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Development of Collaborative Learning-Based LKPD to Improve Collaboration Skills of Grade IV Elementary School Students

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Abstract: Collaboration skills are the skills of working together effectively. Ideally, students' collaboration skills are that they are able to work together in groups, respect others, and build good relationships with their peers. the results of observations made by researchers at SDN 01 Sukamaju show that the school applies the 2013 curriculum and the teaching materials used. However, in the implementation of learning, teachers do not involve students in learning activities (teacher centered), teachers also have not used a variety of learning resources and are less than optimal in using models in learning. In learning activities, the main sources or teaching materials are textbooks and LKPD. This study aims to analyze the effectiveness and attractiveness of the development of Collaborative Learning-based student worksheets. This research is a 4-D type R & D (Research and Development) development research (define, design, develop, disseminate) in this study researchers limit it to the develop stage, the sample used amounted to 70 students. The results showed a recapitulation of the assessment of material experts, media experts and design experts getting a percentage of 92% with very feasible criteria in the development of Collaborative Learning LKPD. The effectiveness of product development received a positive response with a value of 87.3% and very high criteria. The attractiveness of the developed product shows a value of 90.5% with a very high intervention from the attractiveness of the collaborative learning LKPD implemented by researchers to students.

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Introduction

Education is one of the most important things in life in the future. The learning process is organized in an interactive, fun, challenging, inspiring, motivates students to actively participate, and provides sufficient space for initiative, creativity, and independence in accordance with the talents, interests, abilities, and physical and psychological development of students. Learning is the process of interaction between students, between students and educators and learning resources in a learning environment. (Warsita, B. (2008).

Entering the era of the 21st century, which is called the century of knowledge, has an important role in human survival. The development of the 21st century has a huge impact on

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various fields of life. This is also a challenge for the education system to be able to prepare qualified and competitive human resources in the global era. If we do not have high skills, we will be eliminated from global competition.

According to (Fajriyah, E, 2022) 21st century skills include problem solving skills, critical thinking, collaboration, and communication skills. Therefore, teachers must be able to implement learning that can optimize these skills. One of the applications of 21st century learning is collaboration skills. With social proximity, there will be communication, exchange knowledge, and increase and facilitate understanding of what is being learned (Purwaaktari, 2015).

The teacher's main responsibility during the learning process is to create an environment that fosters communication and cooperation between teachers, students and the students themselves. Collaboration skills are one of the solutions to this problem. This ability is essential for people to be able to socialize, be aware of their surroundings, and restrain their ego and emotions. (Tama, 2020)

Collaboration skills are skills to work together effectively and show respect for diverse team members, practicing fluency and willingness to make decisions needed to achieve common goals (Greenstein, 2012). The ability to interact by respecting differences, participating in discussions, giving opinions/ideas, listening, and supporting others (Sari, Prasetyo, & Setiyo, 2017). Indicators that show collaboration skills are actively contributing, working productively, showing flexibility and compromise, showing responsibility, and showing respect. (Grenstein, 2012).

Ideally, learners' collaboration skills are that they are able to work together in groups, respect others, and build good relationships with their peers. Learners should be able to communicate well, express ideas well and politely. This collaborative method gives students the responsibility to learn the material and elaborate its content in a group without teacher intervention (Silberman, 2004). In this case, the teacher is only a facilitator in the process itself. Students' collaboration skills are needed to develop themselves in learning as well as to prepare their competencies to become a competitive workforce in the global era.

Collaboration skills are very important for students to master. In addition to improving academic achievement, these skills promote positive characters such as encouraging ideas, respecting others, building relationships with others, and working together with others to achieve common goals and responsibilities. In addition, the benefits of collaboration skills can be felt when students have completed their studies at schools/madrasas, for example, finding jobs in companies, establishing companies, building educational institutions, and others.

We must instill this collaboration skill from an early age, so that students will be ready to face challenges in the future. In this case, teachers play a very important role in honing collaboration skills in the classroom. In their research Chang & Simpson (1997) revealed that collaborative skills can be honed by giving tasks given in groups so that students in the process can share perspectives and complete tasks effectively. In group

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assignments, learners will communicate with each other and divide the tasks that must be done so that they can be completed properly and do not exceed the collection time limit.

