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Motion Graphic- based ICT Learning Multimedia in High School

Rini Widyastuti^{*1}, Ambiyar², Giatman³, Nurhasan Syah⁴, Handi
Effendi⁵, Mukhlidi Muskhir⁶

¹Universitas Bung Hatta – Indonesia

²³⁴⁵⁶Universitas Negeri Padang - Indonesia

*Email: riniwidyastuti@bunghatta.ac.id

Abstract

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The research aims to produce valid and practical motion graphic-based learning multimedia for ICT subjects. This research uses research and development methods by applying the ADDIE model which includes five stages, consisting of analysis, design, development, implementation and evaluation. Data collection tools use validation sheets and questionnaires. Data analysis by conducting product validity tests involving experts consisting of media and material experts. The practicality test involved 32 students of SMA Negeri 1 Payakumbuh. The results of the validity test in this study obtained a score of 92% in the very valid category and the practicality test for students obtained a score of 90% in the very practical category. From the results of this research, it can be concluded that ICT multimedia learning based on motion graphics is appropriate and can be used by students in learning.

Keywords: Multimedia, Motion Graphics, ICT, ADDIE, Model



INTRODUCTION

Changes in people's lives that occur as a result of advances in Science and Technology (IPTEK) during the era of globalization can cover various fields, one of which is education. As reforms continue to be carried out to increase the value of education, reforms are also needed in the world of education, especially in the use of technology (Aprini, Khairuddin, 2023). Education is a very basic role in measuring the nation's progress (Fauziah & Ninawati, 2022). The development of education must of course adapt to technological developments which are one of the demands and efforts to increase and improve the quality of education, and improve the learning system in the digital era (Ayu Wandira et al., 2022). So that requires teachers and students to be able to adapt to the learning process by utilizing teaching materials that adapt to the learning material, as well as adapting to learning styles which of course uses audio-visual media (Amalia et al., 2023). So that students can show a good listening attitude and be enthusiastic in teaching and learning activities. The development of science and technology will have an impact on the education sector, so teachers are required to be able to develop interesting and innovative teaching materials (Hapsari & Zulherman, 2023). (Purnama & Pramudiani, 2021) The quality of teaching media is said to be adequate if seen from how teachers develop learning media that are interactive and can be integrated between teachers and students, which includes electronic text, moving images and sound (sound), deep This is multimedia learning. Thus, teachers must be able to determine the right way so that students are able to

receive lessons through teaching media in a digital context. Learning multimedia which includes material, case examples in the form of videos and quizzes as learning outcomes tests which are packaged in such a way, can be an innovative medium for achieving learning objectives. Multimedia learning is one means of developing and being innovative in the learning process which is really needed in ICT subjects. The availability of learning resources can help students understand the content on subjects and more efficiently. According to (Asma et al., 2022) defines multimedia learning as one of the applications of interactive multimedia-based learning which can help interest in learning and make it easier for students to understand the material, which will later influence student learning outcomes. By using multimedia learning, students are better prepared to achieve learning goals. According to (Wahyu Adhalia et al., 2022) training students' critical thinking skills is very necessary in understanding the concept of using audio-visual media using video motion graphics. (Tartila, 2021) stated that motion graphics are related to improving students' critical thinking, that motion graphic-based learning multimedia is an innovative media, namely a renewal of learning media. This is one of the efforts to apply information and communication technology to learning. According to (Nugraha, 2022), motion graphics are a form of animation in which a collection of shapes are created together using various effects to produce interesting recordings and studying grammar to make them expressive and attractive, thus producing interesting images. Based on observations that have been made using interview techniques with ICT teachers,





the media used is still PowerPoint, so students find it difficult to make steps for processing tables and graphs. Apart from that, the material presented regarding Excel is in the form of menu functions and icons, number processing, images and diagrams. And it was also revealed that in ICT subjects there is no media used such as motion graphic-based multimedia which allows students to learn independently in the ICT learning process. Apart from that, researchers also held discussions with students studying ICT subjects. Data was found that seven out of ten students interviewed expressed concern, due to difficulties in understanding the learning material because there were no steps in processing tables and graphs in during learning. Most students feel bored and have difficulty understanding the material. The ICT teacher also stated that currently what is needed is a multimedia learning which includes aspects of digital text, video, audio and quizzes as tool test which students can fill in directly on just one media. Therefore, researchers chose to develop ICT learning multimedia based on motion graphics as a solution to existing problems, so that they can generate interaction and create the illusion of movement or transformation in learning (Sinaga et al., 2023). With motion graphic-based learning, objects do not become boring, but look interesting and dynamic. Through the development of ICT learning multimedia based on motion graphics, researchers aim to help students to be able to follow the learning process well and be more enthusiastic about learning. Learning multimedia is packaged in application form, so students can learn anywhere And at any time (Rusdiansyah &

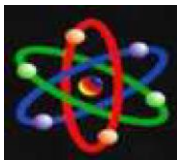
Leonard, 2021). Learning will be more enjoyable because of real visualization, so it is hoped that ICT learning will attract more students' attention and learning objectives can be achieved optimally.

