Analysis of Response Needs for the Development of Animation Video Learning Media on Dynamic Fluid Materials

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Abstract

This study aims to determine the needs response analysis for the development of animated video learning media for students and teachers. The research was conducted at MAN 1 Bengkulu City, MAN 2 Bengkulu City, and SMAN 10 Bengkulu City in September 2022 with a sample size of 97 students in class XI IPA and 3 physics teachers. The instruments used in this study were observation, interviews and questionnaires, with a descriptive research method using the ADDIE R&D model. Data collection techniques and data analysis used were observation, interviews, and questionnaires. Based on the results of the validity and reliability tests, it was found that the questionnaire required each statement item to be valid and reliable. The results of data analysis stated that students and teachers strongly agreed to develop animated video learning media on dynamic fluid material with a percentage of 81.31 % strongly agree category.

Keywords: Animated Videos, Dynamic Fluid, Learning Media, Understanding Concepts

A. Introduction

The world has now entered the era of the industrial revolution 4.0, where technology has become an integral part of human life [1]. Technological developments have had an impact on the field of education in the learning process. The use of technology in the learning process is no stranger to the current era of globalization. The existence of the internet allows us to learn anytime and anywhere with a very broad scope, for example, with the facilities of e-mail, chat, e-books, e-libraries and so on, we can share information with each other without having to meet face to face with the source of the information [2].

Physics learning is a form of implementing physics education in schools. In learning physics there are activities of awareness or mastery of physics in students or students through teaching interactions or teaching and learning processes [3]. Physics which is considered difficult to understand makes students think that physics lessons are difficult, so that it reduces students' motivation which has an impact on the lack of understanding of physics concepts [4]. One of the materials that students still lack is that dynamic fluid material is still lacking and some don't even understand at all [5], this is due to the notion that physics is a subjectthatis difficultto understand, and is supported by physics teaching that is not interesting [6].

The rapid development of science has led to transformations in all fields including the field of Education. One of the components of the education sector that is undergoing transformation is learning media [7]. Learning media is one of the elements that influence the quality of education implementation. Selection and use of appropriate media and in accordance with the characteristics of the subject matter accompanied by the use of relevant learning methods, will produce [8]. Learning media is one component of a system designed to achieve learning objectives [9]. Learning media has an important position in a learning plan. In order for learning objectives to be achieved, it is necessary to use learning aids that are appropriate and in accordance with the characteristics of students. Learning media can be in the form of text, visual images, videos, virtual reality, interactive multimedia [10].

Based on the results of observational data and interviews that have been conducted at MAN 1 Bengkulu City, MAN 2 Bengkulu City, SMAN 10 Bengkulu City, the results show that the curriculum used in learning activities is curriculum 2013. The dominant use of learning media used is printed books, power points and YouTube, and the method used is still the lecture method. Resulting in a lack of quality in learning resulting in a lack of understanding ofstudents' concepts, especially in dynamic fluid material. Due to the lack of interestin the learning provided by the teacher, it causes students to feel bored following the

learning process in the classroom, this occurs because the use of media in learning is less varied, So the teacher must create an interesting learning atmosphere and not make students bored.

Video is an effective learning media to support interesting learning activities [11]. One of the learning media that can be used to support the teaching and learning process is by using learning video media [12]. Animated video is one of the learning media that is suitable for creating interesting learning media [13]. One method teachers, may use to enhance their students' conceptual comprehension is the utilization of learning materials, namely animated films. The use of learning media is expected to help students understand the learning process carried out by teachers in the digital era [14]. By using animated video media, it is hoped that it can attract students' interest, especially in dynamic fluid material so that the material can be easily understood and understood [15].

In Haidir et al's research [16], stated that video learning media was very influential in students' understanding of concepts. Meanwhile, the drawback of video-based learning media is that it requires high creativity to create video-based learning media that attracts students' interest. Research [17] states the need to use media in the form of animated videos and the need to develop animated videos according to students' needs in an effort to increase students' understanding of concepts. The distinction between this study and prior studies is lies in the material which in this study has its own material coverage, namely dynamic fluid material.

