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Development of LKPD Through the RADEC Model to Improve Learning Outcomes of Pancasila Education for Class IV SDN 064990 Medan Johor

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Abstract: This study develops Student Worksheets (LKPD) based on the RADEC (Read, Answer, Discuss, Explain, Create) learning model to improve learning outcomes of Pancasila Education on the material "Cooperation in My Environment" for fourth grade students of SDN 064990 Medan Johor. This study uses an R&D approach with the 4D model (Define, Design, Develop), without the Disseminate stage due to time constraints. Data collection includes expert validation of questionnaires, teacher and student response surveys, and pretests and posttests. Data analysis uses quantitative descriptive methods (SPSS and N-Gain). The validation results show that LKPD is very feasible in terms of content (86.11%), design (92.85%), and language (81.94%). The practical test produced very positive responses from teachers (92.7%) and students (88.3%). LKPD is proven to be effective in improving learning outcomes with an N-Gain score of 42.86% (moderate category). RADEC-based LKPD also succeeded in increasing character values and 21st century skills (collaboration, critical thinking, creativity). In conclusion, RADEC-based LKPD is very valid, practical, and quite effective for Pancasila Education learning, and can be replicated and become a reference for innovation in the Merdeka Curriculum.

Keywords: *Student Worksheet, RADEC Model, Pancasila Education, Learning Outcomes, Merdeka Curriculum*

A. Introduction

The improvement of the quality of education must continue to be encouraged in order to be able to keep up with the development of the times and prepare superior human resources. Especially in the 21st century, education continues to adapt to various innovations, especially in the learning process, in order to create more effective and relevant methods or models.

Adaptation in the field of education is inseparable from government policies in implementing the government system. One of the government policies in the current education system is the change in the subject of Citizenship Education (PKn) to Pancasila Education, which is mandatory in all schools starting this year. Changes in the name and focus of this subject often occur in accordance with the dynamics of the Indonesian nation and the character of its people. Therefore, Pancasila Education is flexible and able to adapt to developments in the era in Indonesia.

According to Mulyani et al., (2023:34) Pancasila Education is one of the main pillars in the formation of character and identity of the Indonesian nation. Students who successfully achieve competency in this subject are expected to be able to form a strong character, improve knowledge and skills, and develop critical thinking skills in order to achieve optimal learning outcomes. In addition, students are also expected to be able to implement the values of Pancasila Education in everyday life. However, in reality, the implementation of Pancasila Education is still not fully in line with the knowledge taught due to limitations in the implementation of learning and the material presented by educators has not been applied comprehensively in the practice of student life.

A good educator should be able to explain the material clearly and develop their skills in managing learning according to the material to be presented. In addition, educators also need to adapt to the rapid advancement of technology in order to be able to empower technology in the field of education so that the learning process is more effective. However, the reality in the field often does not match expectations, especially in the use of teaching materials. Many educators are still not fully ready to adapt to technological developments, especially in the creation of teaching materials that are increasingly developing and increasingly interesting. In fact, the use of technology in teaching materials is an important aspect in improving the quality of learning in the classroom.

In addition, the Student Worksheet (LKPD) teaching material is currently easily accessible and has undergone various creations, so that it can attract students' attention to be more active in learning. In addition, LKPD can help students to improve learning outcomes in class. LKPD can also direct students to be more active, sporty, and open to outside ideas. The development of LKPD has an important role in facilitating students to learn according to their intelligence. Through LKPD, students can be directed to maximize their intelligence and developing LKPD can accommodate students' intelligence easily, such as student characteristics and the material taught must be well combined to produce the right LKPD as a learning tool (Lestari, N. D., & Pratiwi, N. 2024).

Observations conducted at SDN 064990 Medan Johor showed several things that need to be considered to improve the potential of the learning process, especially in Pancasila Education learning in grade IV of Elementary Schools using the Merdeka Curriculum. The results of the observation showed that several classes still use exercise books alternately with deskmates. In fact, some students do not have exercise books to work on questions after learning.

This condition causes educators to not always provide questions from books or LKPD facilitated by the school. As an alternative, educators only provide questions by writing on the board so that all students can work on them without having to share books or write in turns. However, this can cause chaos and discomfort during the learning process.

