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Development of Natural Science Teaching Materials (IPA) Based Outdoor Basic Learning to Improve Creative Thinking Skills of Students in Class 2 Toboali State School 4, Bangka Selatan Regency

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Abstract

This study aims to develop teaching materials outside the classroom (essential outdoor learning) to increase student creativity. Teaching materials as learning resources are developed by taking the environment outside the classroom that is related to students' daily lives. Natural Sciences (IPA) teaching materials consist of Student's Books and Teacher's Books, used in class 2 elementary school (SD) Negeri 4 Toboali. This teaching material contains essential competencies about the experimental results of solid objects that do not change shape. This study uses the Research and development model Borg and Gal (2002) with nine steps. At the validation stage, it was found that the Class 2 Science Teaching Materials Based on the Outside of the Classroom and the Learning Implementation Plan (RPP) had met the element of validity with minor revisions. The formative evaluation results through 3 stages after being revised obtained input that the Out-of-Class-Based Science Teaching Materials are suitable for use in science learning for Grade 2 SD Negeri 4 Toboali. Based on the test scores, the Out-of-Class-Based Science Teaching Materials can help Class 2 students of SD Negeri 4 Toboali understand learning materials, especially in Theme 2 science learning.

Keywords
science teaching materials; outer class base; grade 2 elementary school

I. Introduction

Education is a medium that aims to empower human potential to be utilized in life. Education can change people to be more valuable. Education provides essential knowledge and values to students to view life as beneficial for life and the social environment (Aunurrahman, 2016: 3).

Learning is the process of gaining meaning and understanding and ways of interpreting the world around students (Syah, 1997). The better the learning and mentoring process, the more ideal the educational results will be. On the other hand, the worse the learning and mentoring process is, the worse the educational outcomes and educational goals will not be achieved. Learning is a process of interaction between students, teachers, and systematic learning resources. Systematic learning requires these activities to be carried out through good planning, regular implementation, and comprehensive assessment (Sudadio, 2012).

Observations researchers in the implementation of learning in the Class 2 SD Negeri 4 Toboali specialized science subjects there are some problems in the learning process in the classroom. For example, students daydreaming when teachers teach, talking/chatting with their seatmate when the teacher explains the material, sleepy when teachers teach, response

passive when the teacher asks questions, lacking concentration when the teacher teaches, taking a long time to understand the lesson, and lacks the confidence to come to the front of the class or ask questions.

Then another factor that affects learning in Class 2 SD Negeri 4 Toboali in science learning is the unavailability of structured learning materials. This is the result of observations conducted in January 2020 at SD Negeri 4 Toboali. In addition, the learning process is still monotonous which is dominated by the teacher in the classroom. The progress of a nation can only be achieved through structuring good education. (Nurjanah, 2020). The school needs to be given trust to organize and take care of itself according to environmental conditions (Musdiani, 2019). This deficiency arises due to the lack of attention of educational personnel printing institutions that pay attention to these skills (Waluyandi, 2020). Learning is essentially a cognitive process that has the support of psychomotor functions (Arsani, 2020).

Teaching materials oriented towards outdoor learning are a strategy in improving the quality of learning. Students generally feel happy when learning is done outside the classroom. The outdoor learning system makes the atmosphere fun, not dull, increases creativity, inspiration, and student communication. Students can easily understand the teaching materials delivered by the teacher through practicedirect introducing theory (teaching materials) and reality (reality).

"Development of Outdoor Basic Learning (Outdoor Basic Learning) to Improve Students' Creative Thinking Skills in Grade 2 of State Elementary School 4 Toboali, South Bangka Regency".

