Development of Learning Media Bassed a Motion Graphic

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The Development of Motion Graphic-Based Learning Media

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Abstract. This study discusses the development of motion graphic-based learning media for Class VIII students of SMP Negeri 8 Palopo. This study aims to develop a valid and practical motion graphic-based learning media for Class VIII students of SMP Negeri 8 Palopo. This research is Research & Development (R&D). This study uses 4 stages of development from the 4-D development model, namely: (1) define stage, (2) design stage, (3) develop stage and (4) disseminate stage. The research and development carried out to produce products to help students understand the material of flat-sided shapes in learning mathematics through motion graphics. The research was conducted at SMP Negeri 8 Palopo with the research subjects being grade VIII students. For the level of validity of the developed product, validity tests were carried out by material expert validators and media expert validators. Meanwhile, to find out the practicality of the product, the researcher distributed practicality questionnaires to students. The results of this study indicate that motion graphic-based learning media for SMP Class VIII students is very valid and practical to use in learning seen from the assessment of material experts (88%) with very valid categories, media experts (88%) with very valid categories and responses of students (75%) practical category.

INTRODUCTION

Education plays a very important role in responding to the challenges that exist with the advancement of increasingly sophisticated science and technology. Various kinds of reforms were carried out to improve the quality of education, especially at school. In connection with the development of science and technology, the world of education is required to be able to keep pace with the rapid development of science and technology. The influence of the school on the community basically depends on the extent of the quality of the output (graduates) of the school's education itself. In addition, the need to improve the quality of teachers' knowledge and skills as educators, facilities and infrastructure to support learning need to be careful as teachers as educators in determining and implementing learning media that are in accordance with the material being taught so as to create an effective teaching and learning process.

In the world of education, mathematics is one of the lessons that is a means of moving students' thinking patterns of accuracy and precision. Basically mathematics has the function of developing the ability to count, measure, name and use simple mathematical formulas. Therefore, the position of mathematics in education is increasingly playing an important role. This can be seen from the existence of mathematics subjects at all levels of education ranging from elementary school to university level. In addition, mathematics is ranked first in terms of the number of hours of lessons. However, compared to other subjects, students' interest and learning outcomes in mathematics are always lower. One of the reasons is that mathematics is considered a difficult and boring subject so that students are lazy.

In the 2013 curriculum, national education is designed as an effort to create a generation of people who believe, have noble character, are confident and responsible, as well as to form individual who master science and technology, are cultured, have human and national insight and care about the environment. Although the structure of the 2013 curriculum does not include Information and Communication Technology (ICT) subjects as subjects in

primary and secondary schools, with the implementation of the 2013 curriculum, every teacher is required to use ICT in teaching each subject. This means that, although ICT subjects are not included, skills in using ICT equipment are used to facilitate the learning process.

The selection of learning media must be in accordance with the objectives learning process achievement. Therefore, the chosen learning media should attract students' attention and interest. In addition, the use of media must be appropriate, meaning that the selection of learning media must match the material discussed and the demonstration at the right time so that it can function to clarify information or concepts conveyed by the teacher. Based on the results of observations made by researchers at the location of the mathematics teacher at the junior high school, they have used power point slides in delivering the subject matter. However, the learning media used are less attractive and less motivating for students. Therefore, it is necessary to develop an interesting learning media according to the needs of students. Researchers chose to develop motion graphic-based learning media as a solution to these problems.

One of the teaching materials that is closely related to technology is motion graphics. Film, video, and motion graphics are elements as well as forms of audio-visual technology. By utilizing computer technology, it is expected that audio-visual-based learning media can be used to deliver more interesting subject matter, including visualization of teaching materials. From several research journals studied, it shows that the learning process in Palopo City has not used audio-visual-based learning media in the learning process. In learning mathematics, especially in the form of flat side spaces, students need to understand the concepts in the material being studied. Through the development of motion graphic-based learning media, it is hoped that it can help teachers deliver material in a shorter time. Learning is also more fun because of the real visualization compared to just reading a book and listening to the teacher's lecture. Thus, it is hoped that learning mathematics will attract more students' attention so that the objectives of learning mathematics will be achieved optimally. Based on this description, the researcher is interested in conducting research with the title "Development of Motion Graphic-Based Learning Media for Class VIII Students of SMP Negeri 8 Palopo".