RESEARCH METHODS

This type of research using research and development with the implementing research model ADDIE model, which consists from five stages, namely analysis, design, development, implementation and evaluation. Multimedia learning based on motion graphics was implemented for class X Science students at SMA Negeri 1 Payakumbuh. The subjects of this research are media and material expert validators whose aim is to determine the validity of the multimedia being developed. For the practicality of this multimedia, teachers who taught ICT and students who studied ICT subjects were selected as respondents. This research instrument was used to test the validity and practicality of multimedia developed using media expert validation sheets and material experts, as well as a practicality questionnaire to see user responses. Instruments for multimedia practicality must have valid statement items through testing validity tests and seeing how reliable the instrument is in testing the practicality of the multimedia being developed (Setyowahyudi et al., 2023). Material validity sheet grid, validity media and practicality in this research as in tables 1, 2 and 3.

No	Indicator	Question Number
1	Learning objectives are in accordance with competencies in basic competencies	1
2	The material presented can be understood easily	2
3	The language used in the media is easy to understand	3
4	The explanation of the material in the media is clear And in accordance	4





5	The material is easy for students to understand	5
6	Suitability of images in explaining the material	6
7	Media material is in accordance with developments in science and technology	7
8	The evaluation question items are in accordance with the content of the material	8
9	The evaluation questions are arranged sequentially and according to the level of difficulty	9
10	Suitability of the language used with students' level of thinking	10

Table 1. Material Expert Validity Test Sheet Grid

No	Assessment Component Indicators	Question Number
1	Navigation	1
2	Letter	2
3	Media (Video, Sound and Images)	3
4	Color	4
5	Animation	5
6	Layouts	6
7	Supporting Software	7
8	Originality	8

Table 2. Media Expert Validity Test Sheet Grid

No	Assessment Aspects	Question Number
1	Aspects of Attractiveness	1-2
2	Convenience Aspect	3-7
3	Material Aspects	8-9
4	Language Aspects	10-12

Table 3. Practicality Test Sheet Grid

The quantitative descriptive data analysis used in this research is the first step to determine the total score per validator by accumulating the total score obtained for each indicator. The validation assessment criteria are declared valid if the achievement level is between the range 80%-89%. Testing the reliability and validity of test items is used for practical analysis. If $r_{count} > r_{table}$, the test item is valid. And if $r_{count} < r_{table}$, the test item is invalid. This activity is carried out to determine whether the multimedia used is valid. Next, carry out a reliability test which aims to find out how reliable the

instruments used are in measuring the practicality of the multimedia being developed. The basis for making reliability decisions uses the assumption that if the Cronbach's Alpha value is > 0.60 , then the conclusion is reliable. However, if the Cronbach's Alpha value is < 0.60 , then the conclusion is not reliable. The practicality analysis formula used is the total score obtained divided by the maximum score, multiplied by 100%. The practicality test value criteria are as in table 4.

No	Achievement Rate (%)	Category
1	< 59	Less Practical
2	60 - 75	Quite Practical
3	76 - 85	Practical
4	86 - 100	Very Practical

Table 4. Practicality Test Score Criteria

RESULT

Motion graphic -based ICT learning multimedia using the ADDIE model with the following stages : analysis stage, conducting field analysis by conducting observations and interviews, as well as analyzing the needs needed to produce multimedia development. Field analysis that has been carried out shows that ICT learning requires interesting multimedia learning based on motion graphics to be applied, both offline and online, so that students can learn independently. Regarding needs analysis, obtained innovation in learning media used by students, so that they can achieve active and independent learning. The design stage involves designing multimedia and creating research instruments.

The motion graphic -based ICT learning multimedia design stage that have been carried out like Figure 1.





Figure 1. ICT Learning Multimedia Page Display

The development stage is carried out to test the multimedia that has been designed so that it is ready to be implemented. First, carry out multimedia validation with media and material expert validators. Media expert validators are lecturers who teach learning media courses. For material expert validators, namely ICT teachers. Validation results from media and material experts can be seen in figure 2.

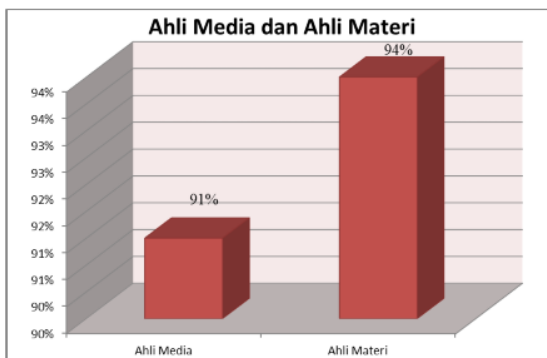


Figure 2. Validator Assessment Data Graph

Next stage is product implementation which is carried out by distributing practicality questionnaires to students in ICT learning. This questionnaire is its own design which must be measured using validity and reliability tests. Activities carried out by comparing the r-count and r-table values. To determine the level of confidence, a value of 5% or 0.05 is used. The validity testing stage involved 32 respondents, so $df = 32 - 2 = 30$. If you look at the r table, the value obtained is 0.349. The validity test of the question items, in the form of r count and r table, can be seen in table 5.