Teaching materials are learning facilities whose contents are learning materials, learning methods, limitations, and evaluations designed to help achieve learning objectives, namely the achievement of competencies (Lestari, 2013). Teaching materials are also defined as learning materials consisting of materials that coherently and systematically display material or learning that must be mastered by students in activities learning (Hernawan, 2012). Teaching materials are a learning tool or media consisting of materials, methods, exercises, and evaluations to support learning objectives Khairunnisa, 2017). Based on some of the opinions above, it can be concluded that teaching materials are materials or learning aids that contain learning materials arranged coherently and systematically. In line with this, Majid (2007) explains that teaching materials are curriculum content that every student must master to achieve learning objectives. Teaching materials are arranged to help achieve learning objectives, namely achievements in Competency Achievement Indicators (GPA) and Basic Competencies (KD). Teaching materials do not only contain subject matter, but contain learning methods, practice questions, and learning evaluations.

II. Research Methods

The development model in this study refers to the design of the learning model by Borg & Gall (2002). Measures material development is gathering initial information *(research and collecting information*), planning *(planning),* development of initial product format *(develop a preliminary form of the product*), the initial trials *(preliminary field testing*), the revision of the product *(primary product revision),* medium-scale field trials *(main field testing*), the revision of the product *(product revision),* large-scale field test *(operational field testing*), the improvement of the final product *(final product revision*), dissemination and implementation *(dissemination and implementation).*

Based on the above development steps, it can be described as follows:

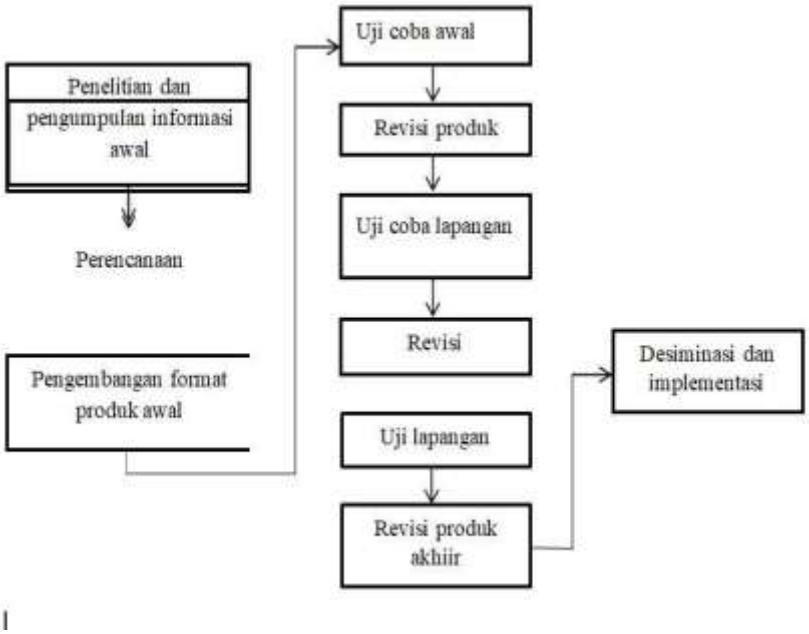

Figure 1. *Teaching Material Development Steps (Borg & Gall, 2002)*

Table 1. Qualifications Eligibility Level Based on Percentage

Percentage (%)	**Validity Level**	**Description**
80 < score 100	Valid	Not Revised
60 < score 79	Sufficiently Valid	No Revision
40 < score 59	Less Valid	Partial Revision
0 < score ≤39	Invalid	Revision

Based on In the table above, the assessment of teaching materials is said to be valid if it meets the achievement requirements above 68 of all the elements contained in the validation assessment questionnaire of material experts, design experts, learning experts, and 2nd-grade students of SD Negeri 4 Toboali Bangka Selatan. The assessment must meet the valid criteria. If the criteria are not valid, then revisions are made to reach the valid criteria.

III. Discussion

3.1 Information Collecting Stage

Observations and interviews were conducted in January 2020. The researchers observed grades 2A and 2B during the learning process in this observation. The researchers also conducted interviews with teachers and students and obtained the following results. SD Negeri 4 Toboali is dominated by teachers. The teacher dominates the class by using the lecture method during the learning activities. This can be seen during two observations in grade 2 A and grade 2 B. The teacher delivered subject matter using the lecture method and only based on the theme book. The teaching materials used did not support students to think critically.

