Camera DSLR animation media as learning tool base

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Abstract. This study aims to develop an animated media camera angle based on the functions of the interior and exterior parts of a flash-based camera. This study used the Engineering Design Process method which consists of ask, imagine, plan, create, improve. The data of this study were obtained from 8 Multimedia validators and random 36 students from any Vocational High School. Validation results show that the developed media gets a percentage of 87.5%, the results are included in the very valid category. The average post-test of the experimental class was 81.81. Finally, it can be concluded that this learning media can be submitted as a media reference for students to learn about the camera's function of interior and exterior.

1. Introduction

The development of media as learning is increasingly interesting to study as research, a student worksheet base mobile learning was created to help the student identify the task at school or another place. The objectives of his study are (1) to know the validation the media application (2) the students' response on Android-based student worksheet in the multimedia subject [1].

The development of other media that are more innovative and varied is developed based on AR for anyone who wants to learn photography angles. His study is intended to create a simple photography studio simulation based on augmented reality that is useful for students who will study photography, especially to evaluate the effectiveness of Mobi-Augmented Reality application. The method uses markers as object identifiers so that (it will bring up objects that give rise to light as studio lights and model objects.) The application is based on the Android operating system and developed with Unity3D and Qualcomm's Vuforia extension [2]. Utilization of simulation camera also applied for student of Education Technology to improve the skill [3].

This research develops a simulation application of DSLR camera parts, interior, and exterior based on Adobe Flash. This application is expected to help students who will learn about DSLR cameras.

2. Method

This research uses the methodology of the research development of engineering design process [4]. there are 5 stages as figure 1 below:

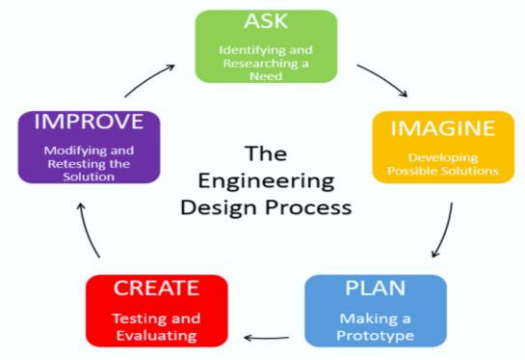

Figure 1. The engineering design process [4].

Figure 1, explain that: *Ask*: this phase is looking for such needs what is the problem. *Imagine*: this phase brainstormed various designs. *Plan*: picture diagram ideas. *Create*: create prototypes and tests with design goals. *Improve*: discuss how to improve the product.

The experimental method used is *Quasi Experimental Design Non-equivalent Control Group Design*. The experimental group and the control group in the study were selected randomly. This is in accordance with the non-equivalent Control Group design research design that chooses samples not randomly but with a specific goal of seeing the equality between the control class and the experimental class [5].

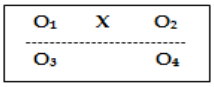

Figure 2. Quasi experimental design of non-equivalent control group design [5].

Description:
O_1 = value of *pre-test* (before being given treatment)
O_2 = value of *post-test* (after being given treatment)
O_3 = value of *pre-test* (before learning without treatment)
O_4 = value of *post-test* (after learning without treatment)
X = treatment in the form of learning using media

Then after the application created, validated by the validator giving value by following table 1 below. The application is tested on a limited basis to validators and senior high school students to find out how far this application is useful. The percentage uses a Likert scale like table 1 below,

Table 1. Interpretation of the score validation [6].

Category	Weighting Value	Percentage Rating (%)
Very Valid	4	82-100
Valid	3	63-81
Valid Enough	2	44-62
Invalid	1	25-43

3. Results and discussion

Based on the process design engineering process used, the steps taken are: ask, imagine, plan, create:

3.1. Ask

This phase is looking for such needs What is the problem? What do you want to achieve? What are the project requirements? What are the limits? Who are the customers? What is the purpose? Gather information and do research - talk to people from various backgrounds. In this study, the question is how to make a photography application to make it easier for students who do not have a camera to learn like a camera in general.

3.2. Imagine

This phase brainstormed various designs: imagining and exchanging creative ideas; build wild ideas and madness from others. Investigate existing technologies and methods to use. Browse, compare and analyze many possible solutions. The process of this research tries to imagine a simple application based on Adobe Flash an SLR camera simulation of interior and exterior.

3.3. Plan

Picture diagram ideas. How does it work? What environmental and cultural considerations will be evaluated? What materials and tools are needed? What analysis should be done? How was the test and confirmed? What will be done is to plan the appearance of the camera simulation to be developed, for example, there is a Speed function, a Diaphragm function, an ISO function, and another button.

3.4. Create

Create prototypes and tests with design goals. Encourage creativity, imagination, and excellence in design. Analyze and talk about what works, what doesn't, and what can be improved. In this study made a simple application based on Adobe Flash a DSLR camera simulation of interior and exterior

3.5. Improve

Discuss how to improve the product. Make revisions. Create a new design. Iteration design to make the product better. The thing done in this phase is that the function of the camera application feature is more complete, and this level will be improved at another research.

The following screenshot shows the digital SLR camera simulation application.

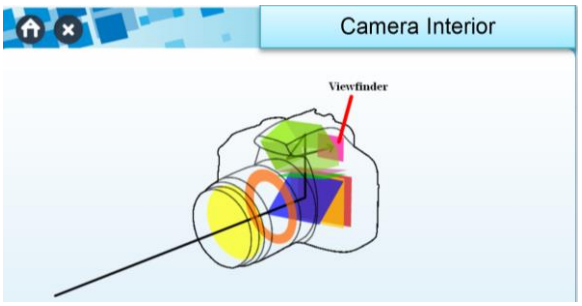

Figure 3. Camera interior.

Figure 4. Camera exterior.

The limitation of the test to the selected validator, then evaluates according to the instrument prepared. Assessment using the formula 1 below to determine the determinant of the highest value of the validator:

$$\text{Top-Rated Validator} = n \times i_{max} \quad (1)$$

Description:
n = Number of validators / respondents
i_{max} = Maximum value Rating

Below is a formula 2 to determine the rating results:

$$HR = \frac{\sum_1^4 ni\,xi}{n\,x\,i_{max}} \text{ x } 100\% \quad (2)$$

Description:
HR = rating result
n_i = many response validators that have the value i
I = the weight of qualitative assessment values (1-4)
N = number of Validators/respondents
i_{max} = maximum value

Using this formula 3 to determine the results of validation from experts:

$$HR = \frac{\sum_1^4 ni\,xi}{n\,x\,i_{max}} \text{ x } 100\% \quad (3)$$

Description:
Va = validation from experts
TS_h = total maximum score expected
TS_e = empirical total score

4. Conclusion

Finally, it can be concluded that this learning media can be submitted as a media reference for students to learn about the camera's functions like the camera interior and exterior of the camera, based on student learning outcomes are obtained from *post-test* and psychomotor that shows the average experimental class is higher than the control class. The average *post-test of* the experimental class was 81.81 and the control class was 71.46. While the psychomotor average of the experimental class 91.75 and the control class 87.31. The interior in the form of physical parts of the camera such as mirrors, prisms, sensors, etc., while the exterior explains what buttons can be used by the camera in general such as the shutter button, ISO button, and other buttons.

References

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