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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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Abstract: This research aims to develop things such as: 1. Producing a product in theform 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 Borgand 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 gradeof elementary school, so the researcher uses ten existing steps. Datacollection 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 expertsand 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 learningobjectives 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 classstudents with a calculation result of 0.57 in the medium category. The effectiveness test was carried out by comparing the test results of studentsin 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 usedin 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 educationalcomponents 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 sourceof 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 inthe 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 improvestudents' understanding, but we often find that inappropriate use of learning media will makeit difficult for students to understand the material. That is a problem that often arises during this time.

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-

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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.

The issue of low student achievement, particularly in science subjects, indicates that the learning process has not yet optimally addressed students' learning needs with appropriate approaches. One contributing factor is the dominance of lecture-based methods, which are one-directional and lack active student involvement. In fact, according to Heinich et al. (2005), learning becomes more effective when students are given the opportunity to engage directly with the material through experiments, educational games, or relevant visual media. Therefore, instructional media should not be viewed merely as teaching aids but rather as integral components in creating an engaging, participatory, and meaningful learning environment.

Moreover, the limited use of learning media based on local wisdom also contributes to students' weak emotional and cognitive connection to the material being taught. Non-contextual instruction, particularly in science classes, makes it difficult for students to grasp abstract concepts when those concepts are not linked to real-life experiences. As Mulyasa (2013) asserts, quality education is that which is rooted in local values while simultaneously preparing students with global competencies. Thus, the development of culturally relevant instructional media—such as using local environments, folklore, or traditional practices—can be an effective strategy to enhance material relevance and increase student interest in learning.

The proper and contextual use of learning media not only improves students' comprehension of academic content but also fosters character development and cultural understanding from an early age. Teachers need adequate training and support to develop creative, interactive, and student-centered media. According to Sadiman et al. (2011), effective media must meet the principles of communicativeness, appeal, developmental appropriateness, and alignment with instructional goals. With the implementation of well-designed media that respond to local needs, student achievement is expected to improve significantly—not only in cognitive aspects but also in affective and psychomotor domains.

1.1 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 schoolsis 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.

1.2 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 mediain 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 materialon various types of typical Indonesian culture

4. Analyzing the effectiveness of diorama media in science and science lessons in elementary schools.

2. Methodology

2.1 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.

2.1.1 Respondents of the study

This research will involve fourth grade elementary school students in one cluster. Thecluster that the researchers used was the Wukir Retawu cluster with the number of elementaryschools in one cluster consisting of 10 elementary schools with a total of 336 students. In onecluster, researchers will use 2 elementary schools as research sites. The first is at SDN Baturnowith 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							

Fig. 1 - Descriptive statistics.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	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

Fig. 2 -Tests of normality.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error 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

Fig. 3 - Independent samples test.

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.

3.1 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 tomeasure 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 asfollows:

Comparison table of pretest and posttest in the experimental class.

Table 1 - 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 is70% in the effective category
The results of class IV science learning for the control class from the pre-test and post-testcan be seen below
Comparison table of pre-test and post-test in the control class

Table 2 - 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 is60%

Sample of a figure is as below

Based on these problems, researchers want to develop interesting learning media and improvestudents' 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.