3.2 Planning Stage

In this second stage, the researcher plans to make materials so that students become active, creative, and enthusiastic when learning activities occur. At the planning stage, it is done by compiling the components in the teaching material, namely in the form of, with the results in the form of a layout as follows.

Table 2. Lay Out Plan for Outdoor Learning Teaching Materials

Components	Activity
front cover	Designingcovers for teacher and student books, cover designs are made according to learning objectives. They have the theme of *outdoor learning* and solid objects whose colors and pictures can attract students' attention.
Back	The back cover design is still the theme of *outdoor learning* and the environment.
Preface	The preface is structured according to the purpose of making teaching materials and outlining content.
Instructions for using the book	In this component, the researcher explains how to use teaching materials in detail so that the objectives of the materials can be achieved and users can understand how to use them properly.
learning purpose	The textbook's objectives are designed so that students can identify solid and liquid objects around them by adjusting outdoor activities.
The Material	The material contains the characteristics of solid and liquid objects in the surrounding environment, summarized from various sources.
Student activities	Student activities in this book are tailored to the learning materials, objectives, and competencies to be achieved. They are made so that students can hone their creative thinking skills.
Quiz	Quizzes are made as enjoyable as possible and can motivate students to answer them.
The summary	The summary contains essential and fundamental things according to the previously described material.
Formative Evaluation/Test	Evaluation is structured according to the learning objectives and can measure students' creative thinking.

3.3 The Initial Draft Development Stage of the Student Book

This initial draft development stage results from a temporary draft that has been prepared following the planning stage. After the draft was compiled, it was further developed according to the outline with the assistance of graphic design to design the book's layout from the front cover to the end. The initial draft that has been prepared can be seen as follows.

a. Cover

The cover in science teaching materials based on *outdoor learning* has the front and back sides. The Forefront Of the teaching materials consists of the book's title, adapted to the subject being developed, entitled "OUTSIDE OF THE CLASS LEARNING USING OBJECTS AROUND US." *The background* of the teaching materials is adjusted to the activities in the teaching materials; this is intended so that users can understand the purpose of preparing the book before opening the contents of the teaching materials. The back cover has a different meaning from *the cover* front. *The cover* back is more dominated by teaching materials globally related to the teaching materials developed.

b. The Preface

The preface is a series of words in the form of thanksgiving to Allah SWT, the purpose of preparing-based teaching materials *for outdoor learning*, explanations related to the book's contents, and the authors' expectations for the teaching materials developed.

c. The Contents of Student Books

The book's contents are a series of procedures for using books from the beginning to the end of teaching materials that serve as instructions for students and teachers and a source of reference for learning in the classroom.

d. Table of Contents

The table of contents contains chapters and subchapters discussed on the content page. It includes a list of pages and all sections in the teaching materials so that users can easily find the subject they are looking for.

e. The Material Contents

The contents of this book include an explanation of each part contained in the teaching materials, from reading stories (perception of teaching materials), do you know? (Improvement of understanding), let us observe (make observations), let us do (evaluate), and let us practice (do assignments). Be creative (implement tasks), let us think (learn to write teaching materials), let us observe (observe and discuss), let us find (learn to create), cooperate (do cooperation), let us discuss (have discussions), let us do it (implement the results of collaboration) so that students can easily understand the context of the explanation in it.

Figure 2. *Material Contents*

3.4 The Trial Phase and the Revision of the Draftinitial of the Product Student Book

The development product submitted to the science subject matter experts was in textbooks. Descriptive presentation of the results of material expert validation can be seen in table 3.