The impact is that students will lose their natural and direct learning experience, and only respond to instructions from educators. Pancasila Education learning is very important as an approach developed in elementary schools to shape students' attitudes and morals. Therefore, improvements need to be made in the learning process to improve the quality of learning and achieve the desired educational goals.

According to Triana, N. (2021) Student Worksheets (LKPD) are an important tool in the learning process that contains a set of basic activities to maximize understanding and the formation of basic student abilities. Through LKPD, the initial arrangement of knowledge and understanding is empowered through the provision of learning media that allows learning situations to become more meaningful and productive. Therefore, LKPD has several important functions in learning, including: (1) Facilitating educators in managing the learning process by shifting the focus from teacher center to student center; (2) Helping educators direct students to find concepts through their own activities or in work groups; (3) Developing process skills, scientific attitudes, and arousing students' interest in the surrounding environment; (4) Facilitating educators in monitoring students' success in achieving learning targets. Thus, LKPD becomes an important tool in improving the quality of learning and achieving the desired educational goals.

In the development of Student Worksheets (LKPD), learning models play an important role in improving the quality of learning. Therefore, educators need to master various learning models that

can increase active participation of students and avoid boredom in the learning process. One of the effective learning models in accommodating these aspects is the RADEC (Read-Answer-Discuss-Explain And Create) learning model. This model is a systematic and structured approach, which involves students in an active and creative learning process. Through this model, students can develop their reading skills, answer questions, discuss, explain, and create something new.

The RADEC (Read-Answer-Discuss-Explain And Create) Learning Model is a student centered learning approach that actively involves students in solving learning difficulties. According to Sopandi (2017:17) and Sopandi et al. (2019:28), the RADEC learning model is suitable for Indonesian conditions and can be used as an innovative alternative learning model. Primary and secondary education educators can easily learn the syntax of the model and make it a suitable choice for use in this research location. The syntax is not only easy to learn, but is also made with the Indonesian education system in mind, which requires students to understand many scientific topics in a short time. This model can represent the latest developments in education, which aims to achieve literacy, character, and 21st century skills along with exam preparation for higher education and universities.

Students' intelligence can develop through the implementation of the RADEC Learning Model (Read-Answer-Discuss-Explain And Create). This model changes the paradigm of learning, especially in the role of educators. Educators not only give lectures, but also walk around the class to facilitate discussions, ask questions, and encourage students to be more creative and realize the value of learning.

Research by Mubiar Agustin, Yoga Adi Pratama, and Wahyu Sopandi (2022:34) shows that the RADEC learning paradigm can help develop students' thinking skills. This study used a

pre experimental method with a one-group pre-test and post-test design. The research sample was 27 class VA students at the Rahmatan Lil Alamin Integrated Islamic Elementary School (SDIT), Bogor.

The instrument used a critical thinking skills test and observation sheet. The results showed that students' critical thinking skills increased significantly, with an average score of 74 in the pre-test and 86 in the post-test. This difference is also supported by the results of the paired sample t-test at α (0.05), which shows a sig value of 0.000. In addition, the N-gain value (medium category) of 0.513 also shows an increase in students' critical thinking skills. Thus, it can be concluded that the implementation of the RADEC Learning Model can improve students' critical thinking skills.

In line with the research of Fitriyah et al., (2024:11) the results are, 1) Active participation of students in the learning process is influenced by the use of the RADEC learning paradigm. Students have the ability to articulate responses, challenge, clarify, solve problems, and generate concepts for new items related to modifying the state of objects; 2) The analysis shows that, with a sig value of 0.000 <0.05, the video-assisted RADEC learning paradigm has a good influence on concept mastery. In terms of mastery of material ideas about changes in the state of objects, the group that used the video-assisted RADEC learning model obtained more optimal results than the group that did not use it. So, from the background information provided above, it is clear that there is a close relationship between critical thinking, student learning outcomes, and the RADEC Learning Model (Read-Answer-Discuss-Explain And Create). This is relevant to the research that will be conducted with the title "Development of LKPD Through the RADEC Model to Improve Learning Outcomes of Pancasila Education for Grade IV at SDN 064990 Medan Johor".

The results of the researcher's initial survey showed several findings that need to be considered, first, educators are still relatively low in providing Student Worksheets (LKPD) to students. Second, educators have not maximized the creation of teaching modules, so that student learning outcomes are still low. Third, educators have not used a character-based approach in learning. In addition, the facilitated LKPD still does not refer to specifications and is incomplete.