Based on observations of learning in class IV Semester II of the 2022/2023 academic year, teachers are only guided by teacher books and student books. In the learning process, it still uses conventional methods. During discussion activities, students only rely on each other, or rely on each other. During the discussion, the class was divided into 5 groups. But only 1 group whose discussion went well according to the division of their respective tasks. 2 groups are still working on their own, 1 group that works on only one learner, and the other group does the task but exceeds the agreed deadline.

Table 1 Range of Collaboration Score Results for Grade IV Students of SDN 01 Sukamaju T.P 2022/2023 (based on the Assessment Guide for Elementary Schools: 2018)

No	Criteria Nilai	Number of Learners	Percentage
1	A	3	12%
2	B	8	32%
3	C	14	56%
4	D	0	0%
	Total	**25**	**100%**

Data source: SDN 01 Sukamaju

Based on table 1, it can be seen that the score of students' collaboration scores in the A value criteria range has a percentage of 12%, the score of students in the B value criteria has a percentage of 32%, in the C value criteria has a percentage of 56%, and in the D value criteria of 0%. Thus more than 50% of students can be said to have low collaboration skills. Learners still do not show collaboration skills in the learning process in class.

The low collaboration skills of students can lead to low learning achievement of grade IV students. This is possible because the appropriate teaching materials and learning models have not been applied. Because the role of the teacher is not only to deliver subject matter, but to involve students in effective and efficient learning activities, and to assess the achievement of these students. Achievement will be good if the learning plan is well prepared and assisted with good teaching materials during the learning process. These facts show that there are serious problems at the level of students' collaboration skills. If the situation is not immediately addressed properly, it will have a very bad impact on students. Learners' inability to collaborate will be a problem in their daily lives. Either in the world of education or when stepping into the world of work. Therefore, as a teacher and facilitator, it is necessary to facilitate student learning activities by providing appropriate learning resources and teaching materials that can encourage student activity in the learning process. Some of the sources and teaching materials commonly used are printed books, modules and LKPD (Student Worksheets). (Hardiyanti, 2020)

Based on observations made by researchers at SDN 01 Sukamaju, it shows that the school applies the 2013 curriculum and the teaching materials used. However, in the implementation of learning, teachers do not involve students in learning activities (teacher

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centered), teachers also have not used a variety of learning resources and are less than optimal in using models in learning. In learning activities, the main sources or teaching materials are textbooks and LKPD. However, the LKPD used is the publisher's edition which is still general in nature, where the LKPD only contains a summary of the material and exercises that are less varied so that it does not help students to find their own concepts. In fact, the use of LKPD is a guide, or consistent and systematic steps that students can take to find and learn a material concept.

Daryanto (in Mayke, T. P. (2018) says that "Learner Worksheets (LKPD) are used in the 2013 curriculum, Learner Worksheets (LKPD) are the same as Student Worksheets (LKS). The change from LKS to LKPD has been in effect since Law No. 20 of 2003 on the National Education System, which specifically changes the term student to learner. Because the curriculum used at this time is the 2013 curriculum, the LKS is changed to LKPD. LKPD are sheets containing tasks that must be completed by students. LKPD is an activity sheet that contains instructions, steps to complete a task. LKPD is also one of the teaching materials that teachers often use in the teaching and learning process. LKPD is a worksheet that contains exercises that must be completed by students LKPD is an active worksheet The action contains instructions, steps to complete a task. Collaboration is also one of the teaching tools that teachers often use in the teaching and learning process.

Based on the problems that have been described, there needs to be an innovation in learning that is carried out in the classroom. The learning innovation intended here is the development of collaborative learning-based Learner Worksheets to train collaboration skills in students. According to Apriono (2003), collaborative learning is the interaction between team members, 1) 2) providing input to better understand the problem at hand; 3) asking questions, gaining deeper understanding and solutions; 4) reacting and working to understand others' questions, deeper understanding and solutions; 5) each member authorizing others to speak and give input and to consider their contributions; 6) being accountable to others, and being accountable to themselves; and 7) interdependence among team members.