From the problems above, it is obtained whether animated videos are needed on dynamic fluid material in Bengkulu City High SMA/MA. The purpose of this research is to analyze the response of students' needs to animated videos

B.　Research Methods

The type of research used in researchis R&D (Research & Development) with descriptive research,the model usedis the ADDIE model is in Figure 1 (Analysis, Design, Development, Implementation, and Evaluation) [18]. In this study, it was only carried out up to the first stage, namely Analysis, in accordance with the objectives of the research, namely to find out the response of students' needs to animated video learning media on dynamic fluid material.
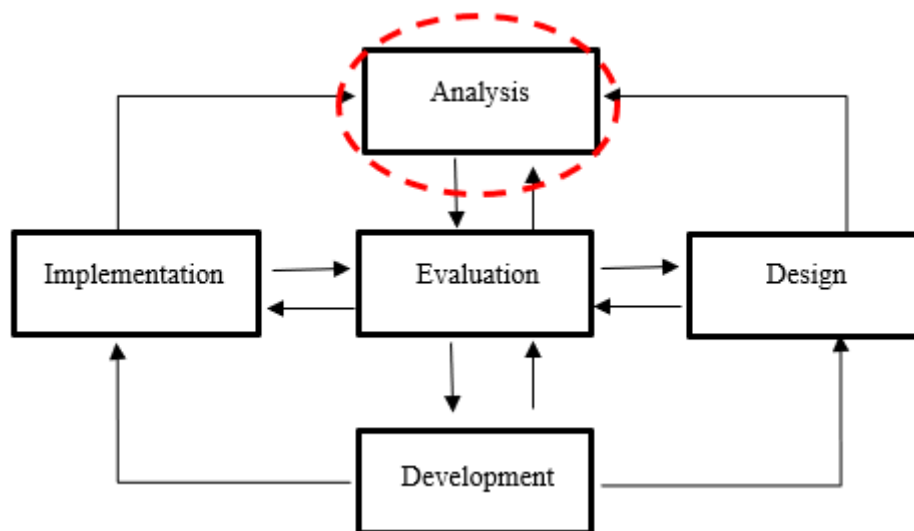

Figure 1. ADDIE Model

Information:

　　: The focus part of the research

This research was conducted in 3 schools, namely MAN 1 Bengkulu City, MAN 2 Bengkulu City, and SMAN 10 Bengkulu City. The subjects of this study were students of class XI IPA SMA/MA with a total sample of 97 students and 3 physics teachers. Data collection techniques used are observation, interviews and questionnaires. The instruments used in this study were observation instruments, interview instruments,

and demand questionnaire instruments for animated video learning media, with a needs questionnaire grid on table 1 needs questionnaire grid.

Table 1. Requirements Questionnaire Grid

Indicator	Number	Scale Value
Student response	1,2	2
Physics Learning Experience	3,4,5,6,7,8,18,20	8
The need for animated video learning media	9,10,11,12,13,14,15,16,17,19,21	11

Quantitative analysis is the method of data analysis employed, because there is a needs questionnaire which is analyzed on a Likert scale. The Likert scale is an assessment scale consisting of several choices of scales with values on each scale to measure the level of agreement with something that is the object of research [19]. The scale used is a Likert scale of 4 found in table 2

Table 2. Likert scale rating score [20]

Evaluation	Scale Value
Strongly agree	4
Agree	3
Disagree	2
Strongly Disagree	1

The needs questionnaire was tested for validity and reliability using SPSS. A questionnaire is declared reliable if the Cronbach's Alpha value is > 0.60, and conversely if the Cronbach's Alpha value is <0.60, then the questionnaire or questionnaire is declared unreliable or inconsistent [21].

