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Project-Based Learning Media: Embossed Maps of Social Studies Material Content

I Putu Yogi Pratama Putra^{1*}, I Wayan Sujana², Ni Nyoman Ganing³



1,2,3 Prodi Pendidikan Dasar, Universitas Pendidikan Ganesha, Singaraja, Indonesia *Corresponding author: iputuyogip@gmail.com

Abstrak

Minimnya penggunaan media pembelajaran dalam poses pembelajaran dan kurangnya media pembelajaran visual sehingga mempengaruhi rendahnya tingkat interaksi dan perhatian perserta didik terhadap kegiatan belajar mengajar. Penelitian ini bertujuan untuk mengetahui rancang bangun, kelayakan media, dan efektivitas media peta timbul. Penelitian ini merupakan penelitian pengembangan menerapkan model ADDIE. Metode pengumpulan data menggunakan observasi, wawancara, angket, dan tutorial hasil karya. Analisis data menggunakan deskriptif kuantitatif, deskriptif kualitatif, dan statistik inferensial. Diperoleh hasil media memiliki validitas dari hasil uji ahli rancang bangun 87,5%, ahli materi pembelajaran 90%, ahli desain pembelajaran 87,5%, ahli media pembelajaran 88,63%, uji coba perorangan 90%, uji coba kelompok kecil 91,6%, dan uji coba lapangan sebesar 88,6%. Hasil uji-t diperoleh thitung (11,368) lebih besar daripada ttabel (2,262) sehingga H1 diterima. Dapat disimpulkan bahwa media peta timbul terbukti layak dan efektif untuk diterapkan pada mata pelajaran IPS kelas V. Implikasinya, penggunaan media pembelajaran visual dapat meningkatkan interaksi dan perhatian peserta didik, serta kualitas pembelajaran secara keseluruhan.

Kata Kunci: Peta Timbul, Project Based Learning, ADDIE.

Abstract

The lack of use of learning media in learning poses and the lack of visual learning media thus affecting the low level of interaction and attention of learners to teaching and learning activities. This study aims to determine the design, feasibility of media, and effectiveness of embossed map media. This research is development research applying the ADDIE model. The data collection method uses observation, interviews, questionnaires, and tutorials of the work. Data analysis uses quantitative descriptive, qualitative descriptive, and inferential statistics. The results of the media were obtained to have validity from the test results of design experts 87.5%, learning material experts 90%, learning design experts 87.5%, learning media experts 88.63%, individual trials 90%, small group trials 91.6%, and field trials of 88.6%. The result of the t-test obtained tcount (11.368) is greater than ttable (2.262) so that H1 is accepted. It can be concluded that embossed map media has proven feasible and effective to be applied to class V social studies subjects.

Keywords: Embossed Maps, Project Based Learning, ADDIE.

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1. INTRODUCTION

Learning media is a tool or learning resource that can assist a teacher in conveying messages to students. Learning media is anything that can be used to channel messages that can provide stimulation to students so that certain teaching interactions occur (Abdullah, 2017; Mustagim, 2016). The existence of learning media in schools helps in the implementation of the teaching and learning process. Utilization of learning media in the learning process also needs to be planned and designed systematically so that learning media is effective to use. The media as an intermediary in order to facilitate the achievement of the objectives of the implementation of education. Learning media must convey messages and can stimulate students' thoughts and willingness so that they can encourage the learning process to occur in them. Development of learning media is a form of learning process activities to improve or improve the quality of ongoing learning (Ningrum et al., 2022; Zahwa & Syafi'i, 2022). Based on interviews and observations that have been conducted at

grade five elementary school that regarding the problems experienced during the map learning process. The problem is the lack of use of learning media in learning processes and the lack of visual learning media so that it affects the low level of interaction and attention of students towards teaching and learning activities, especially during social studies learning. This is a lack of teachers developing learning media so that it is more attractive to students. Learning media is very important in the learning process because learning media can improve student learning processes, increase student activity, increase student motivation when carrying out the learning process. Teachers really need creative learning media in the form of learning media so that it can make it easier for teachers to explain material. This is very much needed. Teachers only have guidelines such as limited student books.