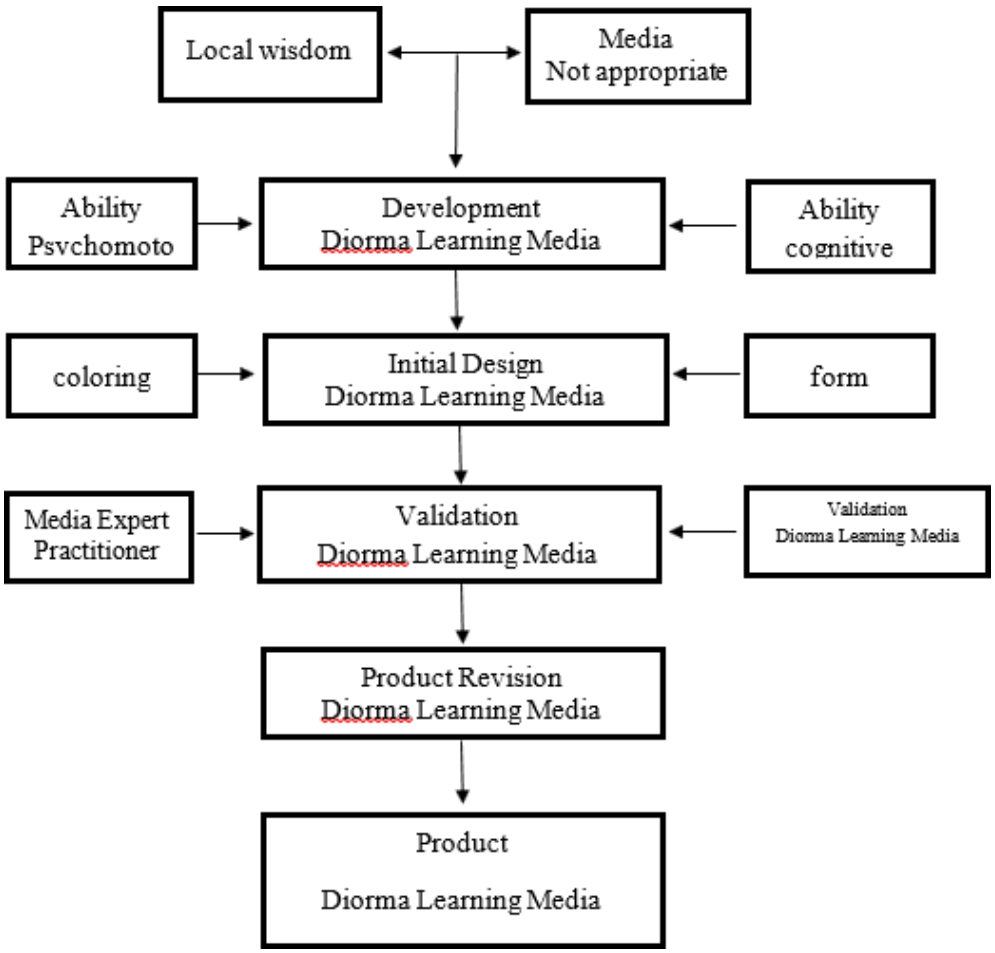

Fig. 1 - Framework for thinking.

4. Conclusions and Recommendations

From the research that has been carried out, the conclusions that can be obtained areas 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 issuitable for use in learning in the fourth grade of elementary school, 4. Learning media is veryeffective 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 canprogress.
2. Get used to using interesting learning media
3. Pay attention to the culture of the area around the school so that its sustainability willalways be maintained.

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Conflict of Interest

The authors declare no conflicts of interest.

References

Arikunto, S. (2013). Research Procedures a Practice Approach. Jakarta: Rineka Cipta.

Aryadillahdan Fitriansyah, Fifit. (2017). Teknologi Media Pembelajaran: Teori dan Praktik. Cibinong: Herya Media

Eldelena, Putra, M. Jaya Adi dan Syahrilfuddin. (2022). Development of Audio Visual MediaUsing Diorama Food Chain Materials for Class V Elementary School. Volume 1, No.1 June 2022. https://doi.org/10.56787/edutech.v1i1.7

Fitri, Amalia, dkk. (2021). Buku Panduan Guru Ilmu Pengetahuan Alam dan Sosial. Jakarta:Kemdikbudristek.

Hasan, Muhammad, dkk. (2021). Media Pembelajaran. Klaten: Tahta Media Grup

Kustandi, Cecep dan Darmawan Daddy. (2022). Pengembangan Media Pembelajaran Konsep& Aplikasi Pengembangan Media Pembelajaran bagi Pendidik di Sekolah danMasyarakat. Jakarta:Kencana

Listria, Silvi, As'ari, Chalil dan Zuhra, Intan. (2023). The Effect of Using Digital Diorama onStudent's Speaking Skill Performance. JIGE 4 (1) (2023) 78-87. https://ejournal.nusantaraglobal.ac.id/index.php/jige/article/view/545

Mulyasa, E. (2013). Curriculum Development and Implementation 2013, Bandung: PT Remaja Rosdakarya Ministry of Education and Culture,(2013). *Development and Implementation of*.

Pentianasari, Sherli dan Firmannandya, Ade. (2022). Penggunaan Media Pembelajaran Diorama untuk Meningkatkan Hasil Belajar IPA Siswa Kelas V-F di SDN Tanah Kalikedinding V Surabaya. 534-551. https://journal.um-surabaya.ac.id/index.php/Pro/article/view/14944/5456

Ramli, Muhammad. (2012). Media dan Teknologi Pembelajaran. Banjarmasin: IAIN AntasariPress.

Sadiman, A. S., Rahardjo, R., Haryono, A., & Rahardjito. (2011). *Educational Media: Understanding, Development, and Utilization*. Jakarta: RajaGrafindo Persada.

Smaldino, S. E., Russell, J. D., Heinich, R., & Molenda, M. (2005). Instructional technology and media for learning 8th. Upper Saddle River, NJ: Pearon Prentice Hall.

Sugiyono. (2019). Metode Penelitian Kuantitatif, Kualitatif dan R & D. Bandung: Alfabeta.