Other findings show that some LKPD do not present examples of the application of concepts in students' daily lives. The contents of LKPD only consist of readings without pictures, colored printed animations, concept maps, and the language used is too complicated. This needs to be fixed to improve the quality of learning and facilitate students in understanding the concepts taught.

Therefore, the current problem is that educators at SDN 064990 Medan Johor use Pancasila Education teaching materials that are classified as very low, especially in the use of LKPD which should be able to develop the intelligence of the students themselves. Some of the LKPD used are also not in accordance with the characteristics of the students that have been observed, so that the learning system seems to force them to be able to follow the ongoing learning process and finally makes students bored in understanding the questions given by the educator.

Based on the description above, the author developed LKPD through the RADEC learning model which is expected that students feel happy to learn and enthusiastic in participating in learning so that they are able to grow their own character, moral attitudes, self-confidence, and independence to explore existing potential, and are able to apply it in everyday life. These reasons are factors for conducting research entitled "Development of LKPD Through the

RADEC Model to Improve Learning Outcomes of Pancasila Education Class IV at SDN 064990 Medan Johor".

B. Methods

This study uses a Research and Development (R&D) approach with the aim of producing a product in the form of a Student Worksheet (LKPD) based on the RADEC (Read, Answer, Discuss, Explain, Create) learning model and testing the effectiveness of its use in improving the learning outcomes of Pancasila Education for grade IV students.

The development model used in this study refers to the 4D model, namely Define, Design, Develop, and Disseminate. However, in this study only three stages were carried out, namely Define, Design, and Develop, considering the limitations of time and scope of the study.

The research instruments used consist of:

1. Validation questionnaire to measure product feasibility from the aspects of material, media design, and language,
2. Teacher and student response questionnaires to assess the practicality of the product,
3. Learning outcome tests in the form of pretests and posttests to assess the effectiveness of LKPD.

The data obtained were analyzed descriptively quantitatively. Product validation was analyzed based on the percentage score of eligibility. Product effectiveness was analyzed using a paired sample t-test with the help of SPSS, as well as N-Gain calculations to measure the increase in student learning outcomes according to Hake's criteria.

C. Results and Discussion

Product Validation Results
Subject Matter Expert Validation

Validation was conducted in two stages. In the first stage, the average score of LKPD eligibility by material experts reached 65.27%, categorized as "eligible". After revision, the score increased to 86.11%, categorized as "very feasible". The overall average validation was 75.69%, indicating that the product had met the eligibility requirements for use in field trials.

Media Design Validation

The validation results by media design experts showed an increase from 83.92% in the first stage to 92.85% in the second stage. With an average of 88.38%, LKPD was declared very feasible visually and in design to support interesting and communicative learning.

Linguist Validation

Validation was conducted once with a score of 81.94%, indicating that the use of language in the LKPD was very appropriate, although there was minor input for improving the question instructions. Because the score was high, no second stage validation was conducted. Overall, the three validation aspects show that the RADEC-based LKPD product developed is suitable for use in field learning trials.

Summary of Data Analysis of Phase I and II Trial Results: Expert Validation Materials, Learning Media Design Expert, and Language Expert

From the overall validation results carried out by several experts including material experts, learning media design experts, and language experts on the developed products, so that they get a value that is worthy

of being tested in the field, with the average score obtained included in the category of being worthy of being used in field trials. Therefore, each assessment from the validator can be seen in the following summary table:

Table 1. Validator Summary Results

Validation	Stage 1	Stage 2	Criteria
Material Validation	65.27	86.11	Very Worth It
Media Design Validation	83.92	92.85	Very Worth It
Language Validation	81.94	-	Very Worth It

Based on table below, the validation value of the suitability of learning media can be clearly seen based on the following diagram:

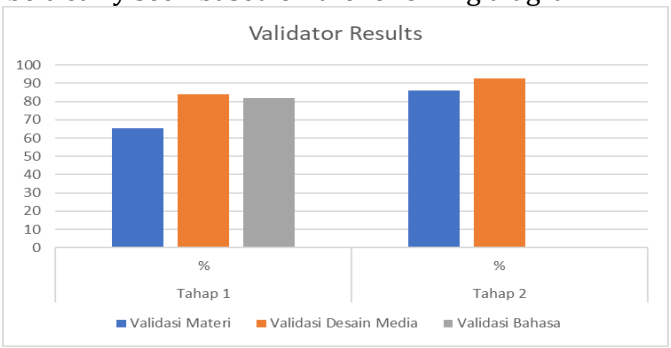


Figure 1. Summary Graph of Validation Results Assessment

The diagram above is a summary obtained from the validation results and has been carried out and assessed by several experts related to their fields. The average score obtained from the validation carried out in two stages, the first average score obtained from the material expert validator in stage I was 65.27%, in stage II obtained an average score of 86.11%. In the design of learning media stage I obtained an average score from the validator of 83.92%, in stage II obtained 92.85% and finally the validation carried out by the language expert validator with an average score obtained in stage I of 81.94%. It can be seen from the validation results that have been carried out, both those that are only in stage one and those that have reached stage two, it can be concluded that the learning media developed in the form of LKPD based on *read, answer, discuss, explain, create* (RADEC) from the overall score shows a very valid category (very feasible) so that the product developed is very feasible to be used for

testing and the LKPD developed is also in accordance with the syntax *read, answer, discuss, explain, create* (READ) contained in the LKPD.

Evaluation Result Data: Teacher Response Assessment and Response

Four teachers gave an assessment of LKPD with an average score of 92.7%, included in the very practical category. Teachers stated that LKPD is easy to use, interesting, and able to help the active learning process. The assessment and responses from this individual trial were to obtain input and criticism as well as suggestions on the products developed which can be seen in the following table:

Table 2. Results of Assessment and Teacher Responses to Learning Media in the Form of LKPD Based on *Read, Answer, Discuss, Explain, Create* (RADEC)

Average Score	Number of Respondents	Average	Criteria
70% ≤to ≤100%	4	92.7%	Very Practical

Based on the results of the percentage assessment of the trial of teacher responses to LKPD based on *read, answer, discuss, explain, create, it can be* concluded that overall the percentage of the average value of the indicator is 92.7%. This shows that the range of values is at a score of 92.7% P <100% according to the practicality percentage scale of the LKPD learning media showing 100%, so this gets a very practical classification. So, the results of the LKPD learning media assessment assessed from teacher responses can be in the "very practical" category for use in learning.

Evaluation Result Data: Student Response Trial

A total of 30 fourth grade students gave an assessment of LKPD, with an average score of 88.3%. This shows that students feel LKPD is fun, easy to understand, and makes them more active in learning. From the trial that was carried out, the value of the response from the results of the student response trial to the developed LKPD will be obtained. Therefore, the results of the student response trial evaluation can be seen in the table below:

Table 3. Assessment and Responses from the Results of the Trial of Student Responses to the LKPD Learning Media Based on *Read, Answer, Discuss, Explain, Create* (RADEC) at SDN 064990 Medan Johor

Average Score	Number of Respondents	Average	Criteria
70% ≤to ≤100%	30	88.3%	Very Practical

Based on the results of the percentage assessment of the trial of student responses to the LKPD learning media based on *read, answer, discuss, explain, create* (RADEC) on the Pancasila Education subject with the material of cooperation in my environment that has been done, so that it gets an average value of 88.3%. Where the results of this trial show a range of 88.3 <P <100%, this is in accordance with the assessment criteria of Yamansari (in Santoso, 2016) where the percentage scale of the practicality of learning media shows a value of 70 <P <100% getting a very practical classification. Therefore, the trial of student response results shows a value of 88.3 <P <100% where the value is in accordance with the assessment criteria, so that the value of the trial of student response results shows into the category of "very practical" to be used as a learning medium. The data obtained through the student response questionnaire were then analyzed to obtain the accumulation level of the LKPD learning media based on *read, answer, discuss, explain, create* (RADEC) which was developed can be seen in table as follows:

Table 4. Analysis of Teacher and Student Response Questionnaire Regarding LKPD Learning Media Based on *Read, Answer, Discuss, Explain, Create* (RADEC)

No	Validation	RTP	Average	Criteria
1	Teacher Response	92.7%	90.5%	Very Practical
2	Student Response	88.3%		Very Practical

Based on the overall data from the analysis of teacher and student responses to the use of LKPD learning media based on *read, answer, discuss, explain, create* (RADEC) can be seen from the results of the overall average value of 90.5%. From the results of the teacher's response consisting of 4 people including 1 homeroom teacher IV, and 3 other people are teachers who teach in class IV, while from the student response consisting of 30 class IV students.