Embossed maps are made from papier-mâché on a board which is designed to make it easier for students to read maps and find out their knowledge about natural features. This is because embossed maps have a surface like a simple state, besides that it can make it easier for teachers to convey social studies material related to maps (Adini et al., 2022; Heni et al., 2017). Development of project-based learning media for making embossed maps made from mush paper/waste paper that is not used can improve mastery of learning in social studies subjects, especially in learning about maps. Embossed maps made from pulp or waste paper that are not used can be designed or designed to make it easier for students to read maps. This is because embossed maps has the surface of the actual situation, besides that with this media it will make it easier for teachers to convey social studies material related to maps (Rahmawati & Dewi, 2020; Rusita et al., 2020). The waste that generated from the production process of both household (domestic) and industrial industries is called waste or rubbish. Paper is one of the most widely produced wastes by humans, both produced by households and schools and offices. Paper waste can be utilized if the methods and processing are carried out properly and have use value. Paper waste that is not useful can be used in a recycling process so that it has economic value. Paper waste can be recycled with various forms of crafts such as storage of goods, dioramas and other forms of crafts. Utilization of paper waste as a learning medium in schools can be done to create innovative learning, can increase creativity and a sense of concern for the environment (Basyari, I. W. et al., 2022; Maslamah et al., 2020). Paper waste in this service activity is paper waste originating from old newsprint, used test paper, and used academic activity paper which is turned into pulp and then formed into embossed maps.

Project-based learning is essentially an individual or group carried out at a certain time level to produce a product (Junaidi et al., 2022; Saputri et al., 2023). This learning focuses on products that are the result of solving a problem. Based on the context of environmental learning, the product produced is in the form of objects which are the result of recycling from used materials and quality, the product is an implication of good systematic planning (Pratiwi et al., 2023; Rizkasari et al., 2022). Therefore, product quality can show an increase in the process achieved by students. The project-based learning model was chosen because it has advantages including being able to improve student learning outcomes. The novelty of this research lies in the development of an innovative learning medium, namely embossed maps, specifically designed to help students understand geography material more effectively. These embossed maps offer a more interactive and visual approach to learning, which can improve students' understanding of topography and other geographic features compared to traditional learning methods. In addition, the use of embossed maps as a projectbased learning medium also encourages students' active involvement in the learning process, which can increase their motivation and independence of learning. This approach is expected to make a new contribution in facilitating students' understanding of material about maps through the use of embossed map technology. In addition, this study also evaluates the design, feasibility, and effectiveness of emerging map media as an innovative learning tool in

supporting the teaching and learning process in the field of Social Sciences. In developing project-based learning media for making embossed maps students more easily understand material about maps through embossed maps. Selection of the development of project-based learning media for making embossed maps, as one of the ways to support the teaching and learning process of students on social studies material content. Social Sciences is a combination of a number of subjects such as history, geography, economics, sociology, and anthropology, the guide. It is need an adequate learning conditions for students and teachers so that each material can be understood properly and learning objectives can be achieved. Based on those problems, this study aims to determine the design, feasibility of the media, and the effectiveness of embossed map media.

2. METHODS

This study is a Research and Development (RnD) using the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. The design of the due diligence in this study included 2 stages, namely: expert review carried out by three experts there are content expert, design expert and instructional media expert as presented in Table 1, 2, 3, and product trials on trial subjects which included individual trials, and small group trials that have been presented in Table 4, and Table 5. The type of data in this study is quantitative data and data collection methods in this study using observation methods, interview methods, and questionnaires. The questionnaire that used in this development research is a closed questionnaire. A closed questionnaire is a questionnaire that has provided answers for respondents. As for the questionnaire or questionnaire instrument grid used in research on the development of project-based learning media for making embossed maps, it can be seen in the table presented as follows.

Table 1. Grid of Learning Content Expert Instruments

No	Aspects Indicators		Indicators	Instrument No.	Number of Items
1	Curriculum	a.	Project media in accordance with the material	1, 2, 3	3
		b.	Project media in accordance with learning		
		c.	Material fit for purpose		
		d.	The material is in accordance with the learning objectives		
2	Material	e.	The material is in accordance with the characteristics of the students	4, 5, 6, 7, 8, 9, 10	7
		f.	Material according to examples		
		g.	The material is easy for students to understand		
		h.	The material corresponds to the student's real life		
		i.	Material according to the media		
		j.	The material presented is interesting		
		k.	The language used in delivering the		
			material is in accordance with the		
			characteristics of students.		