METHODE

The type of this research is research and development (Research and Development), namely the development of motion graphic-based learning media for class VIII students of SMP Negeri 8 Palopo. The development technique uses a 4-D model consisting of 4 stages: define, design, develop, and disseminate. This research was conducted at SMP Negeri 8 Palopo which is located on Jalan Dr. Ratulangi No. 66 Palopo, Balandai Village, Bara District, Palopo City, South Sulawesi Province, with research subjects were 29 students of class VIII SMP Negeri 8 Palopo for the 2020/2021 academic year.

The instrument used was a material expert validation questionnaire sheet to obtain data about the validity of the developed learning media, the aspects assessed were the material and illustration aspects. Media expert validation questionnaire sheet to obtain data on the validity of the developed learning media, the aspects assessed were the quality and appearance of the media and attractiveness. Practicality questionnaire to obtain data about the practicality of the learning media developed, the indicators assessed are material, interest, creative, efficient, and interactive.

The data collection technique was the validity data obtained from the media expert validity questionnaire and the material expert validity questionnaire while the practicality data obtained from the practicality questionnaire. The validity data analysis technique is from tabulation by media experts and learning media material experts, the percentage is sought by the formula:

$$percentage = \frac{\sum item\ score}{maximum\ score} \times 100\%$$

Based on the percentage results then categorized according to the following table:

TABLE 1. Categorization of Validation

%	Category
0-20	Invalid
21-40	Less Valid
41-60	Quite Valid
61-80	Valid
81-100	Very Valid

Practical data analysis technique was from the results of tabulation by students, the presentation is sought by the formula:

$$percentage = \frac{\sum item\ score}{maximum\ score} \times 100\%$$

Based on the percentage results then categorized according to the following table:

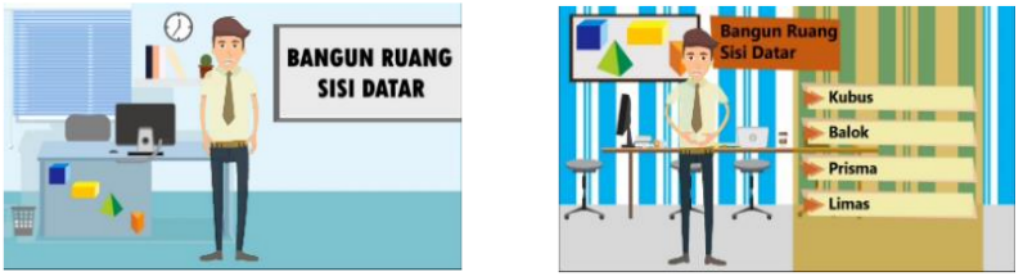
TABLE 2. Categorization of Practicality

%	Category
0-20	No Practical
21-40	Less Practical
41-60	Quite Practical
61-80	Practical
81-100	Very Practical

RESULT AND DISCUSSION

Description of Development Result

The learning media developed in this study are in the form of simple animations or motion graphics in the form of learning videos that can be viewed via a smartphone or via a laptop. This learning media was developed using several software through a 4D development model (Define, Design, Develop, and Disseminate). In this learning media, it discusses the material for building a flat side space. Display or motion graphic-based learning media can be seen in the following figure:



(a) (b)

FIGURE 1. (a) Build Flat Side Space, (b) Fill Build Flat Side Space

Description and Analysis of Test Result Data

Based on the results of trials that have been carried out on experts, the results of the assessment of motion graphic-based learning media are obtained. Validity was carried out by two material experts. The material expert validation sheet covers aspects of the material, and illustrations. The validation results from material experts can be seen in the following table:

TABLE 3. Data of Material Expert Validation Results

No	Aspect	Validation		Amount	Max. Score	%	Category
		I	II				
I	**Material**	3	4	7	8	88%	Very Valid
	1 Learning Media used in accordance with the subject matter.						
	2. The learning media used is in accordance with the learning objectives.	3	4	7	8	88%	Very Valid
	3. The use of the Learning Media used is in accordance with the Basic Competencies.	3	4	7	8	88%	Very Valid
II	**Ilustration**	3	4	7	8	88%	Very Valid
	1. The learning media used can provide illustrations that are in accordance with the actual situation.						
	2. Learning Media can make it easier for students to imagine	3	4	7	8	88%	Very Valid
	Amount	15	20	35	40	88%	Very Valid

Based on Table 3, it can be seen that the results of the validation of material experts obtained an average of 88% which includes values in terms of material aspects and illustration aspects of learning media. It can be seen from the table of validity categorization, the material from the motion graphic-based learning media is in the very valid category. Thus the learning media developed can be used in the learning process.

