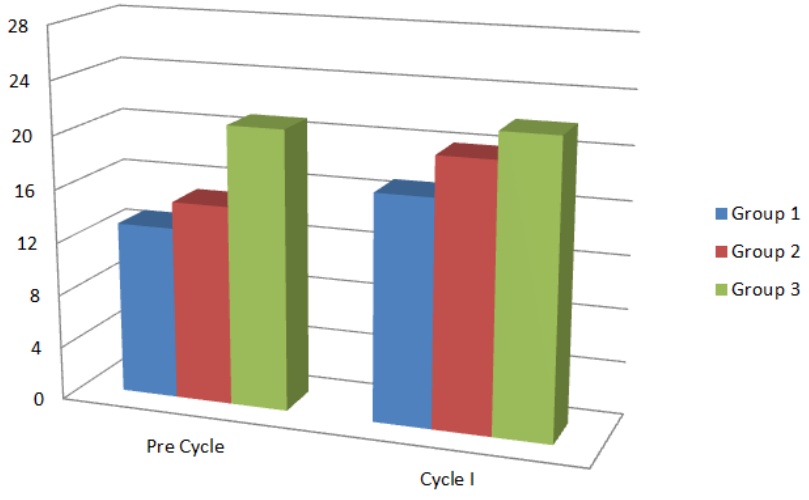
2. Cycle I.

Cycle I was held on Tuesday, May 31, 2022, with two meetings, namely at the first hour and the second hour. The implementation of the first cycle refers to the action plan that was previously made in the pre-cycle, namely student-centered learning activities so that students play an active role in learning activities, delivering material using game-based learning, and using Oodlu as a learning medium. In the first cycle, there was an increase and decrease in students' critical thinking and collaboration skills using Oodlu as shown in the results in Table 3 and Figure 4.

Table 3. Student Performance Results from Pre-Cycle to Cycle I

Group	Pre Cycle	Cycle I
1	40%	40%
2	80%	80%
3	90%	40%

Figure 4. Results of Observation of Students' Collaborative Skills from Pre-Cycle to



In critical thinking skills, there is only one group that has achieved the criteria for critical thinking success, namely group 2 with a performance of 80%, group 1 which still has not reached the criteria for success with a performance of 40%, but there is a decrease in the performance of group 3 compared to the pre-cycle which is 40% because the members of group 3 still rely on one member who is considered smarter so that when that member does not go to school, the performance results of group 3 decrease compared to the performance results in the pre-cycle. So the first cycle is considered not to have reached the criteria for the success of critical thinking skills. And based on the results of observations of collaboration skills there was an increase in each group, but group 1 still has not achieved the criteria for the success of collaboration skills as shown in Figure 4. So in the first cycle, it can be seen that the critical thinking and collaboration skills have not increased as expected and need to be improved to carry out the next cycle because it has not reached the success criteria which is determined. This is because researchers as teachers are still lacking in observing students during learning activities, researchers still use the lecture method in delivering material, students are less active in learning activities, and students' critical thinking and collaboration skills have not reached the criteria for success. So in the first cycle, it can be seen that the critical thinking and collaboration skills have not yet increased as expected and improvements need to be made to carry out the next cycle because they have not reached the specified success criteria. This is because researchers as teachers are still lacking in observing students during learning activities, researchers still use the lecture method in delivering material, students are less active in learning activities, and students' critical thinking and collaboration skills have not reached the criteria for success. So in the first cycle, it can be seen that the critical thinking and collaboration skills have not yet increased as expected and improvements need to be made to carry out the next cycle because they have not reached the specified success criteria. This is because researchers as teachers are still lacking in observing students during learning activities, researchers still use the lecture method in delivering material, students are less active in learning activities, and students' critical thinking and collaboration skills have not reached the criteria for success.

Figure 5. Cycle I Documentation

After the first cycle was implemented and it was found that there were deficiencies, the researcher then made an improvement plan to be implemented in the second cycle. The improvement plan in cycle II is that researchers observe and pay more attention to students so that students feel cared for and appreciated so that

students want to take part in learning activities, and delivery of material can use game-based learning with Oodlu as a learning medium, pay more attention and provide opportunities for less active students, improvement test questions and give rewards to groups of students who have achieved the criteria for success, as well as provide direction and understanding to students that the group must be able to adapt, mingle with other members, be responsible for carrying out tasks, and obey the rules that have been mutually agreed upon in the group.

