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Development of LKPD with Ethnoscience Content of Lombok Island to Train Science Literacy Skills in Learning IPAS Class V SDN 27 Ampenan

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Abstract: This research aims to produce teaching materials LKPD with ethnoscience content of Lombok Island to train science literacy skills in IPAS learning class V SDN 27 Ampenan which is valid, practical, and effective. The type of research used is Research and Development (R&D) with the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The research subjects were 20 students from the VA SDN 27 Ampenan class. The data collection instruments used were media and material expert validation questionnaire sheets, teacher and student response questionnaire sheets, and science literacy ability test sheets. The results showed the validity of LKPD obtained a percentage value of 89.96% with very valid criteria. In the small group trial with 8 students, the LKPD obtained a percentage value of 95% with very practical criteria by teachers and 97.11% with very practical criteria by students. In the large group trial with 20 students, the LKPD obtained a percentage value of 96% with very practical criteria by teachers and 92.92% with very practical criteria by students. The completeness of the learning outcomes of science literacy skills was 100% with a very effective category, the achievement of science literacy indicators was 88.25% with a very good category, and the average N-Gain was 0.77 with a high category. Based on these results, the LKPD can be declared valid, practical, and effective as teaching materials to train science literacy skills in class V SDN 27 Ampenan.

Keywords: Learner Worksheet, LKPD, Ethnoscience, Science Literacy

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Introduction

Since the world entered the 21st century, there have been fundamental changes that are different from the order of life in the previous century. In the 21st century, there are transformations in various fields of life, one of which is the field of education. Indonesia has several challenges in the 21st century, including learners who are required to develop their critical thinking, oral and written communication, teamwork, creativity, research skills, and problem-solving techniques to compete and develop in the long-term (Nabilah & Nana, 2020). Faced with these challenges, the education system requires a paradigm shift to equip learners with the set of 21st-century skills they need to cope with all aspects of life.

To produce a great generation as the nation's successor, it is only natural for the world of education to implement 21st-century learning. According to Mardhiyah et al., (2021), 4 basic skills need to be mastered by students and need to be developed by teachers in learning, namely 4C skills consisting of Critical Thinking and Problem Solving, Creativity, Communication Skills, and the Ability to Work Collaboratively. Meanwhile, according to Wefusa (in Pratiwi et al., 2019), science literacy is one of the sixteen important abilities in the 21st century identified by the World Economic Forum and the sixteen abilities are divided into three categories: six basic literacies, four competencies, and six characters. The six basic literacy categories are science literacy, financial literacy, ICT

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literacy, reading literacy, numeracy literacy, and cultural and civic literacy (Nugraha & Octavianah, 2020).

One of the skills that students must master in the 21st century is science literacy. According to Syofyan & Amir (in Rokhayati et al., 2022), science literacy is the knowledge that allows a person to understand scientific ideas and procedures and allows people to apply their knowledge in making decisions. In the opinion of Irsan (2021), science literacy is a person's ability to understand and apply science to solve problems to foster attitudes and awareness of the environment. Meanwhile, according to Sativa & Eliza (2023), science literacy is the ability to decipher, assess, explore, and interpret scientific information so that it can be applied in everyday life. From the expert opinions above, it can be concluded that science literacy is a person's ability to understand scientific ideas and procedures, apply scientific knowledge in solving problems and making decisions, and describe, assess, explore, and interpret scientific information so that it can be applied in everyday life. Thus, science literacy focuses not only on understanding science concepts and procedures but also on applying that knowledge and understanding in real situations to produce appropriate solutions or decisions.

The urgency of science literacy in Indonesia can be seen through the Programme for International Student Assessment (PISA) conducted by the Organization for Economic Coordination and Development (OECD) is a study that assesses reading literacy, mathematics literacy, and science literacy in children aged 12-15 years (Hewi & Shaleh, 2020). In 2018, Indonesia's PISA literacy results experienced a significant decline compared to the PISA results in 2015 and the largest decline occurred in reading literacy of 371, math literacy of 379, followed by science literacy of 396 (Amini & Sinaga, 2021). Then Indonesia's PISA results in 2022 which are the latest show that science literacy has decreased again to 383 (OECD, 2023). Based on the results of the PISA study, we know together that Indonesia's level of science literacy is still very low. In addition, if science literacy is not mastered by students, especially students from elementary school age, there will be many unfavorable impacts that occur. According to Safrizal et al., (2019), the lack of mastery of science literacy results in students having difficulty in developing creativity and improving their ability to use scientific knowledge in everyday life, facing difficulties in problem-solving, and being slow in making decisions (Yusmar & Fadilah, 2023). Furthermore, Safrizal mentioned that another impact of low science literacy can cause students to be less responsive to environmental issues, such as natural phenomena and local characteristics of the region. Therefore, it is very necessary to train the science literacy skills of students in Indonesia. Science literacy skills can be taught early to the next generation through learning in schools.