Questionnaire acquisition analysis requirements are carried out quantitatively with the following formula.

$$p = \frac{n}{N} \times 100\% \tag{1}$$

Where is P is percentage of needs analysis results, n is the total evaluation score, and N is the maximum score that can be achieved. The rating score in table 1 is interpreted as contained in table 2. Likert scale interpretation.

Table 3. Interpretation of the Likert Scale [22]

Percentage	Interpretation
0% - 25%	Strongly disagree
26% - 50%	Don't agree
51% - 75%	Agree
76% - 100%	Strongly agree

C. Result and Discussion

The purpose of this research is to identify the requirements of students for the video learning media on dynamic fluid material, however, validity and reliability tests are carried out in each statement to determine whether this instrument is valid or invalid to use in finding the desired data. The results obtained from Validation of the Student Needs Questionnaire are shown in Table 3 of the results of the instrument validity test

Table 4. Instrument Validity Test Results

The amount of goods	Percentage	r-count	Information
1	0.195		Valid
2	0.191		Valid
3	0.296		Valid
4	0.466		Valid
5	0.564		Valid
6	0.423		Valid

The amount of goods	Percentage	r-count	Information
7	0.316		Valid
8	0.592		Valid
9	0.670		Valid
10	0.380	0.166	Valid
11	0.540		Valid
12	0.532		Valid
13	0.562		Valid
14	0.495		Valid
15	0.691		Valid
16	0.609		Valid
17	0.378		Valid
18	0.423		Valid
19	0.584		Valid
20	0.659		Valid
21	0.681		Valid

In table 3 the results of the instrument validity test show that the 21 statements in the questionnaire are in the valid category, with an r-count of 0.166 where the percentage obtained is > 0.166, which can be used in collecting data in this study.

Next, the validity and reliability must be tested instrument with the outcomes shown in the preceding table 4 case processing summary

Table 5. Case Processing Summary

		N	%
Cases	Valid	97	100.0
	Excludeda	0	.0
	Total	97	100.0

Which in table 4 case processing summary shows that a total of 97 respondents are valid with a percentage of 100%, so on Reliability Statistics with the results in table 5 Reliability Statistics

Table 6. Reliability Statistics

Cronbach's Alpha	N of Items
0.787	21

From table 5 Reliability Statistics can be seen from Cronbach's Alpha which is 0.787 for a total of 21 statement items. It can be seen that the results obtained are > 0.60 which can be concluded that the instruments used are reliable.

Following the validation and reliability tests, data analysis was performed to assess the needs of the pupils for video learning media that is animated dynamic fluid material, the percentage of needs for developing video learning media that is animated dynamic fluid material can be seen in table 6 percentage of student needs results.

Table 7. Percentage of results Student needs

Percentage	Shoes Total (n)	Maximum Score	Percentage	Category
97 SMA/MA students in Bengkulu City	6625	8148	83.31%	Strongly agree