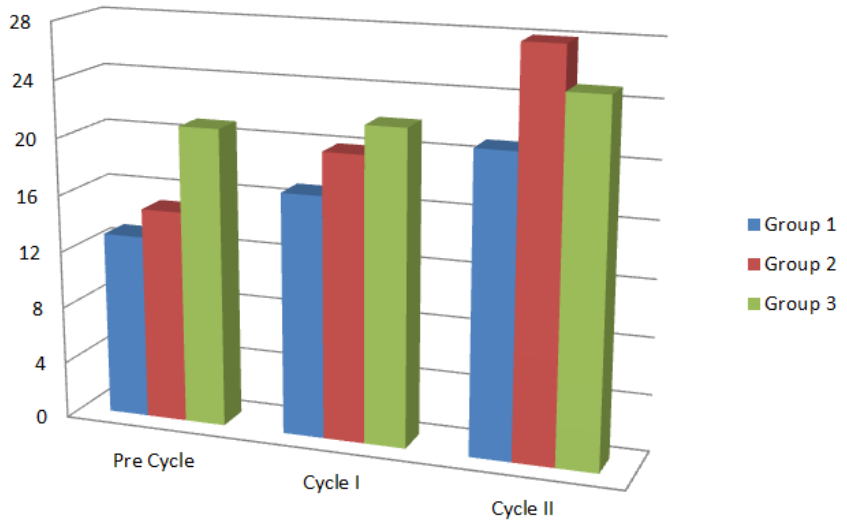
3. Cycle II

Cycle II was held on Thursday, June 2, 2022, with two meetings, namely in the first hour and the second hour. The implementation of the second cycle refers to the improvement plan for the first cycle, namely more observing, paying attention, and providing opportunities for students, delivering material using Oodlu, improving test questions by changing the form of the previous cycle questions, as well as providing understanding and direction to students the importance of collaborating in groups. In cycle II there was an increase in students' critical thinking and collaboration skills using Oodlu as shown in Table 4 and Figure 6.

Table 4. Student Group Performance Results from Pre-Cycle to Cycle II

Group	Pre Cycle	Cycle I	Cycle II
1	40%	40%	60%
2	80%	80%	80%
3	90%	40%	40%

Figure 6. Results of Observation of Students' Collaborative Skills from Pre-Cycle to Cycle II



In critical thinking skills, the performance of Group 1 increased even though it had not reached the critical thinking success criteria, namely 60%, group 2 still achieved the success criteria with 80% performance, and Group 3 still did not reach the success criteria with the same performance, namely 40%. After giving direction and understanding the importance of collaborating in groups, students slowly begin to want to mingle and adapt in groups, help their group friends who are having difficulties, take responsibility for doing their tasks in groups, and participate in making group rules and obeying them. In this second cycle, there was an increase in collaboration skills based on the results of observation of collaboration skills where

each group, namely Group 1, Group 2, and Group 3 achieved the success criteria for collaboration skills as shown in Figure 6. So that in cycle II it can be seen that there is an increase in critical thinking skills although it has not yet reached the success criteria and an increase in collaboration skills where each group has achieved the criteria for success and still needs to be improved again in carrying out the next cycle to be able to achieve the specified success criteria. This is because the criteria for the success of critical thinking skills have not yet been achieved. So in cycle II, it can be seen that there is an increase in critical thinking skills even though it has not yet reached the success criteria, and there is an increase in collaboration skills where each group has reached the success criteria and still needs to be improved again in carrying out the next cycle to be able to achieve the specified success criteria. This is because the criteria for the success of critical thinking skills have not yet been achieved. So in cycle II, it can be seen that there is an increase in critical thinking skills even though it has not yet reached the success criteria, and there is an increase in collaboration skills where each group has reached the success criteria and still needs to be improved again in carrying out the next cycle to be able to achieve the specified success criteria. This is because the criteria for the success of critical thinking skills have not yet been achieved.

Figure 7. Cycle II Documentation

After the second cycle was implemented and it was found that there were deficiencies, the researcher then made an improvement plan to be implemented in the third cycle. The improvement plan in cycle II is to improve test questions and provide rewards to groups of students who have achieved the criteria of success so that groups of students who have not achieved the criteria of success become motivated.