Based on the data from the PISA results and expert opinions above, more attention is needed to the learning process of science literacy skills through science subjects in elementary schools. One of the efforts that can be taken is to implement learning that is by the curriculum and the characteristics of students. This will make it easier for students to understand learning. Implementing science literacy skills requires a transformation of learning from teacher-centered to student-centered, from individual learning to collaborative learning, and emphasizes the application of scientific knowledge, creativity, creating, and problem-solving. There are various lessons that teachers can apply in training students' science literacy skills, one of which is learning that is integrated with local culture (ethnoscience). Ethnoscience is based on the view of constructivism, which emphasizes meaningful learning (Akmal et al., 2020). In line with Atmojo's opinion (in Pertiwi & Firdausi, 2019), ethnoscience-filled learning is believed to be able to change educator-centered learning to learner-centered learning, making contextual and meaningful learning so that efforts to train students' science literacy skills can be easier.

In the process of learning science literacy in schools, in addition to paying attention to the learning applied, teaching materials also play a very important role in the achievement of learning objectives. Effective learning requires the right teaching materials because the selection of teaching materials can be the cause of the lack of achievement of learning objectives. Therefore, the right teaching materials are needed to train students' science literacy skills. Teaching material is something that contains information or learning messages that teachers or lecturers use when conducting learning activities in the classroom or outside the classroom (Magdalena et al., 2020).

There are various types of teaching materials, one of which is the Learner Worksheet (LKPD). Learner Worksheets (LKPD) are teaching materials that can be developed by teachers as facilitators of learning activities. The goal is to make learning easier for the teacher while allowing students to learn, understand, and complete their own written assignments. One type of LKPD is LKPD with ethnoscience content, which is a Learner Worksheet in which there are elements of science and local culture or LKPD that reconstructs scientific science knowledge with an orientation to local culture. In line with the opinion of Innatesari (2015), science literacy skills can be created by making local culture or ethnoscience as learning materials or sources

(Siagian et al., 2022). Therefore, researchers are interested in developing LKPD with ethnoscience content to train students' science literacy skills because they contain contextual learning materials that are associated with the culture of the local community by the daily lives of students.

In the reality found by researchers based on the results of observations and interviews in Class VA SDN 27 Ampenan, teachers have never used LKPD with ethnoscience content teaching materials to train students' science literacy skills. Teaching materials, learning media, and learning resources that teachers usually use are thematic books, poster media, pictures, and power points. The VA class teacher also said that it was their first time hearing the term ethnoscience. In addition, the VA class teacher has never trained the students science literacy skills. The VA class teacher also said that during the learning process, the teacher made teaching materials in the form of LKPD only on materials that were considered the most important and needed more emphasis for students. The LKPD made by the teacher usually only contains questions without any stages in the LKPD that can support the scientific thinking process and skills that can train students' science literacy. In addition, the LKPD used is also less attractive, only black and white.

When researchers observed the learning process that took place, students were very enthusiastic about learning, classroom conditions were quite conducive, and the curiosity of students was very high, students were also very active in answering questions given by the teacher and enthusiastically working on practice problems given by the teacher to the front of the class. However, students have not dared to make their own decisions, and must always be directed by the teacher in doing something. In addition, the VA class teacher also said that students quickly forget the material that has been taught. So far, students' understanding of the material taught is only limited to memorization. Of course, memorization without understanding the concept and meaning is very easy to make students forget. This causes a lack of maximum achievement of 21st-century learning goals, namely students who are guided to have science literacy skills, where science literacy is not limited to memorizing, reading, and understanding science alone but the skills that a person uses to apply the principles of scientific knowledge in everyday life. Therefore, researchers are interested in developing ethnoscience-loaded LKPDs so that they can be used to train the science literacy skills of VA class students of SDN 27 Ampenan. The ethnoscience-loaded LKPD developed is ethnoscience-loaded LKPD Lombok Island because it is adapted to the location of the school and where students live.

Science learning in elementary schools is taught through the subject of Natural Sciences (IPA). In the independent curriculum at the elementary school level, science subjects are no longer combined with other subjects as in the 2013 curriculum. In the independent curriculum, science subjects are combined with social studies subjects which then become Natural and Social Sciences (IPAS) subjects which are expected to trigger children to be able to manage the natural and social environment in one unit (Kemdikbudristek, 2022). The material that has the potential to train science literacy skills and can be linked to local culture in IPAS learning is sound and its properties. The Learning Outcome (CP) in this material is that based on their understanding of the concept of sound waves, students can demonstrate how it is applied in everyday life. So based on the problems and explanations above, researchers are interested in developing LKPD with ethnoscience content of Lombok Island to train science literacy skills in IPAS learning for class V SDN 27 Ampenan.

Method

This research uses the type of Research and Development (R&D). Research and Development (R&D) is a research technique that produces products that can then be tested to determine their effectiveness (Sugiyono, 2016). This research refers to the ADDIE development model. ADDIE stands for Analysis, Design, Development, Implementation, and Evaluation which are the stages of the development model. In line with the opinion of Cahyadi (2019), the ADDIE development model is an instructional process consisting of five phases or stages, namely analysis, design, development, implementation, and evaluation. The ADDIE model can be illustrated in the figure below.

Figure 1. ADDIE Models

This research was conducted in May 2024 even semester of the 2023/2024 school year at SDN 27 Ampenan. The research subjects were all students of class VA SDN 27 Ampenan, totaling 20 students. Data in this study were obtained through media and material expert validation questionnaires, teacher and student response questionnaires, as well as pre-test and post-test results of students' science literacy skills. The data analysis techniques used in this research are qualitative data analysis techniques and quantitative data analysis techniques.

