Physics Animation Videos Learning Media Integrated with Quranic Verses with YouTube Output

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Abstract: This study aims to find out the opinions of the validators and the responses of students on the learning media in the form of animated videos integrated with Quranic verses with YouTube output. This research is a research and development (R & D) research using Borg and Gall procedure. This research was conducted at Senior High School YP UNILA Bandar Lampung, Senior High School 1 Bukit Kemuning, and Senior High School 7 Bandar Lampung with the eleventh-grade students as the object of the research. Validation results from material experts, media experts, and religious experts showed very good results with percentage reaching 84.67%. Then, the animated video was tested through two stages, namely small-group trial and field trial. The average results obtained were 78.10% for small-group trial and 81.30% for a field trial at Senior High School YP UNILA Bandar Lampung, Senior High School 1 Bukit Kemuning, and Senior High School 7 Bandar Lampung. Thus, the learning media in the form of animated videos containing Quranic verses with YouTube output, from the three schools, has the feasible criteria.

1. Introduction

Education in Indonesia experiences increasing significant development [1–3]. This development can be seen from the diverse learning methods used. The method used uses a variety of media to improve the quality of learning outcomes [4]. The development of various learning media is in line with the rapidly advancing technology [5–7].

The current technological dynamics have achieved tremendous acceleration and physics plays an important role in the development of technology [8]. This is because physics is one of the branches of Natural Sciences (IPA) that studies all phenomena that occur in the universe [9]. Physics is very closely related to the Qur'an, but there are still many who do not know about this. Physics is also a subject there are formulas and counts, so there is a need for learning media that can help students understand the theory, so they can apply it to formulas [10, 11].

One of the learning strategies to be applied in physics learning is learning video animation [9, 12–14]. Video animation media is a message channeling media that gives the appearance of text and moving images [12]. According to Edgar Dale stated that a person's learning experience of 75% is obtained from the senses of sight (eyes), 13% through the sense of hearing (ears) and the rest through other senses [15].
Based on the pre-research carried out at High School YP UNILA Bandar Lampung, High School 1 Bukit Kemuning, High School 7 Bandar Lampung, the results of observations in the classroom in the physics learning process that have taken place have been dominated by print media (books) with standard language and time constraints teacher in delivering material in class. This makes the students do not understand and are less interested in learning physics. The facilities available in three schools are WIFI and computer laboratories that were connected to the internet, therefore, the facilities can improve the learning process should be utilized optimally. Moreover, students have communication tools such as smartphones and used to using the internet in their daily lives. The ability to absorb students is also different, so the researcher wanted to change in learning using animation videos that can help students to repeat that related to the material, anytime and anywhere without time constraints, and able to use YouTube as a social media of learning media.

Many studies had developed animated video as a learning media. As the results of Anwar Efendi's research which stated that video tutorials are appropriate to be developed as learning media [16], another research proved that learning videos had excellent criteria to be used as a stimulus in learning [17–19]. In this study, besides developed video animation as learning support, the output of this research was a video that was uploaded to YouTube. Researchers were very aware of the role of social media for the millennial generation, so the animated video uploaded on YouTube was expected to provide many benefits for learners which is also YouTube users.

2. Research Methods

The research method used is the Research and Development method known as R & D (Research and Development) with the model Borg and Gall [16, 17].

In conducting research and development methods (Research and Development) there are 10 (ten) stages, namely: potential problems, data collection, product design, design validation, design revisions, product trial, product revisions, usage tests, product revisions, and mass production. The researcher limits the steps of research and development from ten to seven steps because in step seven the researchers have answered the problem statement.

The research starts from the first stage of conducting a preliminary study, at this stage a needs analysis is carried out through field observations. The second stage is planning the product, at this stage through the results of a preliminary study used to plan the product in the form of animated video design. Then the third stage of developing learning media products in the form of animated videos, followed by the fourth stage with validation to material experts, media experts, and religious experts. The fifth stage of the revision of learning media products in the form of animated videos, then the sixth stage of product testing and the seventh stage of revision after testing the product.

