The use of pasung media to improve collaboration and learning outcomes food chains class V SDN Mojorejo 1 Batu

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Abstract: This Classroom Action Research aimed to find out the application of PASUNG media (connecting boards) to improve collaboration and learning outcomes for fifth-grade students at SDN Mojorejo 1 Batu City. The research method used was the classroom action research method. The subjects of this study were fifth-grade students at SDN Mojorejo 1 Batu City. Data on collaboration and learning outcomes were obtained from evaluation test results and student group activities through collaboration observation sheets. Based on the data obtained, learning using PASUNG media (connecting boards) can improve collaboration and student learning outcomes which can be seen from the results of student products in the form of miniature food chains. The results of student collaboration from Cycle I increased from 75% to 81% in Cycle II. Meanwhile, the average learning outcomes data of students in Cycle I was 73%, which increased to 85% in Cycle II. Based on the learning activities using PASUNG (Papan Sambung) media and creating a mini food chain project by the students, it can be concluded that the collaboration and learning outcomes of the students improved.

Keywords: Pasung Media, Collaboration, Learning Outcomes

PRELIMINARY

The development of the 21st century has posed challenges for all stakeholders in the field of education. A distinct characteristic of the 21st century is the rapid growth of digital information, where human life is closely intertwined with technology. This also applies to education, where various skills need to be developed among students. Traditional skills such as writing, storytelling, reading, and arithmetic are no longer the only skills that students need to possess.

Today, more complex skills are needed and must be possessed by students following the independent and 21st-century curriculum. Schools, as educational institutions, are expected to have skills that can meet the demands of the changing times. These skills include critical thinking and problem-solving, creative thinking, communication, and collaboration, often referred to as the 4C (Septikasari & Rendy N.

F., 2018). The collaboration skill enables students to have the ability to work together, communicate, and be socially adept within a group to achieve learning objectives (Jalmo et al., 2019). The ultimate goal of learning to enhance students' collaboration skills can be designed at each stage of the learning process according to the needs and characteristics of the students (Ulhusna, 2020).

Learning that is relevant and suitable for collaboration skills is the subject of Science, specifically the topic of food chains. "Science is human knowledge about natural phenomena and freedom acquired through observation, experimentation/research, or testing based on human knowledge" (Sappe, 2018:5). Science learning requires processes of experimentation and observation from students in line with collaboration skills so that the learning process can have an impact on students' learning outcomes.

Based on the observations conducted on the fifth-grade students at SDN Mojorejo 1 Batu, there is a gap between reality and expectation regarding the collaboration skills of the students. It has been observed that the students' collaboration skills are low, and this indirectly affects their learning outcomes in Science, particularly on the topic of food chains. When the learning process takes place in groups, students instinctively spend more time discussing stories and not doing assignments. Group work was often dominated by a few students, while others were unsure about their roles or not assigned any specific tasks by the group. The results of group work can affect the learning outcomes of students who still have not achieved a score above the KKM of 75% of the total 20 students. This data was obtained from observations during the pre-cycle learning practice.

Student learning outcomes can be improved optimally and gradually, by teachers are required to be more creative and innovative in developing learning models that can produce products and involve students actively in the learning process (Lestari, 2019). The way that can make it easier for students to understand the material and increase collaboration in learning in class is to use interactive media and project-based learning models.

The issues encountered during the learning process necessitate the design of a learning concept that aligns with the characteristics, needs, and active involvement of the students in group settings. Additionally, the preparedness of the teacher when designing

the learning process can also significantly impact the success of the teaching and learning experience.

Teacher preparation in teaching is a crucial process that involves the development of a unit plan to be implemented over several class sessions during face-to-face interactions (Astuti, 2020). Planning the teaching process allows teachers to integrate it with instructional media that can support the teaching of the Science subject, specifically the food chain material.

Media is one of the supporting facilities for the success of learning process in the classroom to achieve the targeted learning objectives. The selection of learning tools needs to consider the characteristics and needs of students. According to Arsyad (2019:2), "Media is an integral part of the teaching and learning process to achieve the general educational objectives and specific learning objectives in schools". According to Hamalik (1986) in (Arsyad, 2019:19) "The use of learning media in the teaching and learning process can generate new desires and interests, generate motivation and stimulate learning activities, and even bring psychological influences on students".