1. Qualitative Data Analysis

Qualitative data analyzed in this study is information obtained through responses in the form of suggestions and input contained in the questionnaire. This qualitative data analysis technique is used to process data from the review of media experts, material experts, and teacher and student responses in the form of suggestions and comments regarding product improvement.

2. Quantitative Data Analysis

Quantitative data analysis techniques are carried out by analyzing data from the assessment results from validators and respondents in the form of numbers. Quantitative data is obtained through an assessment sheet or questionnaire from media experts, material experts, teacher responses, student responses, and assessment of the results of the test of students' science literacy skills. The assessment of each statement item in the questionnaire uses a Likert scale. According to Sugiyono (2016), the Likert scale is used to measure the attitudes, opinions, and perceptions of a person or group of people about social phenomena. In line with this opinion, researchers chose to use a Likert scale to measure the opinions of a group of people, in this case, the opinions of media experts, material experts, teachers, and students on the LKPD with ethnoscience content of Lombok Island that was developed. The increase between the pre-test and post-test results of science literacy skills was assessed through normalized gain analysis <g>. Normalized gain or N-gain score aims to determine the effectiveness of using a particular method or treatment in research (Ndia et al., 2021).

The quantitative data analysis techniques in this study include validity data analysis, practicality data analysis, and effectiveness data analysis.

a. Data Analysis of Validity

This validity data was obtained from a questionnaire of media and material experts which was then analyzed using a Likert scale on a rating score of 1 to 5. Then the response value can be converted using the average calculation formula.

Furthermore, to calculate the final score of all validators using percentage. To be able to provide meaning in making decisions regarding the level of validity of the teaching material products developed, it can use the transformation of the achievement level scale as follows.

Table 1. Criteria for Level of Validity Based on Percentage

Achievement Level (%)	Criteria
86-100	Very Valid
75-85	Valid
60-75	Moderately Valid
55-59	Less Valid
0-54	Not Valid

(Source: Noviyanti et al., 2023)

b. Practicality Data Analysis

This practicality data was obtained from a teacher response questionnaire and a learner response questionnaire which was then analyzed using a Likert scale on a rating score of 1 to 5. Furthermore, to calculate the final score of all respondents using percentage. To be able to provide meaning in making decisions regarding the level of practicality of the teaching material products developed, it can use the transformation of the achievement level scale as follows.

Table 2. Criteria for Practicality Level Based on Percentage

Achievement Level (%)	Criteria
86-100	Very Practical
75-85	Practical
60-75	Moderately Practical
55-59	Less Practical
0-54	Not Practical

(Source: Noviyanti et al., 2023)

c. Effectiveness Data Analysis

Data effectiveness analysis is used to analyze data obtained from data sources to determine the effectiveness of the products developed. The effectiveness of LKPD is reviewed from the achievement of students' science literacy skills. Learning outcomes of science literacy skills were assessed using pre-test and post-test sheets. Students are said to be passed if they have met the KKM (Minimum Completeness Criteria) limit or in the Merdeka Curriculum it is called KKTP (Criteria for Achieving Learning Objectives) which is determined based on the KKTP for IPAS Content that applies at school, namely ≥ 70.

Then the results of students' scores are calculated for class completeness. According to the Department of Education and Culture, students are said to be complete if they get a minimum score of 75 from the ideal score and classically complete if 85% of students in a class complete learning (Munjiati, 2021). Furthermore, the calculation of completeness is

calculated using classical learning completeness.

In addition, the increase between pre-test and post-test results was analyzed using the Normalized gain or N-gain score method to determine the effectiveness of the developed product. The N-Gain calculation obtained was then interpreted using the classification in Table 3. below.

Table 3. Interpretation of N-Gain Index

N-Gain Score	Category
$0{,}70 < g < 1{,}00$	High
$0{,}30 \leq g < 0{,}70$	Medium
$0{,}00 \leq g \leq 0{,}30$	Low

(Source: Sundayana in Sakinah et al., 2023)

Furthermore, the analysis of students' science literacy skills is calculated using percentage. The percentage gain was interpreted with the criteria for the completeness of science literacy skills as follows.

Table 4. Interpretation Criteria for Completion of Science Literacy Skills

Score	Criteria
85 – 100	Very good
80 - 84,9	Good
55 - 69,9	Moderately Good
40 - 54,9	Less Good
25 - 39,9	Not Good

(Source: Riduwan in Junita & Yuliani, 2022)

Result and Discussion

The results of research and development in this study are in the form of LKPD with ethnoscience content of Lombok Island to train science literacy skills in IPAS learning for grade V SDN 27 Ampenan. The process of developing LKPD with ethnoscience content of Lombok Island to train science literacy skills in grade V IPAS learning goes through five stages by the ADDIE development model used. The results of research and development at each stage in this study are as follows.

1. Analysis

The analysis stage in this research was carried out before developing LKPD with ethnoscience content of Lombok Island to train science literacy skills. In this research, the analysis stage consists of needs analysis, curriculum analysis, and student analysis. The results of the analysis stage are as follows.

