

Development of Diorama Media Containing Psychomotoric and Cognitive Skills in Science Learning Based on Local Wisdom in Fourth Grade Students of Baturno State Primary School

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To Cite This Article:

Yusup, M. ., Fathurohman, I. ., & Khamdun. (2024). Development of Diorama Media Containing Psychomotoric and Cognitive Skills in Science Learning Based on Local Wisdom in Fourth Grade Students of Baturno State Primary School. *ICCCM Journal of Social Sciences and Humanities*, 3(3), 94–99. <https://doi.org/10.53797/icccmjssh.v3i3.14.2024>

Abstract: This research aims to develop things such as: 1. Producing a product in the form of developing diorama learning media in natural and social science lessons in elementary schools. 2. The effectiveness of diorama learning media in learning natural and social sciences for the fourth grade of elementary school. In this research, we adapted the development procedure developed by Borg and Gall. This procedure was chosen because it has detailed but simple steps. The procedures consist of ten, namely gathering information, research planning, developing initial products, field testing, revision, product testing, revision of field product test results, validation, final improvements, and implementation. This research adapts to the research objective, namely developing diorama learning media for the fourth grade of elementary school, so the researcher uses ten existing steps. Data collection techniques used are observation techniques, interviews, and questionnaires. Data analysis in this research includes needs analysis, carried out by determining the characteristics of needs according to the perceptions of teachers and students. Followed by analysis of validity test data using qualitative descriptive data analysis to process data from interviews, observations, criticism and suggestions from experts. Next, quantitative descriptive data analysis to analyze data collected from questionnaires consisting of validation questionnaires for media experts, material experts and questionnaires for students. Followed by the analysis of the effectiveness of using Diorama Learning media using the N-Gain score test. While the comparative analysis of the average achievement of learning objectives between the control class and the experimental class uses the T test. The results of the development of diorama learning media in fourth grade natural and social science learning can improve student learning outcomes after being declared by the validator to get a score of 83.3 in the valid category. Then the diorama media was applied to experimental class students with a calculation result of 0.57 in the medium category. The effectiveness test was carried out by comparing the test results of students in the control class and the experimental class. It was obtained that the score was 7.2 so that the diorama learning media was very effective in being used in fourth grade natural and social science lessons chapter 6 material on various types of typical Indonesian culture.

Keywords: Diorama, Psychomotor, cognitive, local wisdom, Social Science

1. Introduction

Education is a learning process that has interrelated components. These educational components include: objectives, content, methods, learning media, environment, educators, and students.

Learning media is an important factor for improving the quality of learning in the classroom. Learning Media is a means of conveying messages or information from the source of the message to the recipient of the message. Learning media can also be used to help achieve success in teaching and learning activities (Muhson, 2010). Danim emphasized that there have been many research results regarding the effectiveness of using learning media in the learning process in the classroom, especially on increasing learning achievement. On the other hand, a need that cannot be ignored is the need for learning media in teaching and learning activities in the classroom where these activities are activities to increase students' knowledge and insight.

It is natural that the use of learning media in schools is applied in learning to improve students' understanding, but we often find that inappropriate use of learning media will make it difficult for students to understand the material. That is a problem that often arises during this time.

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From the results of observations on Wednesday 15 March 2023 in the fourth grade at SDN Baturno, it was discovered that the results of the mid-semester assessment for PTS (Mid-Semester Assessment) scores for science and science subjects were on average still below the KKTP with a threshold criterion of 62 for science subjects. Thursday, March 16 2023, researchers conducted observations at SDN 2 Babaktulung and it was discovered that the results of the mid-semester assessment in science and science subjects also still received an average score below the KKTP with a lower limit of 65. So, from the results of the observations of the two schools with joint interviews with students and teachers, there are several problems in the learning process in the classroom, such as using more lecture methods, not involving students directly in learning, lack of attention to students' interests and talents and less attention to local wisdom so that students do not know the culture in their area.

Conceptual framework

Atika (2022:4) Diorama media is a combination of perspective image models that depict the actual situation in a smaller size. According to Prastawa (2019: 121-122) diorama media is a three-dimensional image in miniature that represents a real appearance. A dioramaincludes a shape or object in front that consists of a painting behind it according to what will be shown.