Data collecting techniques used were an interview, observation, and documentation. The instruments of data collecting were questionnaires, experts’ validation, and students’ responses. In determining the opinions of the validators, the researcher used the following criteria:

| Category          | Score |
|-------------------|-------|
| Very Good         | 5     |
| Good              | 4     |
| Good Enough       | 3     |
| Not Good          | 2     |
| Very Not Good     | 1     |

The scores of each statement for all validators are averaged and expressed in terms of percentage achievements using the equation:

\[ \%S = \frac{\bar{S}}{\bar{S}_m} \times 100 \% \]
Note:
\[ \overline{SS} = \text{Average score} \]
\[ S_m = \text{Maximum score}[23] \]

Changing the average score obtained becomes a qualitative value that matches the assessment criteria in Table 2.

| Category  | Batasan                   | Bobot |
|-----------|---------------------------|-------|
| Excellent | 80,01 % - 100%            | 1     |
| Good      | 60,01 % - 80 %            | 2     |
| Moderate  | 40,01 % - 60 %            | 3     |
| Bad       | 20,01 % - 40 %            | 4     |
| Poor      | 00,00 % - 20 %            | 5     |

Through the Likert scale table, researchers can see the percentage of a good or not products to be used as a medium for learning physics.

3. Results and Discussion
3.1. Research Results
Development of learning media in the form of animated videos integrated with Quranic verses with YouTube output, starting from a preliminary study with observations in three schools, the results of observations in the teacher class as instructors use printed teaching materials in teaching-learning materials such as textbooks, especially on subjects physics. The weaknesses of textbooks were language that difficult to understand and less able to display several simulations of physics concepts in everyday life and explanations of examples of questions that are less clear, so that students have difficulty understanding material that is abstract, besides the level of understanding of students is different, and the teacher limitations in explaining material in class. Data obtained that the school does not yet have learning media in the form of animated videos integrated with Quranic verses with YouTube output. Researchers conducting material analysis in the development of this product are material work and energy, in this material there are many concepts related to everyday life, the concept of how things do an effort, examples of problems and how to solve them.

The development of learning media in the form of animated videos integrated with Quranic verses with YouTube output starts from designing or conceptualizing learning media to be developed. Collect material and design animated images on Photoshop Apk, Corel Draw X5, Phet, Windows Movie Maker, Prezi, and Anime Studio Pro. Design material and animated images in each slide and set the duration of time. Turn slide data into MP4 by exporting files to videos. Upload videos on YouTube social media and provide a brief description of the contents of the video.
Figure 1. Basic Competencies and Core Competencies

Figure 2. Collection of Animated Images

Figure 3. Designing Perslide Views
The learning media in the form of animated videos explains the concept of work and energy and links it to the verses of the Quran so that it adds insight to the knowledge of students in the science of Islam. This media is also equipped with examples of problems and their solutions so that students can understand the concepts and application of concepts in physical formulas. This animated video is then shared on YouTube social media which can make it easier for students to view and download physics material without time constraints but on condition that it is connected by the internet network and opens a YouTube account.

The researcher validated the media with the help of experts. The validation of the product was carried out by providing assessment instruments in the form of questionnaires of a 1-5 Likert scale. The results of the validation are presented in the following table:

| Aspect    | Percentage (%) |
|-----------|----------------|
| Material  | 85.28%         |
| Media     | 86.25%         |
| Religion  | 82.50%         |
| Teacher   | 83.68%         |

Based on the table, the percentage from the material experts is 85.28% which belongs to the excellent category. The percentage from the media experts is 86.25% which belongs to the excellent
category. The percentage from the religious experts is 82.50% which belongs to the excellent category. The teacher's response is 83.68% in the excellent category. So, the learning media is in the excellent category.

| Table 4. Field Trial Results |
|-----------------------------|
| Institutional | Percentage (%) |
| SMA YP UNILA Bandar Lampung | 87.74% |
| SMA N 1 Bukit Kemuning | 77.39% |
| SMA N 7 Bandar Lampung | 81.15% |
| The Percentages of Average Number | 82.09% |

Based on the graphs, the percentage of the field trial in the three schools was 87.23%, 75.42%, and 81.23%. The total percentage of the three schools is 81.30%. It means that the schools strongly agree to use the developed learning media.

