Flipped Classroom-Based Learning Video Elasticity to Increase Learning Motivation

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ARTICLE INFO	ABSTRACT
	This study aims to produce the elasticity of flipped classroom-based learning videos to increase motivation, which is valid as a learning medium. The method used in this research is Research and Development (RnD) with the ADDIE model (analysis, design, development, implementation, evaluation). The steps are conducting analysis, product design, product development, performance, and evaluation. This learning video has gone through the validation test phase with an achievement percentage of 89.05% according to material experts and 66.36% according to media experts. Furthermore, product trials were carried out on educators and students. The results of product trials on educators showed the percentage of achievement was 97, 50%, and product trials to students showed 89.25%. Based on the validation test results and product testing, it can be concluded that the elasticity of flipped classroom-based learning videos to increase learning motivation is valid as a learning medium. *Copyright* © 2021 Universitas Negeri Jakarta
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1. INTRODUCTION

The development of science and technology has a considerable influence in all areas of human life, and education also needs to take advantage of advances in science and technology to be able to achieve its goals effectively and efficiently [1]. In this era of globalization, the use and selection of appropriate learning media and active media in the learning process will significantly affect the learning process itself [2]. Learning that is applied in the era of globalization today is student-centered learning [3]. However, the problem that students usually face in the learning process is their understanding and response to the material provided by the teacher.

Flipped classrooms a verbal preparation room that can stimulate students' motivation, and moreover, it encourages them to prepare before class and their involvement in class [4]. A flipped classroom is active learning with a student-centered

approach that can improve the quality of education during the course [5]. Therefore, to support flipped classroom learning, learning media in the form of audiovisual media can be used. Audiovisual media is media with sound and image elements [6].

Learning video is a form of audiovisual learning media. This media can provide a better learning experience because several senses will work [7]. Video learning is considered to be able to show concepts correctly and demonstrate learning to systematically stimulate students' learning motivation and improve students' understanding. In addition, the advantages of learning videos are that they convey information that students can accept, are suitable for explaining a particular process, overcome the limitations of space and time, can be more realistic, the material can be repeated, and the colors used in the video can be adjusted to the needs. They can give the impression which can influence students' attitudes [8]. So the aim of this research is to produce the elasticity of flipped classroom-based learning videos to increase learning motivation that is valid for use in learning physics.

2. METHOD

The research method used is the research and development method. A development research method is a research method used to produce specific products and test the effectiveness of the products [11]. Researchers adapted the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The selection of the ADDIE model has been based on the consideration that this model was easy to understand. This model was developed systematically and based on the theoretical foundation of the extended learning design.
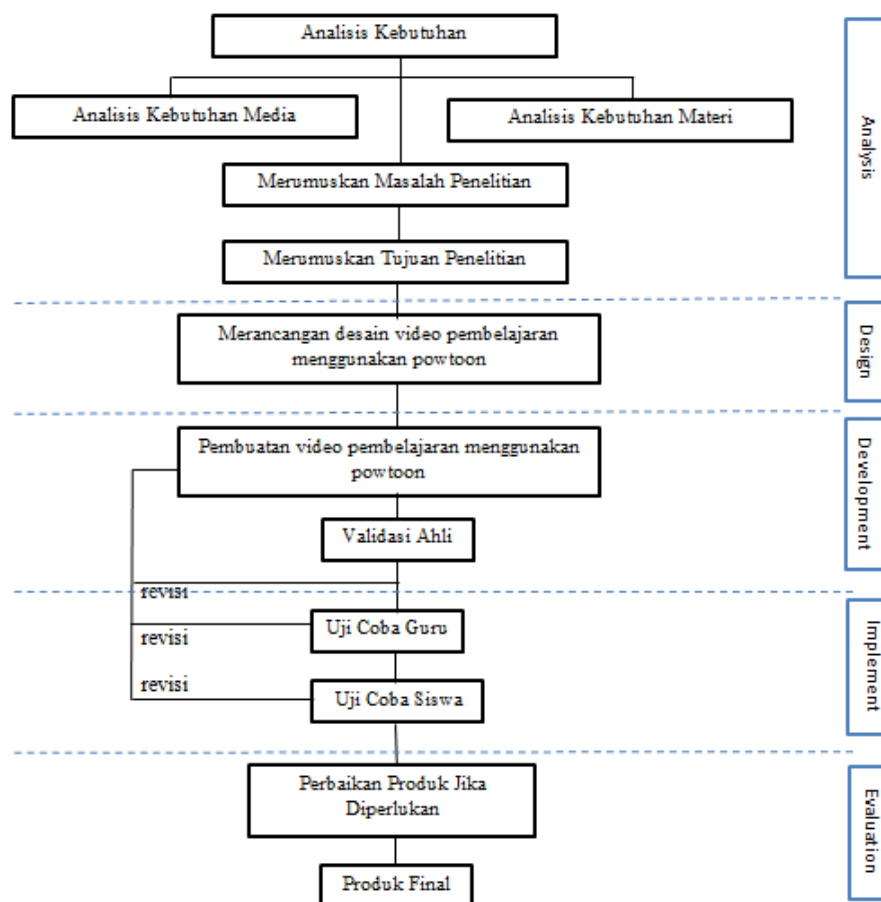
Figure 1. Product development steps