Psychomotor abilities according to Mundilarto (2012: 11) are a description of a student's physical ability to use a tool or manipulate body movements. Furthermore, Sudaryono (2012: 47) and Sudjana (2014: 30-32) state that psychomotor learning outcomes appear in the form of skills and individual action abilities, and are a continuation of cognitiveand affective learning outcomes.

According to Latifa (2017:188), cognitive development is related to the intelligence abilities possessed by individuals, namely the ability to think and solve problems. The cognitive domain is influenced by the development of central nerve cells in the brain.

Purnawanto (2022) believes that combining Natural Sciences (IPA) and Social Sciences (IPS) lessons into Natural and Social Sciences (IPAS) subjects in elementary schools is based on the consideration that students at elementary school age tend to learn something in a complete and integrated manner. . Elementary school students still think at the concrete/simple, comprehensive and holistic stages but not in detail.

Istiawati (2016: 5) believes that local wisdom is the way people behave and act in response to changes in the physical and cultural environment. It is a conceptual idea that appears in society, grows and develops naturally in people's consciousness, whether related to sacred life or that which seems normal. Local wisdom can be interpreted as the ideas of a particular place (local) which are wise, have good values and are full of wisdom that is ingrained and continues to be preserved by members of the community.

Research objectives

The aim of this research is to obtain a description and develop the following things:

1. Analyze the need for diorama learning media on the psychomotor and cognitive development of students,
2. To provide an overview of the steps for developing diorama media in fourth grade science and science learning on various materials. typical Indonesian culture,
3. To prove the suitability of diorama media in learning science and science class IV material on various types of typical Indonesian culture,
4. Analyzing the effectiveness of diorama media in science and science lessons in elementary schools.

2. Methodology

Research design

This research uses a research and development design with ten implementation stages referring to Borg and Gall's theory. According to Borg and Gall (in Sugiyono, 2015:34) the opinion is that "educational research and development (R and D) is a process used to develop and validate educational products." Development research is the process used to develop and validate educational products.

Respondents of the study

This research will involve fourth grade elementary school students in one cluster. The cluster that the researchers used was the Wukir Retawu cluster with the number of elementary schools in one cluster consisting of 10 elementary schools with a total of 336 students. In one cluster, researchers will use 2 elementary schools as research sites. The first is at SDN Baturno with a total of 17 students with B accreditation which will be the experimental class and the second is

SDN 2 Babaktulung with a total of 20 students with B accreditation as the control class.

Sample how table should be placed is as below

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Pretest Eksperimen	20	30,00	30,00	60,00	45,5000	2,23312	9,98683	99,737
Posttest Eksperimen	20	30,00	70,00	100,00	84,5000	2,08061	9,30478	86,579
Pretest Kontrol	17	30,00	30,00	60,00	48,2353	2,49784	10,29884	106,066
Posttest Kontrol	17	30,00	70,00	100,00	80,5882	1,95925	8,07820	65,257
Valid N (listwise)	17							

Tests of Normality

Kelas		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hasil Belajar	Pretest Eksperimen	,209	20	,022	,887	20	,024
	Posttest Eksperimen	,186	20	,069	,908	20	,057
	Pretest Kontrol	,226	17	,021	,865	17	,018
	Posttest Kontrol	,236	17	,013	,877	17	,029

Independent Samples Test

		Levene's Test for Equality of Variances		t-Test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Hasil Belajar	Equal variances assumed	1,189	,283	1,353	35	,185	3,91176	2,89156	-1,95842	9,78194
	Equal variances not assumed			1,369	34,977	,180	3,91176	2,85790	-1,89023	9,71376

3. Findings and discussion

The scope of the problems in this research are: 1. Use of less varied media in elementary schools, 2. Improving psychomotor and cognitive skills in science and science learning, 3. Development of diorama media for elementary school students, 4. Introduction and preservation of local wisdom in the surrounding environment.

Knowledge

As an experimental class, researchers used the fourth grade of SDN Baturno, totaling 17 students. In this experimental class, fourth grade science learning was carried out, Chapter 6 Indonesia is Rich in Culture, with material from various typical Indonesian cultures. Before carrying out the pre-test first, then continue with learning using diorama learning media of various Indonesian typical cultures. Next, at the end of the lesson, a post test is carried out to measure the extent of mastery of the material using diorama learning media.

The results of the comparison of pre-test and post-test in fourth grade science learning are as follows: Comparison table of pretest and posttest in the experimental class.