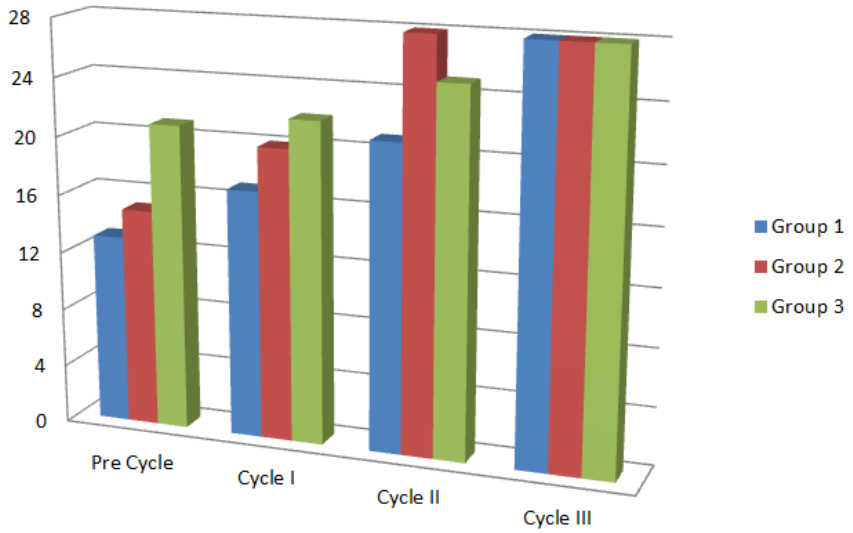
4. Cycle III

Cycle III was carried out in two meetings with an allocation of 35 minutes for each meeting, the first meeting for the implementation of learning activities and the second meeting for taking tests. The implementation of cycle III refers to the improvement plan for cycle II. The first meeting was held on Friday, June 3, 2022. At the first meeting, the researchers carried out learning activities as usual by using Oodlu as a learning medium. After the first meeting was held, it was continued to the second meeting which was held on Monday, June 6, 2022, to take the test. In cycle III there was a better improvement in critical thinking and collaboration skills than in the previous cycles.

Table 5. Student Group Performance Results from Pre-Cycle to Cycle III

Group	Pre Cycle	Cycle I	Cycle II	Cycle III
1	40%	40%	60%	80%
2	80%	80%	80%	90%
3	90%	40%	40%	80%

Figure 8. Results of Observation of Students' Collaborative Skills from Pre-Cycle to Cycle III



In critical thinking skills, each group experienced an increase in the results of the performance of each group having achieved the criteria for the success of critical thinking skills, namely 70%, group 1 and group 3 with 80% performance, and group 2 with 90% performance. And based on the results of observations of collaboration skills, there was an increase with each group getting a score of 4 (very good) in every aspect observed, as shown in Figure 8. So in cycle III, it can be seen that there was a better improvement in critical thinking and collaboration skills, where each group achieved all the success criteria.

Figure 9. Cycle III Documentation

Based on the description of the research results and the discussion above, the success criteria that have been set in this study have been achieved, namely in learning Indonesian using Oodlu in critical thinking skills that have exceeded the success

criteria of 70% and students' collaboration skills are included in the very good category. Based on this, the researcher decided that research activities could be stopped in cycle III.

During the implementation of activities in the pre-cycle, cycle I to cycle III, there was a continuous improvement from each cycle. Through the use of Oodlu as a medium for improving critical thinking and collaboration skills, students become able to hone their thinking skills, know how to collaborate and know that there are technological media that can be used for learning, from which students initially refused to join in their groups slowly starting to be able to blend in and work together, adapt to other friends, obey the rules in groups, pay more attention, and play an active role during learning activities, especially in learning Indonesian.

DISCUSSION

Based on the result of the research results above, the criteria for the successes that have been set in this study have been achieved. Learning Indonesian by using Oodlu in critical thinking skills has exceeded the success criteria of 70% and students' collaboration skills are included in the very good category. In learning activities from cycle I to cycle III using Oodlu is considered to be able to help students to improve critical thinking and collaboration skills. The use of Oodlu for providing material and conducting tests is a new medium for teachers, students, and schools in implementing learning activities. This is due to the very rare use of media especially technological media when learning activities take place. Besides can help improve the critical thinking and collaboration skills of students, Oodlu can also increase students' interest and interest in learning activities, so that students become more understanding of the material better, more active, and more participate in learning activities. So from this and the results of the pre-cycle implementation research, cycle I to cycle III, it can be seen that using Oodlu can help improve the critical thinking skills and collaboration of fifth-grade elementary school students in learning Indonesian.