Question Items	r-table	r-count	Information
X.1	0.3494	0.5834	valid
X.2	0.3494	0.6725	valid
X.3	0.3494	0.6113	valid
X.4	0.3494	0.6642	valid
X.5	0.3494	0.5373	valid
X.6	0.3494	0.6221	valid
X.7	0.3494	0.5260	valid
X.8	0.3494	0.7180	valid
X.9	0.3494	0.3733	valid
X.10	0.3494	0.4634	valid
X.11	0.3494	0.3941	valid
X.12	0.3494	0.3870	valid

Table 5. Results of Test Item Validity data

The results from the data in table 5 show that when calculating the validity of the statement items, the r-count number is > than the r-table, with a value of 0.3494. It is stated that all statement instruments in this research are valid. Meanwhile, the reliability results were obtained from the reference value was 0.60, and Cronbach's alpha was obtained at 0.9732. It can be stated that the research instrument used is reliable for measuring what it wants to





measure, because each variable gets a value of more than 0.60. Obtaining validity tests from media and material expert validators, overall the motion graphic-based multimedia that has been developed is categorized as very valid, which can be seen from the percentage score of the ICT learning multimedia assessment obtained as a whole of 92.5% in the very valid category. Which is obtained from the validity test value of media expert validator with a percentage of 91% and material expert validity test value of 94%

The results of the practicality analysis obtained from the practicality questionnaire filled out by respondents showed that the multimedia developed was declared very practical at 90%. This shows that the multimedia developed is very practical in its use and can help students in learning. Practicality test as in Figure 3.

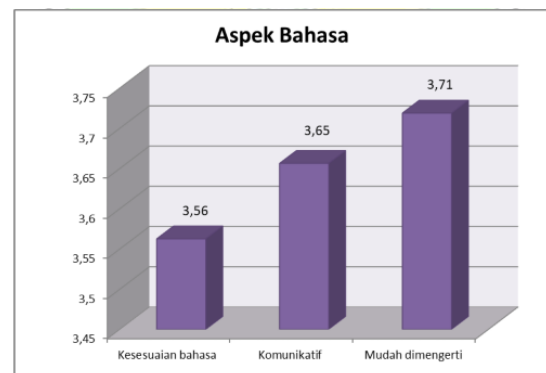
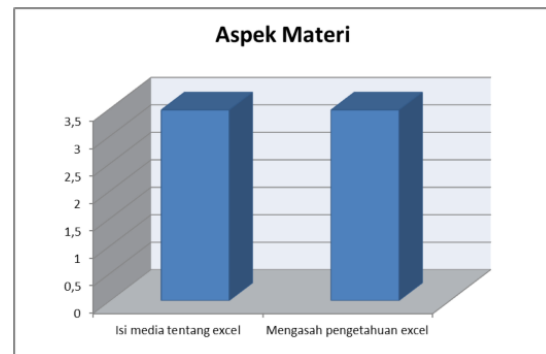
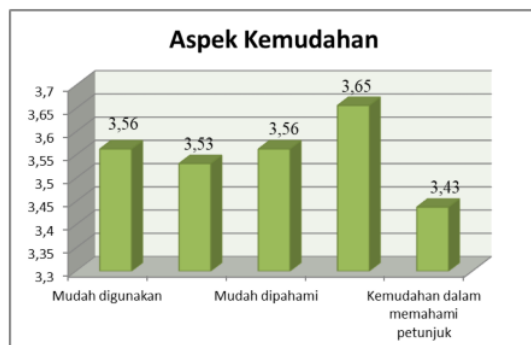
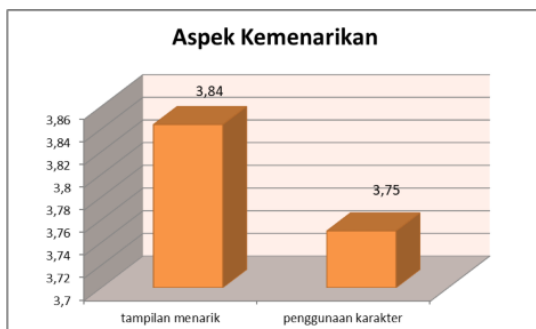


Figure 3. Graph Of Analisis



CONCLUSION

A multimedia development for ICT subjects based on motion graphics has been produced which can be used by students at SMA Negeri 1 Payakumbuh . Based on the results of research and development, the results obtained were presented with a score of 90%, so it can be concluded that motion graphic -based ICT learning multimedia shows that students are happy and interested in using motion graphic learning multimedia in ICT subjects, so that multimedia is considered very feasible and can be used in the process. student learning.

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