Test	Average	Highest	Lowest value
Pre test	48,2	60	30
Post Test	80,6	100	70

Based on the pre-test and post-test tables above, the average has increased from 48.2 to 80.6. The resulting variant value

is 99.737 to 86.579. Meanwhile, the N-gain in the control class is 70% in the effective category. The results of class IV science learning for the control class from the pre-test and post-test can be seen below. Comparison table of pre-test and post-test in the control class

Test	Average	Highest	Lowest value
Pre test	45,5	60	30
Post Test	84,5	100	70

Based on the results of research in the experimental class in class IV science learning using treatment with diorama learning media, a significant increase in the average score was obtained from 45.5 to 84.5. standard variance 106,298 to 65,257 and the calculated N-gain is 60%

Sample of a figure is as below

Based on these problems, researchers want to develop interesting learning media and improve students' psychomotor and cognitive abilities, then analyze and validate diorama learning media products. Then it is applied in science learning in the fourth grade of elementary schools. Chapter 6 Indonesia is Rich in Culture.

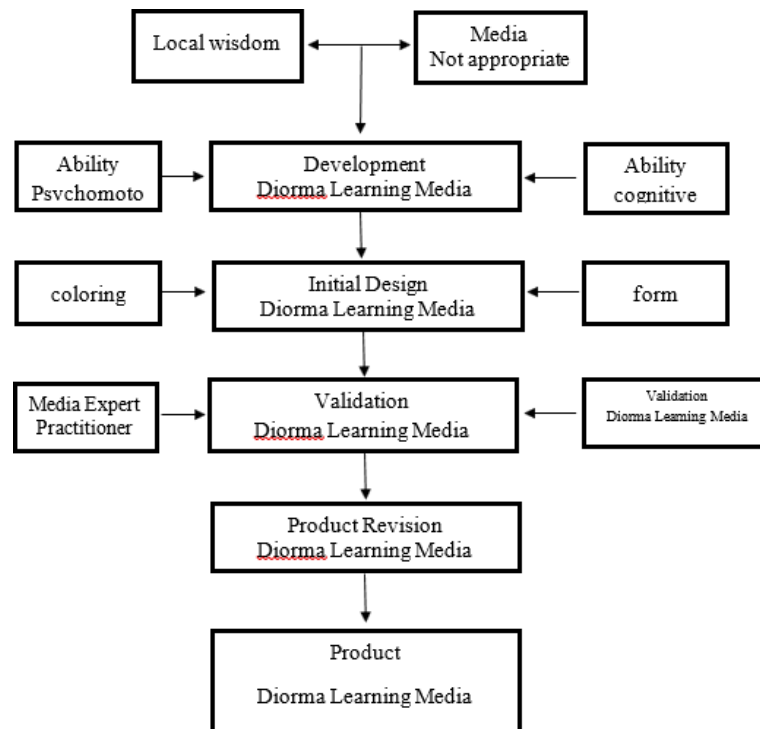


Figure 1: Framework for Thinking

4. Conclusions and Recommendations

From the research that has been carried out, the conclusions that can be obtained are as follows: 1. Diorama learning media can be used to improve students' psychomotor and cognitive abilities, 2. Designing the development of science and technology learning media on material from various typical Indonesian cultures, then conducting research into field with existing and to-be-developed materials. Then diorama learning media was created, material validation was carried out by material experts, media experts and language experts. Of the three validators, they received criterion B, which means it is quite suitable for use, then revisions were made until finally criterion A was "fit for use", 3. This research and development can be seen from the results of the pre-test and post that were carried out, proving that there is a good influence as evidenced by a significant increase in student results. so it is suitable for use in learning in the fourth grade of elementary school, 4. Learning media is very effective for use in science and science learning. This can be seen when using diorama learning media, the results of children's grades appear to have increased significantly.

Based on the research that has been carried out, the suggestions that can be given are:

1. An educator must always innovate in learning so that the world of education can progress.
2. Get used to using interesting learning media
3. Pay attention to the culture of the area around the school so that its sustainability will always be maintained.

Acknowledgment

The researcher would like to thank the Elementary School for helping to smooth the research process and giving permission for this research. Thank you to the people closest to you who have provided motivation to complete this research. Researchers can only pray that Allah SWT will reward them appropriately for the services of the supervisors from Muria Kudus University in implementing and compiling this report.

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