Collaborative learning (CL) is a learning approach used for teaching and learning that involves a group of students working together to solve problems, complete tasks or produce products. In order to implement the application of the collaborative learning model well, it is necessary to elaborate the learning process in the form of LKPD. Learner Worksheets are practical activities carried out at school by utilizing the surrounding environment. LKPD is a thematic teaching material that aims to stimulate students to be active, create a pleasant learning atmosphere and provide direct experience to students. LKPD functions as a study guide that contains a set of basic activities that must be carried out by students to maximize understanding in an effort to form basic abilities according to the achievement indicators taken (Trianto, 2011). The use of LKPD in the implementation of learning will allow students to experience learning activities themselves and can train student independence. Direct experience can be felt concretely so that the learning outcomes obtained tend to be high. The existence of the collaboration-based LKPD is expected that teachers and

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students can establish good communication, students are more active and able to understand the knowledge provided by the teacher.

Collaboration-based LKPD is expected to improve not only cognitive knowledge but also science process skills in science lessons. Collaborative learning can be concluded that the collaborative learning model is a group learning model, with students in groups encouraged to interact with each other and learn together to improve each other's understanding. The tool used to encourage such interaction is challenging material or problems. The form of interaction in question is discussion, asking each other questions and expressing opinions. This study aims to analyze the effectiveness and attractiveness of the development of Collaborative Learning-based student worksheets to improve the collaboration skills of grade IV students at SDN 01 Sukamaju.

Research Methods

This research is research and development in the form of. Learner Worksheet (LKPD) based on collaborative learning on Class IV elementary school style material. The research method used is R & D (Research and Development) type 4-D (define, design, develop, disseminate) in this study researchers limit it to the develop stage. The teaching material development model and procedures used in this study were adapted from the design model developed by Thiagrajan. The selection of this model is systematic and based on the theoretical basis of learning. This research was conducted at SDN 01 Sukamaju, Abung Semuli District, North Lampung with a research sample of 70 people.

The trial design that will be developed by researchers is illustrated in the figure below:

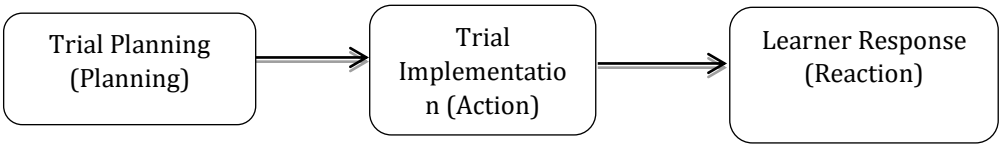

Figure 1: Product Test Design

Using the picture above, it can be explained that the product trial design begins with the trial planning stage.

Research Results and Discussion

Research Results

At the research results stage, the researcher first compiled the 4D development stages developed by Thiagarajan. The four-dimensional model consists of definition, design, development and dissemination. However, in this study, the development of LKPD is limited to the development stage. That is as follows:

1. Define Stage

The defining stage (Define) is carried out to define and determine the analysis of the needs of students, so that a student's needs can be found along with the solution, at this stage consists of 5 steps that researchers do.

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a. Front-end analysis is carried out for the basic problems needed in this research by conducting interviews with teachers and students, especially the LKPD used, which is not in accordance with the curriculum applied at school and should already contain components of collaborative learning activities and collaboration skills in it for students who have difficulty understanding optimally who are less active in learning.
b. Analysis of the characteristics of students is carried out to identify problems and difficulties faced by students in the learning process. such as the material contained in the LKPD, students are less interested in teaching materials, the teaching materials used are not relevant, the lack of active students.
c. Concept analysis is carried out by identifying the concepts taught and organized systematically and in detail.
d. Task analysis with the help of learning task analysis content can be determined.
e. Final step. Formulate learning objectives to facilitate the research as well as develop teaching materials.

The defining stage is carried out directly using observation indicators of student collaboration skills. This observation is carried out when the learning process is taking place.