Based on the problem of the low science literacy results of Indonesian students according to PISA, researchers conducted interviews and observations about the learning process and teaching materials used by the VA class teacher of SDN 27 Ampenan in training students' science literacy skills. Based on the results of the interview, the teacher has never trained students' science literacy skills using any teaching materials including teaching materials with enoscience content or LKPD teaching materials with ethnoscience content of Lombok Island during the learning process. Teaching materials, learning media, and learning resources that teachers usually use are thematic books, poster media, pictures, and LKPDs that only contain questions and power points. Teachers said that the teaching materials made were only for the learning process as usual and not to train students' science literacy skills. In addition, the teacher also said that it was the first time he heard the term ethnoscience. Observations in the VA class of SDN 27 Ampenan found that in the learning process, the teacher used textbooks and LKPD that were less relevant to the local wisdom of the local area. In addition, the LKPD used contains only questions and is only black and white.

Based on the analysis results, it is known that the curriculum used at SDN 27 Ampenan is the Merdeka Curriculum with learning outcomes referring to the Head of BSKAP No. 8 of 2022 (BSKAP Kemendikbud, 2022). The curriculum used in the school is for learning materials that allow training students' science literacy skills and can be related to the local wisdom of Lombok Island in grade V, namely Topic C material: Sound and its Properties contained in Chapter 1: Seeing because of Light, Hearing because of Sound in Natural and Social Science (IPAS) learning with learning outcomes in phase C of grade V elements of understanding IPAS (science and social), namely based on their understanding of the concept of sound waves, students can demonstrate how it is applied in everyday life. The learning outcomes are then derived into four learning objectives that are adjusted to the scope of material in Chapter 1 Topic C. In the process of creating Learning Objectives (TP) in the Merdeka Curriculum, teachers first read and understand the Learning Outcomes (CP) that are available so that the learning design can match what is intended, which does not need to include audiences, behaviors, conditions, or degrees, but only requires audiences and behaviors that can represent TP (Magdalena et al., 2023). The learning objectives that have been derived from the CP in this LKPD include: explaining the properties of sound based on observations or experiments,

demonstrating the concept of the properties of sound and how it is applied in everyday life, comparing types of reflected sound, and describing the height and intensity of sound. The reduction of CP into four learning objectives is done to fit the material in Topic C so that the learning objectives can be achieved optimally.

Based on observations and interviews conducted by researchers with VA class teachers, it was found that the science literacy of VA class students had never been trained and students' interest in reading was low. During the learning process, learners need encouragement before they dare to answer the teacher's questions, which shows their lack of initiative and courage. In the learning process, the way the teacher taught and the learners' response and enthusiasm for the learning were excellent. However, the VA class teacher revealed that learners quickly forget the material that has been taught. For this reason, meaningful learning and teaching materials that can support the process of training students' science literacy skills such as LKPD teaching materials with ethnoscience content of Lombok Island are needed. Learning that utilizes the social and cultural environment (ethnoscience) in everyday life as a learning resource can also train science literacy skills (Mardianti et al., 2020). According to Nailiyah et al., (in Lubis et al., 2021), learning with ethnoscience content can improve students' understanding of scientific science concepts and can make learning more meaningful. So learning with ethnoscience content teaching materials is by the characteristics of students who quickly forget the material taught. Ethnoscience-loaded teaching materials contain contextual material that is associated with local culture so that it will be easier for students to remember and understand learning material..

2. Design

The design stage is designing teaching materials for LKPD with ethnoscience content of Lombok Island to train science literacy skills as interesting as possible by the analysis stage carried out previously. The design stages are as follows

a. Material Preparation

Before making the design of the developed product, the researcher first determines and compiles the material according to the curriculum used (Hariyati & Rachmadyanti, 2022). The material in the LKPD with ethnoscience content of Lombok Island is adjusted to the curriculum used, namely the Merdeka Curriculum. Based on the results of the analysis, the LKPD with ethnoscience content of Lombok Island product to train science literacy skills contains IPAS learning Topic C material: Sound and its Properties contained in Chapter 1: Seeing because of Light, Hearing because of Sound with learning outcomes in phase C of grade V IPAS understanding elements (science and social), namely based on their understanding of the concept of sound waves, students can demonstrate how it is applied in everyday life.

The material was chosen because it can be associated with the local wisdom of the people of Lombok and has the potential to train students' science literacy skills. In line with the results of research by Hikmawati et al., (2021), The local wisdom of Lombok Island with ethnoscience potential for the development of learning models in schools, namely Sasak Sade Village with the concept of standard unit measurement material, Bau Nyale Tradition with material for classifying living things and objects based on observed characteristics, Tenun Sesek with the concept of mixture and single substance, Gendang Beleq with the concept of vibration, wave, and sound, and Poteng Reket with the concept of biotechnology and its role in human life. According to the opinion of Setyaningrum et al., (2022), the implementation of local wisdom in the form of Gendang Beleq in science learning, especially sound material, can be an alternative innovative learning method because students can be directly involved in finding the concept of phenomena in their environment and can preserve and introduce local culture, namely the culture of the Sasak people on Lombok Island.