Product Effectiveness Research Results
Results of Pretest and Posttest Data Analysis of Student Learning Outcomes

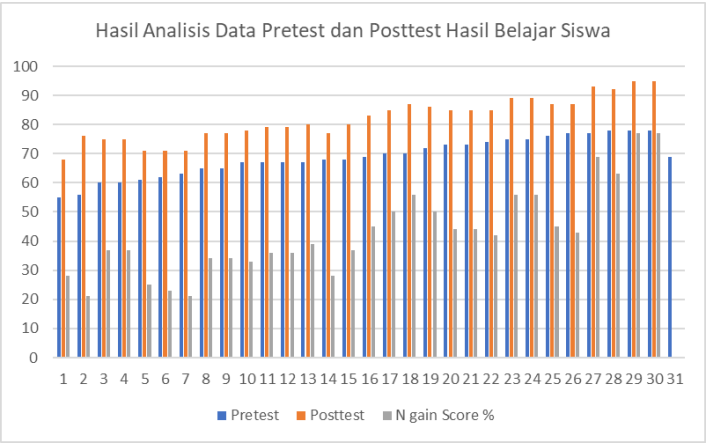
The field trial phase that is carried out will obtain data results and will be analyzed to determine the effectiveness value of learning media in the form of LKPD based on *read, answer, discuss, explain, create* (RADEC) on the subject of Pancasila education which was developed based on the results of the pretest and posttest trials conducted. However, before the posttest trial, students will carry out learning activities without using the LKPD learning media developed or before being given treatment. The results of the pretest and posttest can be seen in table below.

Table 5. Results of Pretest and Posttest Data Analysis of Student Learning Outcomes

No	Pretest	Posttest	Pre-posttest	Ideal Score	N gain Score	N gain Score %
N= 30	68,86667	81.9	12.7	31.2	0.4286	42.86

Based on the results of the table above, it can be described in the form of a histogram of the frequency distribution of the pretest and posttest results scores in the following image.

Figure 2. Results of Pretest and Posttest Data Analysis of Student Learning



Outcomes

The results of the pretest and posttest data analysis that have been conducted at SDN 064990 Medan Johor can be seen in the table above showing the results of the pretest and posttest in class IV. Almost all students obtained scores below the average and the completion score. However, after the pretest was conducted and the results of the trial were known, then a posttest trial or trial was conducted after the treatment was carried out, namely learning using learning media in the form of LKPD based on *read, answer, discuss, explain, create* (RADEC) for the posttest results themselves can be seen in the table above showing that there were 26 students who obtained scores above the average completion score or as many as 86% and 4 students obtained scores below the average completion score or as many as 14% who did not complete.

The table above shows that the N gain value is 42.86 %, it can be concluded that the trial conducted has been quite effective, where the average value of N gain shows in the category of quite effective. Then for the value of N gain score of 0.4286% where the value is in the moderate category, this is because the value of N gain 0.5645 is between the values 0.35 ≤g ≤0.7 with the category of N gain score "moderate". After the trial was conducted, the next stage was a validity test and reliability test. This trial was conducted with the aim of determining the validity of the questions that would be applied in the experiment conducted.

Student Learning Outcomes Using Learning Media RADEC Based LKPD

With a total of 30 students collected, they obtained a score of 55 to 95, with a Mode (Mo) of 85, a median (Me) of 81.5, and a mean (M) of 81.9.

Table 6. Student Learning Outcomes Using RADEC-Based LKPD Learning Media

The highest score	95
Lowest Value	68
Average	81.9
Mode	85
Median	81.5

The frequency distribution of learning outcomes about cooperation in my environment which was studied using learning devices (XPD) based on *read, answer, discuss, explain, create* (RADEC) can be seen in table below.

Table 7. Frequency Distribution of Student Learning Outcome Scores Using LKPD Learning Media Based on *Read, Answer, Discuss, Explain, Create* (RADEC)

Mark	Frequency
68	1
71	3
75	2
76	1
77	3
78	1
79	2
80	2
83	1
85	4
86	1
87	3
89	2
92	1
93	1
95	2

Based on the results of the table above, it can be described in a histogram the frequency distribution of the learning outcome scores of Pancasila education on the material of cooperation in my environment which is taught using LKPD learning media based on *read, answer, discuss, explain, create* (RADEC) in Figure below.