The result of this action research indicates that teachers' decision to implement a relevant learning method and media to promote critical thinking and collaboration was meaningful (Chaiyasut et al., 2014). The research results in critical thinking skills are in line with some that have been carried out by researchers. The research that has been done by Arif et al. (2022) showed that there are similarities in an increase in students' critical thinking skills with the use of technology-based media. So it can be proven that the use of technology-based media is able to form or improve students' critical thinking skills (Mandernach, 2006). In addition, the results of this study are also in line with the results of research conducted by Suci et al. in 2019 which was carried out using a realistic approach compared to this research that has been conducted using game-based learning with Oodlu as a medium to see the achievement of students' critical thinking skills. The success in improving critical thinking seems to be from e new learning management (Changwong et al., 2018). Even though there is a similarity in the research results obtained, namely the occurrence of improvement of students' critical thinking skills by using the approaches and methods. By using a game setting, student engagement was ensured in a constructive learning environment without the presence of any intimidating factors so that freely expressing thoughts and feeling (Robberts & Van Ryneveld, 2022).

This research results in collaborative skills are in line with the results of research that has been done by Junita & Wardani in the results of their research in 2020 shows similarities, that use of game-based learning using Oodlu media as well as

STAD and CIRC can improve student collaboration skills. Collaborative activity boost since in elementary students, interaction among gender and groups is perceived as effective (Kawuryan et al., 2022). In addition, the results of this study are also in line with the results of research conducted by Sunbanu et al (2019). Although this study uses the two different learning models and, in this study, using game-based learning with Oodlu as the medium, the results of the two studies are inconclusively in line, that is, student collaboration skills continue to increase in each cycle even with different learning models or different methods.

The results of this study are also a continuation of Sari (2022) who looks at the validity of Oodlu as a quiz medium. Moreover, this research complements previous research which separately looked at the effectiveness of game-based learning on students' critical thinking and collaboration (Mao et al., 2022). This research proves that these two variables can simultaneously be improved through game-based learning with technology-based mediums such as Oodlu. This research position also fills in the theoretical gap that quiz-based mediums such as Oodlu are effectively used in game-based learning. The feature of Oodlu is perceived as helpful since the group management encourage communication not only face-to-face but also in an online setting (Bozkurt, 2021). The result also supports the combination of paradigm on constructivism and another cognitive development using digital and technology-based media (Greene & Yu, 2016; A. S. Nabila & Amir, 2022)

This research contributes to solving real problems encountered in the Pasirhuni elementary school in learning Indonesian. In addition, this research can be a basis for best practices on how teachers in the classroom solve critical thinking problems and student collaboration in the context of meaningful 21st-century learning. In addition, this research can be used as a basis for how technology-based learning can be collaborated with quiz-based media and has the potential to increase learning success.

This research is limited to a small research scope at the class level and also a specific subject matter. Further research needs to be developed at a wider scope and toward a higher level of education. In addition, the effectiveness of these media and methods has the potential to be extended to other 21st-century skill variables such as creativity and communication.

CONCLUSION

The use of Oodlu in Indonesian language learning in improving students' critical thinking and collaboration skills is used as a medium to support learning activities and in working on test questions in groups. In this study, Oodlu was used as a medium for providing material and conducting tests. From the implementation of three cycles, it can be found that there is an increase in students' critical thinking skills and collaboration skills. For critical thinking skills in the pre-cycle to cycle II, there was an increase but had not succeeded in achieving the success criteria, but in the third cycle, each group succeeded in achieving the success criteria of critical thinking skills. For collaboration skills in the pre-cycle to cycle III, there has been continuous improvement until it has succeeded in achieving the success criteria of collaboration skills. So it can be concluded that the use of Oodlu can help improve students' critical thinking skills and collaboration in learning Indonesian. For further research, the use of other relevant media based on the technology approach could be addressed to see a deeper understanding of the effectiveness to see broader knowledge of game-based learning.

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