Learning media is important in the context of the learning process as it can enhance students' interest in learning (Widiana et al., 2019). It can be concluded that media is related to the learning process as one of the means to convey messages to students, promote collaboration, improve learning outcomes, and influence students' enthusiasm during the learning process.

The use of media according to the needs and characteristics of students (Widiana et al., 2019) in class V SDN Mojorejo 1 Batu is a media called PASUNG (Connection Board). Media developed about food chain material in ecosystems. When the learning

Picture1: Media PASUNG (Connection Board)

process takes place, the PASUNG media can be disassembled so that it can provide an interactive level for students in sorting the food chain according to their ecosystem. In terms of efficiency, PASUNG media is easy to carry, and the boards used are not easily damaged because they are made of puzzle mats that can be easily disassembled. Components (living organisms) of the food chain are made by cutting pictures of living organisms according to the pattern and then pasting them onto Styrofoam. After that, the Styrofoam is trimmed/cut according to the pattern of living things. Then the finished living creature patterns can be glued on the puzzle mat. Meanwhile, the arrows between the components use woolen threads and colorful nails to attach them. When the learning process takes place students collaborate in groups with their members to make a miniature food chain project. Therefore, so that students can improve collaboration skills and learning outcomes, the learning process uses the help of PASUNG media (Connecting Boards).

Based on the explanation above, the purpose of this classroom action research was to explore the use of PASUNG media on collaboration skills and student learning outcomes in science subjects on the food chain.

METHOD

The method used in this research is Classroom Action Research (CAR). CAR is a study conducted on various actions taken by teachers, from planning to real assessments in the classroom (Mahmud, 2008). "Classroom action research is research conducted in a class to find out the effects of actions applied to a research subject in that class" (Mu'alimin, 2014:5). It can be concluded that classroom action research is an action carried out by the teacher in the form of reflection to overcome the teaching and learning of students in the classroom.

Classroom action research was conducted using one pre-cycle activity and two successive cycles from cycle I to cycle II. In each cycle, collaboration observation and evaluation actions are carried out to obtain collaboration data and student learning outcomes data. This study aimed to improve collaboration and student learning outcomes. According to (Mu'alimin, 2014:20-21), the stages of Classroom Action Research (CAR) to achieve optimal and expected results include the following phases: planning, acting, observing, and reflecting.

1. Time and Place of Research

The time and place of research was carried out in semester one of the 2022/2023 academic year in November for six weeks at SDN Mojorejo 1 Batu City.

2. Research subject

The research subjects were fifth-grade students at SDN Mojorejo 1 Batu. The number of students who were used as subjects in the study was 20 students consisting of 10 girls and 10 boys. The parties involved in the research were fifth-grade students, researchers, and tutors as observers. The research was conducted in one pre-cycle and two cycles, namely Cycle I and Cycle II. Each cycle consisted of two meetings, with the continuation of learning in the first meeting. Thus, the total number of meetings in both cycles was four.

3. Action Plan Stage

a. Planning Stage

At this stage, observations were made related to student learning. Carry out non-cognitive diagnostic assessments and cognitive diagnostic assessments as well as carry out pre-cycle learning practices to find out existing problems, students' learning needs, and students' learning styles. In this stage, the aim was to prepare teaching materials that suit the needs of the students, including the use of models, methods, and required media. After obtaining the necessary data, the teacher model and mentor teacher then proceed to develop the lesson plan or teaching modules that will be used in Cycle I and Cycle II.

b. Implementation Stage

This implementation stage used class action three times in learning. The first learning is pre-cycle, followed by learning cycle I and finally learning cycle II. This research focused on improving student learning outcomes and collaboration.

c. Observation Stage

At the observation stage, the activities carried out are observations of the learning process that has been carried out in class. This observation aims to determine the success of the learning activities that have been

carried out. Learning activities are immortalized with documentation in the form of photos and videos.

d. Reflection Stage

In this reflection stage, the teacher reflects on the learning activities that have been carried out in class. This reflection aims to evaluate the success of learning activities, obstacles, and challenges in activities and find solutions to problems that arise during learning activities. Reflection activities are carried out with tutors to find solutions to problems that arise and can be corrected in the next learning cycle.

4. Data collection technique

Data collection instruments were in the form of evaluation items and collaboration observation sheets. The researcher used multiple choice questions and essay tests in cycle I, while in cycle II they used essay questions. The items are made with indicators of understanding the concept that has been chosen by the researcher, such as explaining, making examples, and concluding. The technique of analyzing the progress of student learning outcomes is in the form of quantitative data in the form of class average scores and the percentage of learning completeness from cycle I to cycle II classically.