Table 3. Results of the Expert Assessment of Science Material Content

No.	Statement	*X*	x_i	(%)	Level of Validity	Information
1. The	The suitability of the topic formulation in the development of materialsteaching.	4	4	100	Valid	Not Revised
2. The	The suitability of the material presented in the developmentof teaching materials.	4	4	100	Valid	Not Revised
3.	Conformity of standardscompetency with indicators.	3	4	75	Enough Valid	Today Revision
4.	Compliance indicators presented with basic competencies	3	4	75	Enough Valid	Not Revision
5.	Conformity systematic description ofthe learning content.	4	4	100	Valid	Not Revised
6.	The accuracy of the material presented canmotivate students.	4	4	100	Valid	Not Revised
7.	Conformity of the summary of the materialwith the discussion.	3	4	75	Sufficientl y Valid	Not Revised
8.	The accuracy of the instruments' evaluation can measure students' abilities.	4	4	100	Valid	Not Revised
10.	Clarity of material exposure.	4	4	100	Valid	Not Revised
Total		**37**	**40**	**92.5**	**Valid**	**Not Revised**

Based on the above calculation, the validation value of the material's content reaches 92.5%. Suppose it is matched with the feasibility level classification table based on percentages. In that case, it shows that the validation results by content experts in the form of the development of-based teaching materials are *outdoor learning* included in very valid qualifications. There is no need for revisions to improve the teaching material products.

Table 4. Material Expert Input Subject

Name Validator	Criticism and Suggestion
JASMAN, S.Pd., M.Pd	1. There is no concept map at the beginning of the chapter. 2. There are no general competency goals or specific competency goals. 3. The material should be more in a ring so that it is not. Confuse students. 4. The goal is to match the indicators. 5. In order to add a summary of the material at the end of the chapter. 6. Hyperlink so that it can be linked to the web address. 7. I am supporting images to be minimized. 8. On the book's contents page, try to load one page with 3 or 4 images. 9. List so that the contents are adjusted to the needs 10. Image of the initial page to be minimized The 11. image of the object that is displayed to make it clear

Based on the table it appears that several things need to be improved. Content experts ' criticism and suggestions for teaching material products in open statements consider completing and perfecting teaching materials.

3.5 Product Revision Based on the Validation of Material Experts

a. Validation Results and Revision of Media Experts and Instructional Design

All data from the results of assessment reviews and discussions with content experts for teaching material products are used as a basis for revising to improve the design of teaching materials before being tested on students who use product development. The data from media expert validation can be seen in Table 5.

Table 5. Results of Media Expert Validation and Instructional Design

No.	Statement	*x*	x_i	P(%)	Validity Level Ex	.
1.	Design *the cover* following the material content	3	4	75	Enough Valid	Not Revision
2.	The font used following the student's grade 2	4		4100	Valid	Not Revision
3.	The size of the font used following the two graders	fourth		4100	Valid	Today Revision
4	The pictures on the book correspond to the material.	3	4	75	Valid	Not Revised

6.	The layout of the pictures in the book isinteresting.	3	4	75	Sufficiently Valid	Not Revised
7.	The pictures in the book are close tostudents' lives.	4	4	100	Valid	Not Revised
8.	The size of the picture in the book is Right	3	4	75	Sufficiently Valid	Not Revised
9.	The color in the book is consistent.	4	4	100	Valid	Not Revised
10.	The layout of the book is fascinating.	4	4	100	Valid	Not Revised
Total		**35**	**40**	**87.5**	**Valid**	**Not Revised**

Compared with tableclassification, the feasibility level based on percentages shows the validation results by instructional design experts in developing-based teaching materials *for outdoor learning*, including valid qualifications. Based on Table 5, instructional design experts' average validation value reached 87.5%. No revision is needed to improve teaching materials.

Qualitative data collected from input, criticism, and suggestions from design experts in open statements relating to teaching materials are presented in table 6 as follows.

Table 6. Input from Media Experts and Instructional Design

Subject Name Validator	Input
Dr. Ramdany, SE. Ak. M.A.	1. The explanation is adjusted. 2. The selection of images for data is distinguished from the image*background*. 3. *Cover* to be trimmed 4. The page about the contents of the picture book is given a(*border)*. 5. Pay attention to the hyperlinks in the book because they become unattractive. 6. Image selection for each chapter. 7. Pay attention to image resolution.