In Topic C: Sound and its Properties, there is some material coverage, namely the nature of sound (sound propagates in all directions through intermediary media such as solid, liquid, and gas; sound can be reflected) and the height and intensity of sound. The aspects of science literacy that will be trained using LKPD with ethnoscience content of Lombok Island are in the competency aspect which consists of three competencies including the competency to explain phenomena scientifically, the competency to evaluate and design scientific investigations, and the competency to interpret data and facts scientifically. The aspects of science literacy competence and the integration of Lombok

Island Culture in Sound and Its Properties are described in the following table.

Table 5. Aspects of Science Literacy Competence and Cultural Integration of Lombok Island on the Material of Sound and Its Properties

Science Literacy Competency Indicators	IPAS Learning Indicators	Culture of the People of Lombok Island
Explain phenomena scientifically	• Explaining the nature of sound in everyday life. • Explain the phenomenon of the sound propagation process in an object.	Gendang Beleq Traditional Musical Instrument
Evaluate and design scientific investigations	• Demonstrate how to apply understanding of the concept of sound in everyday life	Gendang Beleq Traditional Musical Instrument
Interpret data and facts scientifically	• Comparing the types of reflected sound • Examining the height and intensity of sound • Argue about the utilization of sound reflection	• Gendang Beleq Traditional Musical Instrument (Flute) • Traditional Transportation Equipment Cidomo • Peresean Art

b. Design and Layout Creation of LKPD

Making the design and layout of LKPD using Canva application through laptops and smartphones. The design of LKPD with ethnoscience content of Lombok Island to train science literacy skills is as follows.

1) Cover

The cover of the LKPD with ethnoscience content of Lombok Island to train science literacy skills consists of 4 kinds of covers, including the main cover which consists of front and back covers, activity cover 1, activity cover 2, and activity cover 3.

Figure 2. Main Cover

Figure 3. Cover Activities

2) Redaction

The redaction page in this LKPD design contains the word "REDAKSI", product identity, LKPD title, compiler's name, supervisor's name, identity or where the compiler studied starting from the study program, faculty, university, and the year the product was developed.

Figure 4. Redaction Page

3) Preface

The preface page contains a preface to the LKPD which contains an introduction from the compiler to the learners, the city where the compiler compiled the LKPD, the date, month, and year of compiling the LKPD, and the name of the compiler.

Figure 5. Preface Page

4) Table of Contents
The LKPD table of contents page contains a list that includes all the contents of the LKPD along with the page number of the LKPD content.

Figure 6. Table of Contents Page

5) Instructions for Use of LKPD
The instructions page for using LKPD contains guidelines or procedures for using LKPD intended for students so that students can find out how to use LKPD.

Figure 7. Instructions for Use of LKPD

6) Competency Outcomes
The competency achievement page in this LKPD design contains general learning outcomes of phase c in IPAS learning, phase c learning outcomes based on elements of IPAS understanding and process skills, learning objectives, flow of learning objectives, and motivational sentences for students.

Figure 8. LKPD Competency Outcomes

7) Aspects of Science Literacy Competency
The science literacy competency aspect page in this LKPD design contains a table containing science literacy competency indicators, IPAS learning indicators, and Lombok Island community culture associated with IPAS material.

Figure 9. Aspects of Science Literacy Competency

8) Introduction
The introduction page in this LKPD design contains an introduction to learning containing a brief description of the contents of the LKPD material and a greeting sentence "Happy Learning" at the bottom of the page.

Figure 10. Introduction Page

9) Activity 1
Activity 1 in this LKPD design totals twelve pages consisting of LKPD cover, instructions for working on activity 1 and activity 1 learning objectives, let's look at the problem page, let's try page, let's collect data page, let's conclude page, and ethnoscience knowledge page.

Figure 11. Activity 1

10) Activity 2
Activity 2 in this LKPD design totals ten pages consisting of LKPD cover, instructions for working on activity 2 and activity 2 learning objectives, let's read the page, let's gather information page, and let's conclude page.

Figure 12. Activity 2

11) Activity 3
Activity 3 in this LKPD design totals twelve pages consisting of LKPD cover, instructions for working on activity 3 and activity 3 learning objectives, let's look at the problem page, let's try page, let's collect data page, ethnoscience knowledge page, let's read page, do you know page, and let's conclude page.

Figure 13. Activity 3

12) Glossary
The glossary page in this LKPD design contains a list of terms or special words along with their explanations or definitions. The glossary on this LKPD serves to help readers or users understand terms that may not be familiar. This glossary consists of twelve terms that are described systematically in alphabetical order of each term.

Figure 14. Glossary of LKPD

13) Reference
The reference list page in this LKPD design contains a list of references used by the compiler in compiling this LKPD with the ethnoscience of Lombok Island. On the reference page, there are seven references that the authors used in compiling the LKPD. The writing of the reference list uses the American Psychological Association (APA) 7th edition writing format.