Table 1. Criteria for the Percentage of Complete Learning Outcomes

intervals (%)	Category
75 – 100	Very well
65 – 74	Good
55 – 64	Enough
< 55	Not good

Syahrilfuddin's adaptation, et al. in Hasan Basri (2017:46)

The collaboration observation sheet provided was a collaborative observation sheet for teachers. The tool for collecting data used for observation was in the form of a checklist. Contains a series of lists of observed events including collaborative observations of students during learning. The analysis technique for student collaboration observation assessment sheets is carried out by calculating the average value of each indicator which is then classified into five criteria, as follows:
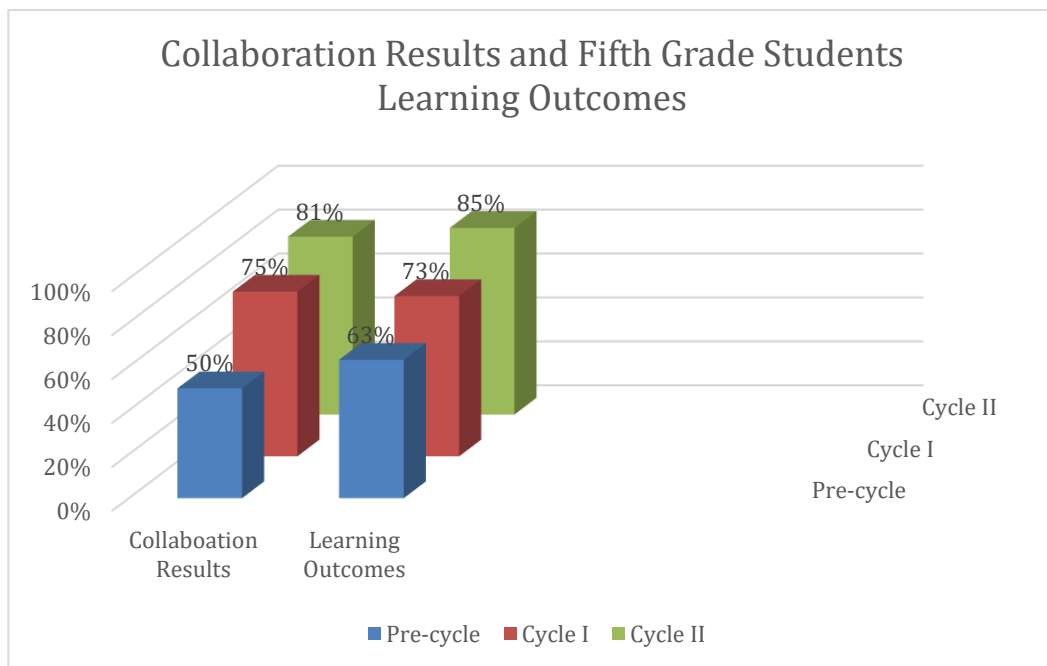
Table 2. Criteria for Collaboration Skills

Score (%)	Criteria
81-100	Very good
61-80	Good
41-60	Pretty good
21-40	Not good
0-20	Very Not Good

Adaptation of Tri Jalno, et al. (2019:81)

RESULTS

The results of classroom action research on food chain material to improve student learning outcomes and collaboration from pre-cycle, cycle I, and cycle II actions are as follows:

Graph 1: Results of Collaboration and Learning Outcomes of Class V Students

DISCUSSION

Based on the results of Classroom Action Research on food chain material to improve student learning outcomes and collaboration from pre-cycle action, cycle I to cycle II can be explained as follows:

1. Results of Pre-Cycle Actions

The pre-cycle implementation consists of 2 meetings, where The first meeting was conducted on Thursday, November 10, 2022, using the Problem-Based Learning (PBL) model, divided into 2 stages. The first meeting of the pre-cycle focused on orienting students to the problem, organizing their work, and conducting investigations or research to address the issues. Then, the process continued in the second meeting, which took place on Friday, November 11, 2022, where the stages progressed to compiling the work results, presenting them, and conducting evaluation and reflection on the process and problem-solving outcomes.

During the pre-cycle learning activities, the media used mainly consisted of food chain pictures. The use of technology such as a projector was not implemented yet, as the primary goal of the pre-cycle activities was to assess the student's abilities, characteristics, and needs in understanding the food chain material.