No	Aspects Indicators	Indicators	Instrument No.	Number of Items
3	Evaluation	Evaluation according to the material The level of difficulty of the questions is according to competence	11, 12	2
		Total		12

Table 2. Grid of Design Expert Instrument

No	Component	Indicator	Item Number	Multiple Grains
1	Development Model Used	a. Compatibility of the development model used with the characteristics of	1	
		the product produced		2
		b. Correctness of the reasons for choosing the development model	2	
2	Stages of Development	c. Compatibility of the stages of development carried out with the	3	
	Development	development model used		2
		d. Accurate depiction of the stages of development	4	
3	Clarity, Practicality,	e. Clarity of development stages based on the development model used	5	
	and Demands	f. The level of practicality of the implemented development process	6	3
		g. The demands of development steps	7	
4	Formative Evaluation	h. The accuracy of the evaluation design according to the model used	8	
		i. Clarity of evaluation instruments developed	9	3
		j. The accuracy of the test subjects involved	10	
		Total		10

Table 3. Grid of Lesson Design Expert

No	Aspects Indicators	Indicators	Instrument No.	Number of Items
1	Purpose	 a. The purpose of learning media can be achieved by using embossed map making project media b. Learning media objectives in line with the material and evaluation of the questions presented 	1, 2	2
2	Curriculum	c. The purpose of learning media is in accordance with the content of the material	3	1

No	Aspects Indicators	Indicators	Instrument No.	Number of Items
3	Strategy	 d. Delivery of material in accordance with the learning steps e. Delivery of material in accordance with learning activities f. The presentation of matter accompanied by a clear example g. The presentation of material on learning media is clear 	4, 5, 6, 7	4
4	Evaluation	h. Presentation according to indicatorsi. Presentation of clear problem work instructionsj. Feedback is given appropriately	8, 9, 10	3
		Total		10

Table 4. Grid of Lesson Media Expert

No	Aspects Indicators	Indicators	Instrument No.	Number of Items
1	Credentials	a. The learning media developed is appropriate to achieve basic competencies in learning		
		b. Learning media developed are appropriate to achieve learning objectives	1, 2, 3, 4, 5	5
		c. Learning media developed according to student characteristics		
2	Characters and	d. The media created can attract the attention of students		
	Animations	e. Media has a connection to eventsf. Learning using interactive learning media can clarify the delivery of concepts	6, 7, 8	3
3	Display	g. The media looks interestingh. The colors used are appropriate	9, 10, 11	3
		Total		11

 Table 5. Grid of Individual Trials and Small Group Trials

No	Aspects Indicators		Indicators	Instrument No.	Number of Items
1	Desain	a.	The media draw of the map-	1	2
	Tampilan		making project arises		
		b.	The clarity of the project media	2	
2	Materi	c.	Learning media materials are easy to understand	3	4
		d.	Clarity of learning objectives and learning materials	4	
		e.	Learning activities that		

No	Aspects Indicators	Indicators	Instrument No.	Number of Items
		include (Introduction, core and closing)	5	
		f. Media motivates students in		
		learning	6	
3	Evaluasi	g. Clarity of product work instructions	7	4
		h. Balance the proportion of the problem with the material	8	
		i. Questions according to the material	9	
		j. Language is easy to understand	10	
		Total		10

There are three data analysis techniques used in this study, namely: qualitative descriptive data analysis techniques, quantitative descriptive data analysis techniques, and inferential statistical data analysis techniques. This qualitative descriptive analysis technique was used to process data from subject content expert trials, instructional design experts, instructional media experts, and student trials. Qualitative descriptive data analysis techniques were carried out by grouping information from qualitative data in the form of input, responses, criticisms, and suggestions for improvement found in questionnaires and interview results. Quantitative data analysis techniques are used to process data in the form of values or numbers/scores (Harmoko et al., 2022; Juniati & Abadi, 2017). While inferential statistical data analysis techniques are used to test the effectiveness of the product developed. The pre-test and post-test results were then analyzed using the t-test to find out the differences between the pre-test and post-test results. Before conducting the t-test, a prerequisite test is carried out in the form of normality of data distribution and homogeneity. The normality test for data distribution uses the Chi-Square formula, while the homogeneity test uses the Fisher test formula (F-test). After the data is declared normal and homogeneous, it is continued with a t-test using the dependent sample t-test formula.

3. RESULTS AND DISCUSSION

Result

This research produced a learning media in the form of embossed maps which were developed with reference to the ADDIE development model. In the analysis phase, several activities were carried out, namely initial condition analysis, needs analysis, and analysis of basic competencies and indicators. At the design stage, several activities were carried out, namely data collection, making flowcharts, and making sketches/storyboards as the basis for development. Then proceed to the development stage, at this stage the tutorial material is prepared with embossed maps, making videos, editing, adding tutorials, creating questionnaires, and carrying out product validation. At the implementation stage, individual trials were carried out involving 3 students, small group tests involving 9 students, and field tests involving 27 students. The last is the evaluation stage, at this stage product evaluation and improvement is carried out to determine product results. The validity of the embossed map media was determined from the results of the expert's assessment and the results of trials. Table 6 presents recapitulation data of the validity test results of embossed map products.