2. Design State

Furthermore, the Design stage, namely preparing or designing the Learner Worksheets to be developed. In this design activity includes the preparation of a collaborative learning-based Learner Worksheet (LKPD) format. The purpose of designing LKPD is to realize LKPD that suits the needs of students, both in terms of appearance, content, systematic form, and curriculum development, namely based on collaborative learning to improve student collaboration skills. The general steps of the design of the designed learner worksheet.

a. Identify learning objectives
b. Worksheet format selection
c. Difficulty level
d. Clear and understandable language
e. Appropriate instructions
f. Different assessment methods
g. Creating a space for creativity.

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Figure 2. LKPD Display

3. Develop Stage

At this stage, the ultimate goal of development is to produce the final form of learning devices after going through revisions based on expert input consisting of two material experts, two media experts, two design experts and a large group test consisting of seventy students while the attractiveness test only uses ten students, the development stage is carried out by giving a questionnaire statement to experts and groups consisting of 20 question items (material experts, material experts, design experts and large groups). The criteria scale used in the expert response is 81%-100% (very feasible), 61%-80% (feasible), 41-60% (less feasible), 21%-40% (not feasible), and 0%-20% (very not feasible), while measuring the effectiveness of the researcher's collaboration skills using a qualification scale of 81%-100% (very high), 61%-80% (high), 41-60% (medium), 21%-40% (low), and 0%-20% (very low). The results of the expert assessment can be known as follows:

Table 2. material expert

Material Expert	Total	Percentage	Criteria
Material Expert 1	91	**92%**	Very Feasible
Material Expert 2	92		

Source: data processed 2024 (attached)

Based on the results of validation from two material experts, it is known that the development of LKPD in this study received a response of 92% with very feasible criteria for implementation with notes on improvements according to input and suggestions from material experts.

Table 3. media expert

Material Expert	Total	Percentage	Criteria
Material Expert 1	93	**93%**	Very Feasible
Material Expert 2	93		

Source: data processed 2024 (attached)

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Based on the validation results of two media experts, it is known that the development of LKPD in this study received a response of 93% with very feasible criteria for implementation with notes on improvements according to input and suggestions from media experts.

Table 4. design expert

Design Expert	Total	Percentage	Criteria
Design Expert 1	91	**91%**	Very Feasible
Design Expert 2	90		

Source: data processed 2024 (attached)

Based on the results of validation from two design experts, it is known that the development of LKPD in this study received a response of 91% with very feasible criteria for implementation with notes on improvements according to input and suggestions from design experts.

Table 5. Recapitulation of development experts

Expert Validation	Total	Percentage	Criteria
Material Expert	92%	**92%**	Very Feasible
Media Expert	93%		
Design Expert	91%		

Source: data processed 2024 (attached)

Based on the results of the assessment of material experts, media experts and design experts on the development of collaborative learning-based LKPD, it is known that the recapitulation of the assessment gets a percentage of 92% with very feasible criteria. The results of the assessment certainly get a positive response in accordance with input and suggestions from experts, so it can be concluded that the LKPD can be implemented in the field.

In accordance with the results of validation by experts in the development of LKPD based on collaborative learning, the researchers then implemented it at SDN 01 Sukamaju, Abung Semuli District, North Lampung. With a research sample of 70 students, as for the results of the effectiveness carried out by researchers by giving twenty question items, namely as follows:

Table 6. Results of the Effectiveness of LKPD Development Implementation

Question Item	Total	Percentage	Criteria
Question 1	308	87,3%	Very High
Question 2	314		
Question 3	311		
Question 4	301		
Question 5	301		
Question 6	304		
Question 7	311		
Question 8	303		
Question 9	294		
Question 10	308		
Question 11	302		
Question 12	305		

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Question 13	299
Question 14	305
Question 15	307
Question 16	299
Question 17	304
Question 18	313
Question 19	326
Question 20	298

Source: data processed 2024 (attached)

Based on the results of the effectiveness of the development carried out at SDN 1 Sukamaju, Abung Semuli District, it shows that the development of LKPD based on collaborative learning received a positive response with the results of 87.3% of the question items given to 70 students received very high criteria on LKPD based on collaborative learning.