The results of the collaboration shown by 50% of the 20 students were seen when students worked on the LKPD looking for words or can be called using the word search puzzle evaluation (Mujaiyanah, 2020). The majority of students prefer to work alone or couple with friends. While the learning outcomes from the evaluation test given showed a class average of 63% of 20 students.

2. Results of Cycle I Actions

The implementation of the cycle I consisted of 2 meetings, where the stages were carried out on Thursday, 17 November 2022 using the PBL model divided into 2 stages. The first meeting of Cycle I focused on determining the main questions or issues, planning the project, and creating a schedule for completing the project. Then, the second meeting was conducted on Friday, November 18, 2022, to continue the PBL (Project-based Learning) stages, which included monitoring the progress of project completion, presenting and testing the project's outcomes, and evaluating and reflecting on the process and project results.

In the first cycle of action, the teaching media used was PASUNG (connecting board), a concrete media that can be disassembled because it is

made of puzzle mats. The existence of these media helps students to take an active part in compiling puzzles that are appropriate to the components of the food chain. In addition, the project carried out by the students was in the form of making a miniature food chain made from plasticine.

The results of the collaboration shown by 75% of the 20 students were seen when students worked on worksheets to make miniature food chains made from plasticine. Students have started to be seen working on LKPD in groups, although some are still not seen to be fully helping. While the learning outcomes from the evaluation test given showed a class average of 73% of 20 students.

3. Results of Cycle II Actions

The implementation of Cycle II consists of 2 meetings. The first meeting was conducted on Wednesday, November 23, 2022, using the PBL (Project-based Learning) model, which is divided into 2 stages. The first stage involves determining the main questions or problems, planning the project, and setting a schedule for project completion. The second meeting was conducted on Thursday, November 24, 2022, continuing the PBL stage, which includes monitoring the progress of project completion, presenting and testing the project results, and evaluating and reflecting on the project process and outcomes.

In Cycle II, the learning media used was the PASUNG (Papan Sambung) media, a concrete and interactive media made of puzzle mats that can be assembled and disassembled. This media facilitated the active participation of students in assembling the puzzle according to the components of the food chain. Furthermore, the project undertaken by the students involved creating a miniature food chain using styrofoam. After completing the miniature project, the students were asked to present it in front of the class using the Role Playing method, where each group member played a specific role. The use of Role Playing provided a space for students to collaborate and perform their respective roles. The implementation of Role Playing helped students to work together with their group members without any biases or favoritism (Pratiwi, 2015).

The collaboration results exhibited by 81% of the 20 students were observed during their group work on the LKPD project of creating a food chain miniature from styrofoam. The students were observed working collaboratively

in groups, effectively dividing tasks among each group member. Meanwhile, the learning outcomes from the evaluation test showed an average class score of 85% among the 20 students.

Based on the activities from the pre-cycle, Cycle I, and Cycle II, both the collaboration results and the learning outcomes of the students have improved with the assistance of the developed PASUNG media by the teacher. This is in line with the viewpoint of (MH & Wulandari, 2021) that teachers are required to be creative and innovative in using media. Learning in groups can enhance the collaboration skills of the students, as stated (Herlina, 2019), where group learning instills responsibility in students to develop their collaborative abilities. Furthermore, in line with the opinion of (Septikasari & Rendy N. F., 2018), there is a need for encouragement to foster collaboration among students, enabling them to explore information and construct knowledge together. Student learning outcomes also increase with PASUNG media such as opinions (Widiana et al., 2019) that the use of learning media is one of the important and effective factors in learning to improve learning outcomes.

CONCLUSION

Based on research on learning practices and discussions that have been carried out, several conclusions can be obtained, including:

1. The use of PASUNG media (connected boards) is proven to increase student collaboration in class V SDN Mojorejo 1 Batu City. It can be seen when there is an increase in student collaboration from cycle I (75%) to cycle II (81%).

2. The use of PASUNG media (connected boards) is proven to improve the learning outcomes of students in class V SDN Mojorejo 1 Batu City. It can be seen when there is an increase in student learning outcomes from cycle I (73%) to cycle II (85)

The follow-up plan for this research is to make student worksheets based on TPACK, examples such as on liveworksheets, quizizz, canva, and other platforms. So that it can facilitate the use of digital devices according to the 21st century.

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