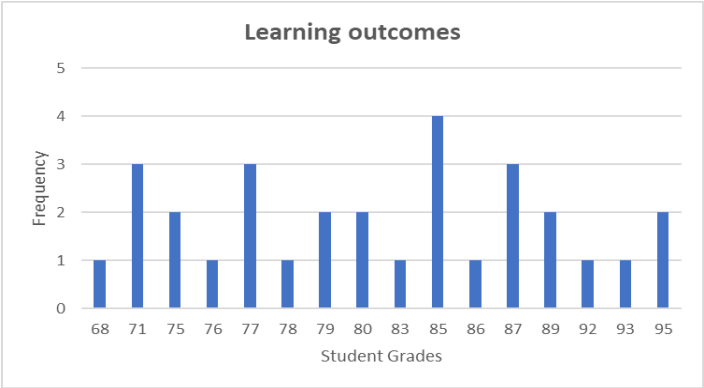


Figure 3. Histogram of Student Learning Outcome Scores Using LKPD Learning Media Based on *Read, Answer, Discuss, Explain, Create* (RADEC)

The histogram image above shows that the learning outcome scores of students using LKPD learning media based on *read, answer, discuss, explain, create* (RADEC) have increased.

Learning Outcomes of Student Character Using Media RADEC Based LKPD Learning

The results of the study indicate that the development and implementation of LKPD based on the RADEC model can improve students' affective attitudes, especially in the context of Pancasila Education learning on the material *Cooperation in My Environment*. During the learning process, students showed more positive changes in attitudes, such as an increased sense of responsibility, spirit of cooperation, and empathy for peers.

This is reflected in group discussion activities, where students are able to listen to friends' opinions, respect each other, and participate actively. In addition, an attitude of pride in being part of the Indonesian nation, an attitude of tolerance towards diversity, and the habit of working together also began to be seen to form during learning activities. By involving students in interactive and meaningful learning, this LKPD media has succeeded in fostering character values in students that are in accordance with the profile of targeted Pancasila students, namely independent,

critical thinking, and working together, which are embedded through collaborative learning experiences in groups.

They not only learn about the importance of cooperation theoretically, but also practice it through real interactions in the classroom. Evaluation of students' affectivity is also seen from their positive responses to the learning media. As many as 88.3% of students and 92.7% of teachers gave a "very practical" assessment, which reflects the high affective involvement of students during the learning process.

Learning Outcomes of Student Skills Using RADEC-Based LKPD Learning Media

The learning outcomes from the psychomotor aspect using RADEC-based LKPD also have a positive impact on students' practical skills. This is shown through the "Create" activity in the RADEC syntax, where students are assigned to create real products in the form of plant pots from used plastic bottles. This project encourages students to apply knowledge in the form of real actions, hone fine motor skills, and develop the ability to work together in completing tasks in groups. In addition, other activities such as filling out LKPD, writing discussion results improve writing skills, and presenting work results. In presentations, students are also trained to have the courage to appear in public, speak systematically, and use appropriate body language, all of which are forms of expressive motor skill development and using simple tools in the process of creating works. Thus, the psychomotor aspect of students develops systematically through structured and contextual activities and contributes directly to learning, not just passively or theoretically.

The assessment of these two aspects is supported by data from the results of a trial of 30 fourth-grade students at SDN 064990 Medan Johor. The response test showed that the LKPD media was not only "very feasible" in terms of material validation, design, and language, but also very practical in terms of use by teachers and students. Thus, the psychomotor aspect developed through the RADEC LKPD plays a major role in forming more holistic learning, in accordance with the principles of 21st-century learning and the Pancasila Student Profile.

D. Conclusions

Conlusion Based on the research results and discussion, the following conclusions can be drawn: Based on the research results and discussion, the following conclusions can be drawn: LKPD based on the RADEC model effectively improves the learning outcomes of grade 4 Pancasila Education students, with 86% of students completing and N-Gain 42.86% (quite effective). Expert validation shows that the product's feasibility is very high (material 86.11%, design 92.85%, language 81.94%). LKPD is also very practical to use (teacher response 92.7%, students 88.3%), facilitating teaching and student understanding. In addition, this LKPD has succeeded in strengthening character (mutual cooperation, tolerance) and 21st century skills (critical thinking, creativity, collaboration) through the "Create" activity.

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