Figure 15. Reference of LKPD

3. Development

The development stage, is the third stage of the ADDIE development model, at this stage printing of LKPDs that have been designed is carried out then product validation consists of media expert validation and material expert validation. LKPDs are printed with the following specifications:

Table 6. Specification of LKPD with Ethnoscience of Lombok Island

Paper Size	:	A4 (21 cm x 29.7 cm)
Paper Type	:	Art Paper 260 grams (LKPD Cover) and HVS 80 grams (LKPD page contents)
Number of Pages	:	48 pages (contents page)
Color	:	Full Color
Binding Technique	:	Hot Glue binding (Perfect Binding)

The following is a picture of the results of printing LKPD with ethnoscience content of Lombok Island to train science literacy skills:

Figure 16. Printout of LKPD Cover

Figure 17. Printout of LKPD Page Contents

The products that have been printed are then validated by media experts and material experts to determine the level of validity of the products that have been developed. The assessment is carried out by showing the product to the expert and then validating it based on a statement or questionnaire that has been prepared by the researcher.

The results of validation by media experts are presented in Table 7.

Table 7. Results of Validation by Media Experts

Aspects	Score
Size of LKPD	9
LKPD Cover Design	20
Illustration of LKPD Content	16
LKPD Content Design	19
Raw Score	**64**
Maximum Score	**75**
Percentage of Validity	**85,33%**
Criteria for validity	**Valid**

The results of validation by material experts are presented in Table 8.

Table 8. Results of Validation by Material Experts

Aspects	Score
Content Quality	19
Ethnoscience	9
Science Literacy	14
Presentation Quality	19
Language Quality	10
Raw Score	**71**
Maximum Score	**75**
Percentage of Validity	**94,6%**
Criteria for validity	**Very Valid**

The final results from both validators are presented in the following table.

Table 9. Results of Validation of LKPD with Ethnoscience of Lombok Island

Expert Validation	Score	Percentage	Criteria
Media	64	85,33%	Valid
Material	71	94,6%	Very Valid
The validity of LKPD:		**89,96%**	**Very Valid**

Based on Table 9. above, it can be concluded that the assessment of LKPD by media experts obtained a score of 64 and a percentage of validity of 85.33% with valid criteria. Meanwhile, the assessment of LKPD by material experts obtained a score of 71 and a percentage of validity of 94.6% with very valid criteria. Then, the product of LKPD with ethnoscience content of Lombok Island to train science literacy skills obtained an average score from the two validators of 89.96% which was included in the very valid criteria.

The criticisms and suggestions from the media expert validator are to revise according to the statement that received a score of 4, including: the size of the contents of the LKPD (LKPD margin) is adjusted so that when printed and bound the contents of the material are not covered, in the LKPD cover design the layout elements are arranged again so that they are balanced and the use of fonts is not too much, and in the aspect of illustrating the contents of the LKPD the images are more reproduced and varied again. While criticism and suggestions from material expert validators, namely ethnoscience content is made more varied.

A comparison of the Lombok Island ethnoscience-loaded LKPD to train science literacy skills before and after revision is described in the following table.

Table 10. LKPD Products Before and After Revision

No	Display Before Revision	Display After Revision	Description:
1.			Reducing the use of font types on the cover which previously used three font types namely Luciole, Daydream, and Lilita One fonts to two font types namely Luciole and Daydream.

			The writing that still uses Lilita One font is changed to Luciole font.
2.			Correct the order of writing the supervisors on the editorial page. Before the revision, the writing order started from the second supervisor followed by the first supervisor. After revision the order is reversed
3.			Added pictures and explanations on seven Gendang Beleq instruments

4. **Implementation**

The implementation stage is carried out after the LKPD with the ethnoscience content of Lombok Island is declared valid and has been revised according to suggestions by validators. At this stage, two trials were conducted, namely small group trials and large group trials. According to Arikunto (in Wiranda & Andayono, 2022), small-group test subjects can be conducted on 4-14 respondents and for large groups between 15-50 respondents.

The implementation stage was carried out in the VA class of SDN 27 Ampenan through two stages of trials, namely small group trials with a total of 8 students and large group trials with a total of 20 students. Small group trials and large group trials were carried out through a learning process that was guided directly by the teacher together with the researcher to find out the responses and responses of teachers and students to the LKPD that had been developed. This is in line with the opinion of Azizah et al., (2024), that one of the main objectives of the implementation stage in the ADDIE development model is to determine the practicality of the product developed. Thus, to determine the practicality of the LKPD with the ethnoscience content of Lombok Island through the responses of teachers and students, the implementation stage is carried out through the learning process using the LKPD.

a. Small Group Trial

The results of the teacher response questionnaire in the small group trial are described in the following table.

Table 11. Results of Teacher Response Questionnaire on Small Group Trial

Aspects	Score
Content Quality	20
Ethnoscience	8
Science Literacy	13
Presentation Quality	14
Language Quality	10
Display	30
Total score	**95**
Maximum Score	**100**
Practicality Percentage	**95%**
Practicality Criteria	**Very Practical**

Based on Table 11. presented the results of the teacher response questionnaire on the small group trial which overall obtained a score of 95 and a percentage of practicality of 95% with very practical criteria. So it can be concluded that the LKPD with ethnoscience content of Lombok Island to train science literacy skills is very practical to use with criticism and suggestions from teachers, namely the delivery of the use of LKPD to students to be more effort to make it easier for students to fill in the LKPD.