Analysis

The analysis stage is needed to determine and define the needs in making learning videos so that an overview of the videos that will be developed is obtained. The analysis carried out is as follows: a) Needs Analysis. Needs analysis aims to get an overview of the needs in learning physics. In learning physics, engaging learning media is needed, which can make learning more fun. B) Material analysis. The material analysis aims to see physics learning materials that can be made learning videos and the material needs that need to be made learning videos, one of which is elasticity material. At the stage of needs analysis and material analysis, it is done by distributing questionnaires to approximately 30 high school students of class XI to find an overview of the media and materials that will be made.

Design

The design stage aims to make the initial design of the learning video. At this stage, the initial design of the designed media.

Development

In the development stage, the conceptual framework is realized into a product ready to be implemented. At this stage, the development or manufacture of media according to the designs that have been made by making designs, compiling materials, and perfecting them into complete learning media that can be used for learning.

Implementation

At the implementation stage, a questionnaire was made to test the validity by experts and then revised and looked at by testing the students. At this stage, the validation test was carried out by two experts, namely material experts and media experts. Product trials or learning media were carried out to educators and students.

Evaluation

At this stage, an evaluation is carried out to see the level of validity of the developed learning video [12].

To determine the validity of the product or media developed, validation tests were carried out by media experts and material experts, and educators and students carried out product trials. These results are used as a basic assessment of the quality of the elasticity of flipped classroom-based learning videos to increase learning motivation based on Likert scale criteria. The Likert scale is a psychomotor scale commonly used in questionnaires and is the most widely used scale in research in the form of surveys. The scoring calculation on a Likert scale is as follows:

Table 1. Likert Scale Score

Alternative Answer	Score Weight
Very valid	5
Valid	4
Quite valid	3
Invalid	2
Totally invalid	1

(Source: [13])

Calculation of the percentage of success with the formula:

$$\text{Percentage Number} = \frac{\text{Total score}}{\text{Maximum score}} \times 100\%$$

The percentage score obtained is then used to measure the quality of the developed learning media. The quality of the media can be known by using the interpretation of the score, namely:

Table 2. Product Validity Criteria

Percentage (%)	Validity Criteria
81.26 – 100	Very Valid
62.51 – 81.25	Valid
43.76 – 62.50	Invalid
25.00 – 43.75	Very Invalid

(Source: [14])

3. RESULTS AND DISCUSSION

The results of this study are the elasticity of flipped classroom-based learning videos to increase learning motivation which is valid for use in learning physics. This learning video is an animated video created using Powtoon. Here are some views of the learning videos that were developed:

Figure 2. The opening view of the learning video

Figure 3. Display of introductory competency presentation of elasticity material

Figure 4. Apperception display of the learning video

Figure 5. Display of material presentation from the learning video

This learning video has gone through the validation test stage with an achievement percentage of 89.05%. According to material experts, based on the assessment results, the interpretation of all aspects shows "Very Valid" according to the product validity criteria table. Meanwhile, according to media experts, the achievement percentage is 66.36%. Based on the assessment results, the interpretation of all aspects shows "Valid" according to the product validity criteria table. Furthermore, product trials were carried out on educators and students. The results of product trials on educators show a percentage of achievement of 97.50%. Based on the assessment results, the interpretation of all aspects shows "Very Valid" according to the product validity criteria table. Furthermore, the results of product trials to students show a percentage of achievement of 89.25%. Based on the assessment results, the interpretation of all aspects shows "Very Valid" according to the product validity criteria table. So based on the results of the validation tests and product trials that have been carried out, it shows that the elasticity of flipped classroom-based learning videos to increase learning motivation is valid to be used as a learning medium.

4. CONCLUSION

Based on the results of the discussion, it can be concluded that the elasticity of the flipped classroom-based learning video to increase learning motivation that was developed meets the valid category with an average percentage of the validated aspects, which is 77.7% and from the tested aspects 93.4%, so the product the resulting valid is used as a learning medium.

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