Based on table 6, several things need to be improved. Criticisms and suggestions from teaching material product design experts in open statements are used as consideration for completing and perfecting teaching materials.

b. Product Revision based on the Validation Results of Design Experts

Based on the analysis, revisions to teaching materials are as follows.

Table 7. Revision based on Expert Validation of Media Design and Instructional Design Student's Book

No.	Points Revised	Before Revision	After Revision
1.	*The* cover has been tidied up again, and the cover does not reflect science learning for elementary schools.	 	 
2.	The selection of images must be attractive with an image*background*.	 Image Background	 Image Data
3.	The page about the contents of the image book is given a border.		

All data from reviews, assessments and discussions with media experts and instructional design of teaching material products are used as a basis for revising to improve the design of teaching materials before being tested on students using development products.

c. Results of Validation and Revision of Learning Experts

The results of the validation of learning experts can be seen in the following table.

Table 8. Results of Expert Validation of Science Teaching Materials Based on *Outdoor Learning*

No.	Statement	*X*	x_i	P(%)	Validity Level Ex	Description
1.	The suitability of the topic formulationin the development of teaching materials	4	4	100	Valid	Not Revised
2.	The suitability of the material presented in the developmentof teaching materials.	4	4	100	Valid	Not Revised
3.	Conformity ofStandards Competency With Indicators.	3	4	75	Enough Valid	Today Revision
4.	Compliance Indicators are presented with competency. basic	3	4	75	Sufficiently Valid	Not Revised
5.	Systematic suitability of descriptionscontent learning.	4	4	100	Very Valid	No Revision
6.	Clarity of material exposure.	4		4100	Very Valid	Not Revision
7.	The accuracy of the material presented to providemotivation to the students.	4	4	100	Very Valid	No Revision
8.	Conformity of the summary of the materialwith the discussion.	3	4	75	Sufficiently Valid	Not Revised
9.	The accuracy of the evaluation instrumentsmused can measure students' abilities.	3	4	75	Sufficiently Valid	Not Revised
10.	Ease of language mused in teaching materials.	4	4	100	Very Valid	Not Revised
Total		**36**	**40**	**90**	**Valid**	**Not Revised**

Based on the quantitative data from the validator by learning experts, the next step is to analyze the data. Data analysis was carried out by calculating the percentage level of achievement. Based on the above calculations, observations made by learning experts reached 90%. Compared to the feasibility level classification table based on percentages, it shows the validation results of learning experts' validation in the form of the development of-based teaching materials *outdoor learning* included in the qualification of teaching material products.

The qualitative data collected from input, criticism, and suggestions from learning experts in open statements regarding teaching materials are presented in the following table 9.

Table 9. Criticisms and Suggestions for Science-Based Teaching Materials *Outdoor Learning*

Subject Name Validator	Input
Dr. Suparta., M.Ag	1. It is advisable to consult class 2B to hold each student one by one, even though they are divided into four during practice. 2. Innovative work, hopefully, will continue to be developed.

d. Product Revision Based on Learning Experts

The results of this product learning expert assessment do not need to be revised. There are several suggestions in order to reproduce the developed books. Although it does not need to be colored like the original, each child can hold his textbook one by one. Initial product trials by users (3 students) were selected with the criteria of low, medium, and high ability to get input related to readability, attractiveness, ease of understanding. The results of these trials can be seen in Table 10 below.

Table 10. Results of Trial Limited by Students

No.	Statement	Respondents			ΣX	XiΣ	P (%)	Remarks
		1	2	3				
1.	The teaching materials compiled help students learn.	2	4	4	10	12	83	Able to make it easier for students to learn
2.	The teaching materials that are arranged are to encourage students to learn.	4	3	3	10	12	83	Encouraging students to learn
3.	The teaching materials that are arranged can make it easier to observe student activities	3	4	3	10	12	83	Able to make it easier for students to observe
4.	The questions in the teaching materials that are arranged are relatively straightforward.	3	3	3	9	12	72 The	questions are classified as quite easy
5.	The type of font and the size of the letters can be found that the prepared teaching materials are easy to read.	4	4	4	12	12	100	The font size is manageable to read
6.	The teaching materials are prepared, students do not have terms that are difficult to understand	4	4	4	12	12	100	Students do not encounter difficult words
7.	The instructions contained in the prepared materials are straightforward to understand.	3	4	4	11	12	92	Instructions are easy to understand by students