Table 6. Recapitulation of The Result of Validity Test

No	Judges	Score	Category
1	Design Expert	87%	Good
2	Learning Content Expert	90%	Very Good
3	Design Expert	87%	Good
4	Media Expert	89%	Good
5	Individual Test	90%	Very Good
6	Small Group Test	92%	Very Good
7	Field Test	89%	Good

Based on the results of the t-test, it is known that the sig. of 0.000, smaller than the significance level of 0.05. This means that H0 is rejected or there is a significant difference in the average social studies knowledge competence of students before and after using project-based learning media for making embossed maps of social studies material for class V SD. In addition, the tcount is 11.368 when compared to the t table at df = 9 and an alpha of 5%, which is 2.262, so the t count is greater than the t table. Thus, giving the same conclusion, namely, H0 is rejected.

Discussions

In this development study a project-based educational media product will be made for Class V. The embossed map media is a tool used by the teacher in learning, so that learning becomes meaningful because the teacher considers the students' conditions in each preparation of the media (Andriani et al., 2023; Asim & Halidjah, 2013; Lasaiba, 2023). Educational media is an integral part of the educational process and is an aspect that must be mastered by every teacher in carrying out his professional duties, because this field develops along with the development of science and technology and changes in people's attitudes. It is interpreted broader and has broader responsibilities, so it has very important educational value. Map is a picture of part or all of the earth's surface painted on a flat plane. Maps are depictions of the earth's surface on a flat plane as measured using a scale and projection system (Subianto et al., 2019; Suryani et al., 2024). The map functions to show the position or location of a place with another place on the surface of the earth. While the study of making maps is called cartography (Pulungan & Dafit, 2023; Rahman et al., 2022). At the SD/MI level, social studies subjects include geography, history and economics.

Embossed map which physically includes a field model, is a map that can show the elevation of the earth's surface. Embossed maps have dimensions of length, width and depth. Embossed maps can be made by teachers and students so that they can foster creativity, imagination, and foster a sense of shared responsibility for joint work (Junaidi et al., 2022; Rahmawati & Dewi, 2020). Materials that can be used to make embossed maps are paper pulp, paint, and glue. The selection of materials is adjusted to the needs of the embossed map that you want to make. Physically embossed maps include field models even though wider location objects have length and width, embossed maps when compared to flat maps are easier to give an understanding or description of the state of the earth's surface, by looking at embossed maps students get a clear picture of the differences in location, seashores, lowlands, mountainous plateaus, volcanoes, lake valleys, and so on. IPS learning is a larger social interaction with the surrounding environment that involves social sciences (Ratnawati et al., 2021; Syahputra & Maksum, 2020). Based on previous research, a project-based learning environment can have a positive effect on student creativity, for example. new lineup (Arifin & Muchtar, 2023; Chandra et al., 2019). The advantages of this project-based embossed map media are that this media is in the form of embossed maps so that students can see the landscape and the environment more clearly (Eliyasni et al., 2019; Saepuloh et al.,

2021). The use of embossed maps as well as media in social studies learning is very effectively implemented in elementary schools (Asim & Halidjah, 2013; Hujjatusnaini et al., 2022). Learning also becomes more meaningful, can help students understand abstract concepts to become more concrete and improves teacher performance in the field so that the results experience an increase. This research implies that it has been proven empirically that the developed learning environment can be used in the learning process to help students convey concepts for map projects. Implementation of project-based learning media occurs after the completion of learning media products. The use of embossed maps can inspire and motivate teachers to innovate and use learning media during the learning process. This research has several important implications and contributions. Improvement of student learning processes and outcomes can be achieved through the use of embossed maps as a project-based learning medium, which provides a more interactive and visual way for students to learn the material, thus positively impacting their understanding of geographical concepts. This study has several limitations that need to be noted. The subjects of the study were limited to involving only students from one school or one small group, so the results may not be generalizable to the wider population. The duration of the allocated study may not be long enough to observe long-term changes in students' understanding or behavior.

4. CONCLUSION

Based on the results of the research and discussion, it can be concluded that embossed maps of social studies material content are appropriate and effective for use in the learning process in grade V elementary schools. This is shown based on the increase in posttest scores after participating in learning.

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