Media expert validity is carried out by one expert. The media expert validation sheet covers aspects of media quality and appearance, and attractiveness. The validation results from media experts can be seen in the following table:

TABLE 4. Data of Media Expert Validation Result

No	Aspect	Validation	Max. Score	%	Category
I	**Data Quality and Display** 1. The appearance of the Learning Media attracts students' attention.	3	4	75	Valid
	2. The learning media used is not easily damaged.	4	4	100	Very Valid
II	**Attractiveness** 1 The use of learning media can reduce students' dependence on teachers.	4	4	100	Very Valid
	2. The use of learning media can minimize misperceptions that occur in students.	3	4	75	Valid
	Amount	14	16	88	Very Valid

Based on Table 4, it can be seen that the results of the media expert validation obtained an average of 88% which includes the value in terms of the quality and appearance of the media, and the attractiveness aspect of the learning media is very valid. Thus, the learning media developed can be used in the learning process.

As for the practicality of motion graphic-based learning media, a trial was conducted on twenty-nine grade VIII students of SMP Negeri 8 Palopo 2020/2021 academic year through practicality sheets covering aspects of media quality namely appearance, and attractiveness. Student responses related to the practicality of the media can be seen in the following table:

TABLE 5. Data of Practicality Questionnaire Result

No.	Students' Name	Aspect				
		1	2	3	4	5
1	Abihyzar Al Fathir.S	17	9	12	6	3
2	Adinda Diva Azahra	17	10	11	7	7
3	Alfira Salsa	21	12	10	7	5
4	Andri Ramadani	14	7	14	4	4
5	Decha Laelani R	22	12	13	8	8
6	Dinansa Kusuma Aulia	18	10	14	6	8
7	Dirga Anugrah Haerung	21	11	13	7	8
8	Farhan Al Fahrezi	17	6	12	4	5
9	Hajra Hafit	17	11	13	8	6
10	Hasya Nur Yahya	22	10	13	8	7
11	Keysya Ayusafitri	17	9	11	6	5
12	M. Reham Kurniawan	19	10	12	7	6
13	Muh Afriansyah	16	10	10	5	5
14	Muh Alfatir	21	10	14	7	8
15	Muh Makrisyah	15	7	5	5	2
16	Muh. Fathir Haswin	19	9	13	6	6
17	Muh. Ichsanul	16	11	11	6	6
18	Muh. Rasya Pratama	20	11	12	6	7
19	Muhammad Fahmi Aufa	17	11	13	4	7
20	Muhammad Gievari Hidayat	18	9	11	6	6

21	Nabil Merianto	24	10	13	5	6
22	Nur Aisyah Fitri	17	11	11	6	5
23	Nurfadilah Verayanto	20	12	12	7	7
24	Rahma Nur Sahira	17	10	13	5	4
25	Selesai	16	11	13	7	6
26	Syavira	15	7	9	5	5
27	Tiara	23	11	15	8	5
28	Wafiq Nur Azizah	17	10	14	5	6
29	Wirdha Khasanah Ulya	17	9	12	6	6
Amount		535	288	352	180	172
Maximum Score		720	360	480	240	240
%		74	80	73	75	72
Category		P	P	P	P	P
Average		75		Practical		

Based on Table 5, data obtained that the results of the practicality of motion graphic-based learning media have an average of 75%. It can be seen from the table of media practicality categorization, the data from the practicality questionnaire is included in the practical category for being used.

CONCLUSION

The conclusion from the development of motion graphic-based learning media for class VIII students of SMP Negeri 8 Palopo is that when viewed in terms of material which includes material aspects and media illustration aspects, this learning media is included in the very valid category with an average value of 88% while when viewed from In terms of media which includes aspects of media quality and appearance, and aspects of media attractiveness, this learning media is included in the very valid category with an average value of 88%. As for the practicality test of the use of media which includes aspects of media quality and appearance, and the attractiveness of the media is in the practical category with an average percentage of 75%.

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