8.	the language used in the teaching materials can be understood.	3	4	3	10	12	83	Language is easy to understand by students
9.	Practice questions in teaching materials according to the grid and discussion	4	4	4	12	12	100	Questions according to the discussion
10.	As prolonged use as student teaching materials, students do not need help other people such as friends, teachers, or parents to learn it.	4	3	3	10	12	83	Students do not nee the help of others when using teaching materials.
Total		34	37	35	106	120	88.33	Overall, student responses are good when using developed teaching materials

Remarks: *Respondents: 3 students of Class 2 B SD Negeri 4 Toboali*

Quantitative data was obtained from the initial trial in table 10. The following is the percentage level of achievement of teaching materials for individual trials with a conversion table of scale 4 with an achievement rate of 88.33%. This value indicates that the teaching materials developed are valid and do not need to be revised. Still, researchers will improve by adding more attractive pictures to students and making students more enthusiastic.

3.6 Medium Scale Field Trial Phase

This medium-scale trial was conducted to get input from users regarding products that are being developed and revised from the validation phase by experts and initial trials by users. In this stage, nine respondents were selected from smart, less intelligent, and moderate students with a balanced composition. This stage is carried out in the following manner.

Table 11. Results of Medium Scale Field Trial Assessment

No.	**Statement**	**Respondents**								**Σ*X***	***Xi*Σ**	**P (%)**	**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**				
	The teaching materials compiled help students learn.	3	4	4	2	4	3	4	3	3	30	36	83	Make it easier for students to learn
2.	The teaching materials that have been prepared provide enthusiasm for learning to students.	4	4	4	4	4	3	3	4	4	32	36	88	Encouraging students to learn

3.	Teaching materials that are arranged can make it easier to observe student activities	3	4	3	3	3	3	3	3	3	28	36	77	Enough to facilitate students in observing
4.	The questions in the prepared teaching materials are pretty straightforward.								3 3 3 3 4 4 3 3					Problems in materials teaching relatively easily
5.	The font and font size can have prepared teaching materials that are easy to read.	4	4	4	4	4	4	4	4	4	36	36	100	e The font size is easy to read
6.	The teaching materials are prepared, students do not have terms that are difficult to understand	4	3	4	4	4	4	4	4	3	34	36	94	Students do not encounter difficult words
7.	The instructions contained in this prepared material are straightforward to understand.	3	3	4	3	4	3	4	3	3	30	36	83	Students quickly understand the instructions in the teaching materials.
8.	The language used in the teaching materials can be understood.	4	4	3	3	4	3	3	4	4	32	36	88 The	the language used can be understood
9.	Practice questions in the teaching materials follow the grid and discussion	4	4	4	4	4	4	4	4	4	36	36	100	Practice questions are appropriate discussion
10.	During the use of teaching materials, students do not need the help of others such as friends, teachers, or parents to learn them.	4	4	3	4	4	4	4	4	4	23	36	97	Students do not need help from others whenusing materials teaching
Total		**35**	**37**	**33**	**31**	**38**	**32**	**36**	**33**	**35**	**321**	**360**	89.1	**Overall, student responses are good when using the developed teaching materials.**

Description*:* *Respondents: 9 students in Grade 2 of SDN 4 Toboali*

Quantitative data were obtained from field trials in Table 11. The following is the percentage level of achievement of teaching materials for field trials. The percentage of results from field trials is 90.42%. This means that the teaching materials developed are valid so that these teaching materials do not need to be revised. However, the researchers made a few improvements to the observation activities by making the columns more colorful and adding the appropriate images.