3.2. Discussion

This study aims to determine the opinions of the validators and the responses of students to the learning media in the form of animated videos integrated with Quranic verses with YouTube output of work and energy material. To find out the opinions of the validators and the responses of students to the learning media in the form of animated videos integrated with Quranic verses with YouTube output developed, the researchers used the research procedure for the development of Borg and Gall.

The validation was carried out by material experts, media experts, religious experts and teacher responses namely physics teacher at YP UNILA High School Bandar Lampung, SMA N 1 Bukit Kemuning, SMA N 7 Bandar Lampung. The results of the assessment by the material experts reached an average percentage of 85.28% with excellent criteria. The media experts' average percentage reaching 86.25% with excellent criteria. The religious experts' average score of 82.50%. The teacher's response scored 83.68% with strongly agree criteria.

The research conducted was tested in two stages, namely the small-group trial and field trial. The average results obtained were 74.01% for small-group trial and 81.30% for field trial from all three schools, this means that the animation videos developed in the interpretation criteria strongly agree. The results of the improvement of learning media in the form of animated videos integrated with Quranic verses with YouTube output are the final products that are ready to be used by students and teachers in the learning process.

Learning media in the form of animated videos are learning media designed to be used by students to learn independently. According to Edgar Dale's observation, 75% of one's learning experience is obtained from the senses of sight (eyes), 13% through the sense of hearing (ears), and the rest through other senses, so researchers are interested in developing instructional media in the form of animated videos with output YouTube. Moreover, the use of social media according to the Republic of Indonesia KEMENMINFO states that 80% of social media users consist of teenagers, while the position of social media especially YouTube occupies the number two position after Facebook with 2.1 billion members. YouTube social media is also considered to provide more extensive information. According to a survey in February 2017, it was noted that around 100,000 videos were watched every day on YouTube. Every 24 hours there are 65,000 new videos uploaded to YouTube, and every month YouTube is visited by 20 million viewers, so it is not wrong if YouTube is very potential to be used as a learning media.

The researchers were interested to focus on this study due to the level of understanding of different students in capturing learning material in the classroom and the limitations of the teacher's time in delivering learning material. The researchers are interested in developing learning media in the form of animated videos with YouTube output, which allows students to learn independently without time constraints to see and watch the learning videos that have been uploaded, but with the condition that
they must be connected to the internet or have downloaded them on a YouTube account. This animated video contains the concept of work and energy in everyday life and how to solve problems related to the material. The low insight into Islamic knowledge of students is also a reason for researchers to develop physics learning media that contains verses from the Quran so that students not only learn physics but in physics have a lot to do with the verses of the Quran, thus adding insight into student knowledge.

The advantages and disadvantages of learning media in the form of animated videos integrated with Quranic verses with YouTube output include:

3.2.1 The Advantages
- Facilitate students in understanding the physics learning material within the limitations of study time in class.
- Easy to use for students to learn independently.
- As an interesting learning alternative. Equipped with verses of the Quran that relate to learning material, so that it fosters gratitude for students towards Allah SWT.
- It can be accessed anytime and anywhere.
- They can see animated videos online or offline provided they have stored offline on YouTube or downloaded.

3.2.2 The Disadvantages
- Learning media in the form of animated videos integrated with Quranic verses with YouTube output developed only on the subject matter of work and energy.
- The use of learning media in the form of animated videos integrated with Quranic verses with YouTube output must first be accessed using the internet network.
- This product cannot be used in schools and especially students who do not have adequate technology, information, and communication facilities because learning media products in the form of animated videos integrated with Quranic verses with YouTube output can only be accessed online especially first and only accessible using mobile phones, laptops, notebooks, and tablets.

4. Conclusion
Based on the results of the research, we can conclude that from the material (both religious material and science material) and media experts, the learning media is declared feasible to be used with percentage of 85.27%; 90.41%; 83.75% which belong to the excellent category and the interpretation and the response of the teacher and students were 83.64% and 81.30% which belong to the strongly agree category. Thus, the learning media in the form of animated videos integrated with Quranic verses with YouTube output is appropriate to be used in the learning process.

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