From the results table 6 showed that high SMA/MA students in Bengkulu City strongly agreed to do the development of animated video learning media on dynamic fluid material, this was obtained with a percentage of 83.31%. With the percentage of each statement item in Figure 2 the statement item percentage chart.
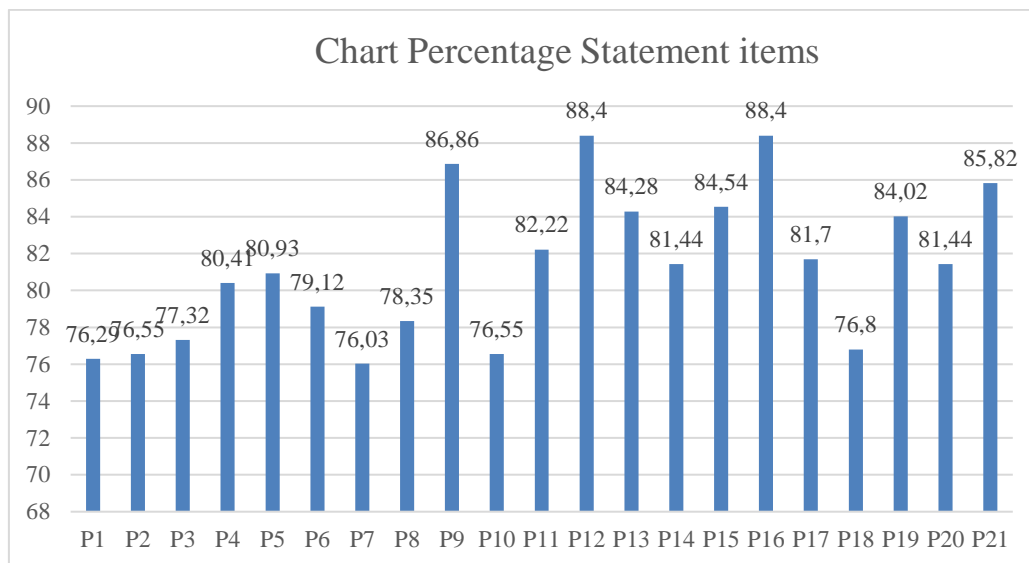
Figure 2. Chart Percentage Statement items

Results from figure 2. Graph of item percentage statement with the lowest percentage of 76.03%, this shows that all statement items get a percentage greater than 75%. Based on table 2 of the Likert scale interpretation, the statement is classified as strongly agree with a percentage of 76% -100%. The majority of students agree with the results of the questionnaire. To support effective and interesting learning, animated video learning media is needed. Currently learning media already exists but has not been used optimally and is not attractive, so it is necessary to develop animated video learning media on dynamic fluid material to increase students' understanding of concepts, which can be accessed by students anywhere and anytime with a smartphone.

Teacher interview results

In this study, interviews were also conducted with 3 physics subject teachers at 3 SMA/MA in Bengkulu City, interviews were conducted with a number of them indicator the first is the infrastructure, which of the three schools the provider's network is smooth and for wifi only a few points are available where in each class hallway there is one wifi. The physics laboratory already exists but is in the repairstage so that the laboratory has not been used effectively but the teacher allocates it using a virtual lab. In 3 high schools/MA in Bengkulu City, they already have LCD projectors and infocus facilities, but physics teachers are not making good use of them.

The second indicator is the learning process, from the results of the interviews it was found that the teaching materials used by the teacher were still in the form of print media provided by the school, for the learning media itself the teacher used Power point, youtube, virtual lab and madrasah E-learning with the learning method used namely lecture, discussion, and experiment methods. In dynamic fluid material the teacher said that students' lack of understanding of concepts was caused by students' lack of enthusiasm in the learning process less effective and interesting learning media used, and the media used did not help students in independent learning, so teachers need learning media that are effective, interesting and can help in independent learning.

The third indicator is school policy in which 3 SMA/MA in Bengkulu City are permitted to bring smartphones to school, but are prohibited from using them during the learning process unless permitted by the teacher directly if needed in the learning process. The school policy regarding the teacher's 3 study hours says the lack of study hours provided by the school results in a lack of delivery of material in class, according to the teacher's needs that the media used can be accessed using a smartphone and can be accessed anytime and anywhere.

From the results of the interviews conducted, the teacher gave positive answers for the development of animated video educational material on dynamic fluid material, this is expected to support the teacher in learning activities.

This research is in line with research [16] and research [17] with the result that teachers and students strongly agree and need animated video learning media with valid and reliable instruments. This research is different from previous research, namely on the material, namely dynamic fluid material.

D. Conclusion

Based on the acquisition of validity and reliability tests, it was found that the needs questionnaire used in collecting data had valid and reliable statement items. And the results of teacher interviews require learning media that are effective, interesting and can be accessed anytime and anywhere. The findings of the analysis are then presented needs response obtained from students and teachers strongly agreed to develop to boost students' grasp of topics, use animated video learning media on dynamic fluid material.

E. Acknowledgement

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