3.7 The Phase of Field Trial on a Wide Scale

This large-scale trial is used to obtain input related to the quality of teaching materials seen from various aspects, which are expected to improve the final product. The respondents for this trial were 23 people from grade 2 students of SDN 4 Toboali. The data collection procedure was carried out by observing the class given teaching materials and analyzing student learning outcomes. Descriptive data from the results of field trials were processed descriptively from the collected questionnaires can be seen in the following table.

Table 12 . Field of Assessment of Test Results

No.	statement	Scores obtained fromRespondents 1,2,3,4,5,6,7,8,9,10,11,12,13,1 4,15,16, 17,18,19 ,20,21,22,23	ΣX	$Xi\Sigma$	P (%)	Description
1.	Teaching materials are arranged to facilitate students in learning.	4,3,3,3,3,4,3,4,3,4,3,4,3,2,3,4,2, 4,3,4,4,3	77	92	84	Make it easy students in learning
2.	Teaching materials are arranged to give students enthusiasm for learning.	3,4,4,4,4,4,3,3,4,4,3,4,3,3, 3,4,4,3,4,3,4,3	81	92	88	Encouraging students to learn
3.	The teaching materials arranged can make it easier to observe student activities	3,4,4,3,4,4,3,4,4,4,4,3,4,3, 3,3,3,4,4,4, 4,2,4,3 Problem	81	92	88	Make it easy for students to understand science
4.-	The questions in the teaching materials are relatively easy.	4,4,4,3,4,3,3,4,4,4,4,2, 4,4,2,4,3,3,3,3,4,	82	92	89	Questions teaching materials are relatively easy
5.	Font type and font size can be found in prepared teaching materials that are easy to read.	2,2,4,3,4,4,4,3,3,4,2,4,4, 3,2,3,4,3,3,4,4,4	78	92	85	Font type and size readable

6.	instructional materials are prepared, students do not have terms that elusive	3,3,3,4,3,2,4,3,3,2,4,4,3,4, 4.3,3.4 ,4,4,3,4,4	80	92	87	Students do not find difficult words
7.	The instructions contained in the prepared teaching materials are very easy to understand.	4,3,4,4,3,3,4,3,3,3,4,4,3,4, 4,3,4,4,4,3,3,3,4	81	92	88	Instructions in teaching materials are easy for students to understand
8.	The language used in teaching materials can be understood.	4,3,4,3,3,4,3,4,4,3,4,3,4,2,3,4,4,3,4,3,3,3 Inner	80	92	87	language teaching materials are easily accessible to students
9.	Practice questions in teaching materials are in accordance with the grid and discussion	3,4,4,2,3,4,3,2,4,4,4,3,4,4, 4 ,3,3,4,3,4,3,3,3	80	92	87	Practice questions according to the discussion
10.	During the use of teaching materials, students do not need the help of other people such as friends, teachers, or parents to learn them.	3,4,4,3,3,4,2,2,4,4,4,3,3,4, 3,3,3,4,3,3,4,3,4	77	92	84	Students did not need the help of others when using teaching materials
Total			**797**	**920**	**86.63**	Overall student responses are high when usingmaterials the developed teaching

Remarks:*Respondents found 23 grade 2 students at SDN 4 Toboali*

In the field test activity, respondents were also asked to provide comments about the materials developed teaching. There are three groups of respondents, respondents with high ability, medium ability, and low ability.

Table 13. Respondents' Comments on Teaching Materials

No.	Group of Respondents	Comments
1.	Low Ability	The teaching materials used are very helpful in learning. Although in the beginning, respondents needed to make adjustments because learning was carried out by the teacher outside the classroom. The teacher also helps us understand the material being studied with the help of teaching materials.
2.	Moderate Ability	The teaching materials used are very helpful in learning. Although at first, respondents need a brief explanation about the use of teaching materials. Learning is carried out by the teacher outside the classroom.
3.	High Ability	This teaching material combines the daily experiences of the respondents with the subject matter. What do the respondents find on a daily basis that is learned in this teaching the material.