The attractiveness of the development products carried out by researchers is intended to determine the response of students to the products developed, measuring the attractiveness of the product by looking at the results of the questionnaire given to ten educators, as follows:

Table 7. Results of the attractiveness of LKPD Development

Answer	Total	Total	Percentage	Criteria
Answer 1	92	906	90,5	Very High
Answer 2	91			
Answer 3	91			
Answer 4	90			
Answer 5	91			
Answer 6	90			
Answer 7	91			
Answer 8	88			
Answer 9	88			
Answer 10	94			

Source: data processed 2024 (attached)

The results of table 7 show that the attractiveness of the LKPD development product is very high, the assessment made by the students, of course, based on the question items used by the researcher as an instrument in providing answers to the LKPD development product, the percentage results show a value of 90.5% with a very high intervention of the attractiveness of collaborative learning LKPD implemented by researchers to students.

Discussion

Collaboration skills are something that is needed by society in today's life, because almost all behaviors in society show the cooperation of all levels of society, regardless of differences in ethnicity, religion, race, men and women, and groups. To maintain and grow these activities, collaborative work is needed, which emphasizes mutual understanding, respect, responsibility, and tolerance. (Apriono, D. (2013).

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Collaborative learning aims to stimulate student engagement, improve social skills, and prepare them to work in environments that require collaboration and group problem solving. Collaborative learning is an approach in education where students work together to achieve a common learning goal. It emphasizes cooperation, interaction, and active participation between students, which can take many forms, including group projects, group discussions, and other shared activities.

Lord, T. R. (1997) in his research entitled Collaborative learning (Effective teaching and course management for university and college science teachers. Kendall/Hunt, Dubuque, IA, 21-34) states Through collaboration with peers, everyone tests their new understanding and corrects their misconceptions. As knowledge is acquired, it shapes the pre-existing views held by students. This is how knowledge develops in our minds, and it is the essence of good science teaching.

The results of the development carried out by researchers certainly get a significant response with the results of 87.3% very high, the effectiveness of product development of collaborative learning-based LKPD explains that collaborative learning is needed in the learning and learning process of students, especially in elementary level learning. During the growth and development of students, intellectual intelligence (IQ), emotional intelligence (EQ), spiritual intelligence (SQ), multiple intelligence and other forms of intelligence are needed. (Ariyanti, T. 2016).

The development of collaborative learning-based LKPD certainly adds learning media that are in accordance with the context of the development of the industrial revolution, field implementation shows that the attractiveness of LKPD development contributes to teachers and students in a better and more enjoyable learning process of 20 students responded that 90.5% with very high intervention said the development of LKPD was very interesting. This is certainly the basis for teachers to be consistent in designing and implementing more effective and efficient learning and learning in order to achieve the learning objectives that have been set.

This research is supported by research conducted by Lovandri Dwanda Putra, Filianti, the results showed that the results showed that the majority of teachers stated that Canva for Education can help create or develop creative and interactive learning media/multimedia for distance learning. The use of Canva for Education in distance learning is also able to create collaborative learning. This greatly supports the achievement of the expected learning output in today's digital era. (Furthermore, Risma Valentina Fitriyani, S. Supeno, and M. Maryani stated that the average value of problem solving skills in the experimental class was 72.22 and the control class was 45.46. Researchers used the t test, namely independent sample t-test and obtained Sig. (2-tailed) results of 0.00. So it can be concluded that the collaborative worksheet on the problem-based learning model has a significant effect on the physics problem solving skills of high school students. The results of this study carry the implication that collaborative worksheets can be used in the implementation of problem-based learning as a form of assistance for students to teach problem solving skills. (Fitriyani, R. V., Supeno, S., & Maryani, M. 2019).

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Conclusions

The effectiveness and attractiveness of developing Collaborative Learning-based learner worksheets to improve collaboration skills of grade IV students at SDN 01 Sukamaju received a positive response with a significant increase in student collaboration skills after applying Collaborative Learning-based worksheets. Students can work more effectively as a team, communicate with each other, and together achieve learning goals. The implementation of Collaborative Learning not only improves academic skills, but also develops students' social skills. They learn to work together, listen to others' opinions, and respect differences within the group.

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