Table 12. Results of Students Response Questionnaire on Small Group Trial

Descriptive	Value
N	8
Max Score	65
Min Score	60
Average	63,12
Average Percentage	97,11%
Criteria	Very Practicial

Based on Table 12. presented the results of the student response questionnaire on the small group trial which overall obtained a percentage of practicality of 97.11% with very practical criteria. So it can be concluded that the LKPD with ethnoscience content of Lombok Island to train science literacy skills is very practical to use with comments from students, among others: LKPD cover is interesting to see, the pictures are good, the writing is clear, easy to read, the language used is interesting and easy to understand, LKPD is easy to understand because the material presented is concise and clear and LKPD has an attractive color and image display design.

Based on the teacher and students' responses, it can be concluded that the Lombok Island ethnoscience-loaded LKPD to train science literacy skills is ready to be used in large group trials.

b. Large Group Trial

The results of the teacher response questionnaire in the large group trial are described in the following table.

Table 13. Results of Teacher Response Questionnaire on Large Group Trial

Aspects	Score
Content Quality	20
Ethnoscience	10
Science Literacy	15
Presentation Quality	13
Language Quality	9
Display	29
Total score	**96**
Maximum Score	**100**
Practicality Percentage	**96%**
Practicality Criteria	**Very Practical**

Based on Table 13. presented the results of the teacher response questionnaire in the large group trial which overall obtained a score of 96 and a percentage of practicality of 96% with very practical criteria. So it can be concluded that the LKPD with ethnoscience content of Lombok Island to train science literacy skills is very practical to use with comments from teachers that the use of LKPD is good and interesting.

The results of students' responses to the large group trial are described in the following table.

Table 14. Results of Students Response Questionnaire on Large Group Trial

Descriptive	Value
N	20
Max Score	65
Min Score	49
Average	60,4
Average Percentage	92,92%
Criteria	Very Practicial

Based on Table 14. presented the results of the student response questionnaire in the large group trial which overall obtained a percentage of practicality of 92.92% with very practical criteria. So it can be concluded that the LKPD with ethnoscience content of Lombok Island to train science literacy skills is very practical to use with various positive comments from students.

One factors that cause high positive responses from teachers and students are the appearance presented in the LKPD. The LKPD display presented is quite simple but attractive with a combination of images, colors, and text that is easily read by users so that it can attract the attention of teachers and students. According to Hae & Widiastuti (in Azzahra et al., 2024), visual media that contain images have the potential to attract students' attention in the learning process and help them better understand the material being taught. The high level of practicality and students' interest in the use of LKPD with ethnoscience content of Lombok Island shows that LKPD

succeeds in creating an environment that allows students to be actively involved in various activities or activities provided to train students' science literacy skills. This is in line with previous research by Shidiq (in Siagian et al., 2022), where learning that integrates culture can improve skills in applying scientific knowledge so that students can actively participate in the learning process.

5. **Evaluation**

The last stage is evaluation. In this research, the evaluation stage is carried out through two stages of evaluation including formative evaluation and summative evaluation. Formative evaluation consists of three stages, namely one-on-one evaluation with experts, small group evaluation with potential users, and field evaluation with a larger group of respondents. In line with research conducted by Saputra et al., (2022), the formative evaluation stage consists of three stages, namely the one-on-one evaluation stage with experts, the small group evaluation stage with potential users, and the large group evaluation stage with more respondents.

One-on-one evaluation with experts consists of evaluation based on suggestions and input from media experts and evaluation based on suggestions and input from material experts. One-on-one evaluation was carried out after the validation stage of media experts and material experts in the form of suggestions and input as improvements to the products developed. The results of the evaluation in the form of LKPD improvements based on these suggestions and input have been described in Table 10. regarding LKPD products before and after revision. After the revision, the LKPD was then implemented through small-group trials and large-group trials.

The small group evaluation stage was carried out after the small group trial. The evaluation was carried out based on criticism and suggestions from the results of the small group trial questionnaire filled out by 8 students and fifth-grade teachers. The advice from the teacher is to make more efforts to convey the instructions for using the LKPD to students because even though the LKPD has clearly stated instructions for use, students will understand better if it is conveyed while being explained by the teacher or researcher. While the response from students is quite positive including the cover of LKPD is interesting to see, the pictures are good, the writing is clear, easy to read, and easy to understand, LKPD can help students understand the material of sound, and its properties, and so on. Based on criticism and suggestions from teachers and student responses, the evaluation that can be done is to improve and improve delivery techniques and the use of LKPD during the learning process in large group trials.

The field evaluation stage was carried out after the large group trial. The evaluation was carried out based on criticisms and suggestions on the results of the large group trial questionnaire filled out by 20 VA class students of SDN 27 Ampenan and the fifth-grade teacher. Teachers and students gave various positive responses in the criticism and suggestion column that the use of ethnoscience-loaded LKPDs on Lombok Island to train science literacy skills was good and interesting and various other positive comments. Based on this, the ethnoscience-loaded LKPD of Lombok Island to train science literacy skills is no longer improved and becomes the final product of this study.