3.8 Results of Skills the Thinking Critical

presentation ofdata *pre-test* and *post-test* obtained from class 2 B in the field test can be seen in Table 14 below.

Table 14. Creative Thinking Results of Class 2 B

No. Students Order of Students	**Score**	
	Pre-Test	**Post-Test**
1.	72	92
2.	72	92
3.	75	100
4.	65	95
5.	72	95
6.	69	95
7.	73	92
8 .	75	85
9.	73	95
10.	67	92
11.	70	100
12.	73	95
13.	73	95
14.	75	95
15.	68	80
16.	63	90
17.	65	80
18.	65	90
19.	73	92
20.	75	95
21.	65	90
22.	65	85
23.	69	90
Total	**1612**	**2110**
Average	**70.09**	**91.74**

Based on the average calculation using the above formula shows that the average value of the *pre-test* is 70.09 and the average value -rata *post-test* is 91,74.Artinyaaverage -*post-test* is greater than the average *pre-test.* These results show that learning outcomes and students' creative thinking levels after using-based science teaching materials *outdoor learning* are higher than learning before using-based science teaching materials *outdoor learning.* It can be said that-based science teaching materials are *outdoor learning* able to improve science learning outcomes for Class 2B students.

Thevalues *pre-test* and *post-test* were then analyzed through a two-sample t-test *(Paired Sample T-Test).* This analysis technique is used to determine whether there is an influence on the treatment given to the group of research objects. An indicator of whether there is an influence from this research is if there is a difference between students' cognitive understanding before and after using the developed teaching materials.

Table 15. T-test *Pre-Test* and *Post-Test*

	Paired Differences					*T*	*df*	*Sig. (2-tailed)*
	Means	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
				Lower	*Upper*			
Pair 1 Pretest - Posttest	-2.16522E1	4.93235	1.02847	-23.78508	-19,51927 -21.053	22	0.000	

Based on table 4.17, information is obtained that the value of t count is -21.053. A negative value was obtained because the results of the *Pre Test* were lower than theresults *Post test*. The negative value of t_{count}interpreted as positive to 21. Based on the standard conclusion that if *t* $_{count}$of $t_{table}$the *table then* H_o rejected and H_a accepted. Based on the significant value of 0.000 is smaller than 0.05, then H_o rejected and H_a accepted. Therefore, the results of *t-count* and the significance value can be found that there are differences in student learning outcomes before and before using science teaching materials based on *outdoor learning* materials.

3.9 Final Product Revision

In this stage the researcher decided not to revise the final product because the results obtained were quite good showing significant learning outcomes in classes that learned to useteaching materials *outdoor learning.*

These results are in line with research conducted by Suherdiyanto (2014) that learning outside the classroom can improve student learning outcomes and make learning more meaningful. The same thing is also stated by Rustam and Santoso (2015) that there are significant differences in learning outcomes after learning is carried out outside the classroom. This happens because students become more active and understand the lesson better. Likewise, the results presented by Masuriana (2014) show that there are differences in learning outcomes after using the developed teaching materials.

IV. Conclusion

The process of developing class-based elementary science teaching materials in grade 2 SDN 4 Toboali was carried out through several stages, namely planning, development, validitytesting, initial trials, and field trials with the use of tests to determine the effectiveness of the teaching materials developed. Differences in Thinking critical of students before and before using science teaching materials based on outdoor learning solid objects. It can be said that sciencematerials based learningon outdoor learning can improve the creative thinking of Grade 2 students of SDN 4 Toboali. These teaching materials can affect the thinking ability of students because the developed teaching materials combine the daily experiences of the respondents with the subject matter. What respondents learn on a daily basis in these teaching materials. The recommendations that can be found based on this research are:

1. Teaching materials in science learning can also be used on other materials besides solid objects. Therefore, teachers should be able to develop learning materials to improve learning outcomes.
2. Teachers should be able to disseminate to other classroom teachers about the importance of using teaching materials in improving learning outcomes.
3. The development of-based teaching materials outdoor learning can be developed on other materials.

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