Meanwhile, summative evaluation is carried out through two stages, namely pre-test and post-test which are arranged based on indicators of science literacy competencies. The pre-test and post-test were carried out to know the effectiveness of the LKPD with ethnoscience content of Lombok Island that had been developed. The effectiveness of the LKPD is measured from the results of the pre-test and post-test done by students (Ma'wa & Gunansyah, 2024). Students are declared complete in working on the pretest and post-test questions if they meet the KKM (Minimum Completeness Criteria) limit or in the Merdeka Curriculum it is called KKTP (Criteria for Achieving Learning Objectives) which is determined based on the KKTP of IPAS Content that applies at school, namely ≥70. The recapitulation of the pre-test and post-test results of students' science literacy skills is contained in the following table.

Table 15. Test Results of Science Literacy Skills of Students

Descriptive	Pretest	Posttest
N	20	20
Max Score	70	100
Min Score	25	80
Average	49,50	88,25
Avg. N-Gain	0,77	
Completeness	5%	100%
Category	Not Effective	Very Effective

Based on Table 15. above, the average score of students on the pre-test was 49.50 with a pass of 5%. The cause of the low percentage of students' completeness on the pre-test results is that students do not have sufficient initial knowledge about the

material of Topic C. Sound and its Properties so that there are still misconceptions or conceptual errors about the material. Misunderstanding of material concepts or misconceptions in students often occurs during the learning process (Andini & Kurniawati, 2024). While the average post-test value is 88.25 with 100% passed and the average N-Gain is 0.77 with a high category. Integrating local community culture (ethnoscience) in learning makes it easier for students to develop broader learning concepts, face everyday problems, improve learning outcomes, and train science literacy skills (Awal et al., 2024). So it can be concluded that the cause of the high percentage of students' completeness in the post-test results is because students have carried out the learning process with the help of LKPD with ethnoscience content of Lombok Island.

Science literacy skills are also measured based on the achievement of the aspects of science literacy competencies contained in Figure 18.

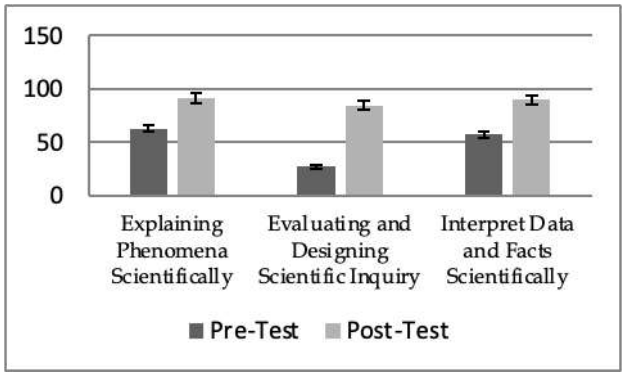

Figure 18. Recapitulation of Achievement Results of Science Literacy Competency Indicators in Pre-Test and Post-Test

Based on Figure 18. in the pre-test, the lowest achievement of science literacy competency indicators was in the indicator of evaluating and designing scientific investigations which obtained an average score of 26.67 with unfavorable criteria. The poor indicator of evaluating and designing scientific investigations is because there are still students who have wrong concepts related to sound and its properties and the lack of practicum activities for students. Meanwhile, according to Setiadi (in Junita & Yuliani, 2022) experimental activities, scientific skills training, and scientific use of science facts are still rarely done at the core of learning. Therefore, teaching materials are needed that can support understanding a concept well invite students to think at a high level, and can invite students to be actively involved in learning through various practicum activities and experimental activities. One of the teaching materials that can be used is ethnoscience-loaded LKPD. In line with the results of research by Kiswanto et al., (2024), E-LKPD products integrated with ethnoscience are effective for improving students' critical thinking skills.

The highest achievement of science literacy competency indicators in the post-test was explaining phenomena scientifically which obtained an average score of 90.83 with very good interpretation criteria. This is in line with the opinion of Wiyanto (in Junita & Yuliani, 2022), through ethnoscience learning can explore students' curiosity, facilitate learning scientific processes, and train them to ask questions, make observations, and make conclusions. Thus, students can master the scientific process in which there are activities to explain phenomena scientifically.

Based on Figure 18, it can be seen that all indicators of science literacy competencies have increased from before using LKPD to after using LKPD. So it can be concluded that LKPD with ethnoscience content of Lombok Island developed is effective for training the science literacy competencies of VA class students of SDN 27 Ampenan.

Conclusion

LKPD with ethnoscience content of Lombok Island to train science literacy skills in learning IPAS Class V SDN 27 Ampenan through the development stages of the ADDIE model obtained a percentage of validity from the results of validation by media experts and material experts of 89.96% with very valid criteria, based on students' responses after using LKPD in a small group trial of 8 students of class VA SDN 27 Ampenan obtained a percentage of 97.11% with very practical criteria and in a large group trial of 20 students obtained a percentage of 92.92% with very practical criteria. Then the teacher's response obtained a percentage of 95% with very practical criteria in the small group trial and obtained a percentage of 96% with very practical criteria in the large group trial. LKPD with ethnoscience content of Lombok Island to train science literacy skills in IPAS learning is very effective based on the completeness of learning outcomes of science literacy skills by 100%, the achievement of science literacy indicators by 88.25% with a very good category, and an average N-Gain of 0.77 with a high category. It can be concluded that the LKPD with ethnoscience content of Lombok Island is valid, practical, and effective to be used to train science literacy skills in IPAS learning of grade V SDN 27 Ampenan.

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