

Judges Analysis of Infographic Media Research Methodology

Nyoman Sugihartini¹, Ketut Agustini², Gede Saindra Santyadiputra³,
Kadek Sintya Dewi⁴

^{1,2,3}Department of Information Engineering Education, Universitas Pendidikan Ganesha Faculty of Engineering and Vocational, Indonesia

⁴ English Education Department, Universitas Pendidikan Ganesha Language and art faculty, Indonesia

e-mail: nyoman.sugihartini@undiksha.ac.id¹, ketutagustini@undiksha.ac.id², gsaindras@undiksha.ac.id³, sintyadewi@undiksha.ac.id⁴

Abstract

This study aimed to design and implement the results of the video design of SOP Types - Types of Research for Lecture Research Methodology Based on Infographic Animation. The development of this video aimed to provide information about the Standard Operating Procedure (SOP) Research to all academics who are studying educational research methodology. The method used was research and development. The model used in building this technology was the ADDIE Model. The stages in the ADDIE model are Analysis (analysis), Design (design), Development (development), Implementation (implementation), and Evaluation (evaluation). The final result of this project is in the form of an animated video containing several Standard Operating Procedure (SOP) that have been selected to create animated videos. This animated video can display animation in 2 dimensions. This animated video can also be used as a medium for delivering information to be more interesting. However, this article only discussed the results of expert test analysis, which includes: analysis of content experts and analysis media experts.

Keywords: Methodology; Video; Infographic Animation

1. Introduction

Science is a definition of the universe that turns into language that can be understood by humans as an attempt to distinguish and remember something (Ahadi, 2012). To obtain knowledge, humans need to change from do not understand to understand, where this phase called the learning process. This is in accordance with the definition of learning according to Reber (Widodo, 2014) he stated that learning is a process to obtain knowledge. Humans use a different style to obtain knowledge depend on the learning style which makes it easier to understand. Some style is chosen are called learning modalities, according to DePorter (Suhara, 2013) learning style based on someone's modality is divided into three that is, visual modality (learning through sight), auditory modality (learning through listening), and kinesthetic (learning through body movements). From those three modalities, the most effective is a visual modality, where this modality tends to like to read. The learning style turned out to be correlated with course material full of theory.

One example of the courses which are full of theory, description, and variative is educational research methodology. The educational research methodology is a common course that college students should take. The methodology is a branch of science that is regarding the steps of using the method to solve problems (Sukardi, 2003). The steps of research methodology can be with the research Standard Operating Procedure (SOP). SOP can be used as a reference or steps in conducting a study. In research, SOP involves finding, record, formulate, analyze, and making the report.

Based on the interview and observation report, several problems are found during teaching research methodology course, such as several students still confuse to differentiate the research topic, students are bored to find any references, that is why students do not understand the procedure of each research method, and media which examine each research procedure are not many and there are no media that can simplify the materials of research methodology yet. If there is any, each media that examine this type of research methodology separately, so it is hard to collect those media, it is important to create an infographic media for research methodology course.

2. Method

The development of this Infographic-based SOP Research Types for Lectures Using Educational Research Methodology is used ADDIE (Analysis, Design, Development, Implementation, and Evaluation), model. This model is chosen because it is one of the effective and efficient learning plan models and its process is so interactive, where the evaluation research of each phase brings the learning development to the previous phase. The final result from one phase is the initial product for the next phase. This ADDIE model consists of 5 steps, those are Analyze, Design, Development, Implementation, and Evaluation. The cycle of the ADDIE model can be seen in Figure 1.

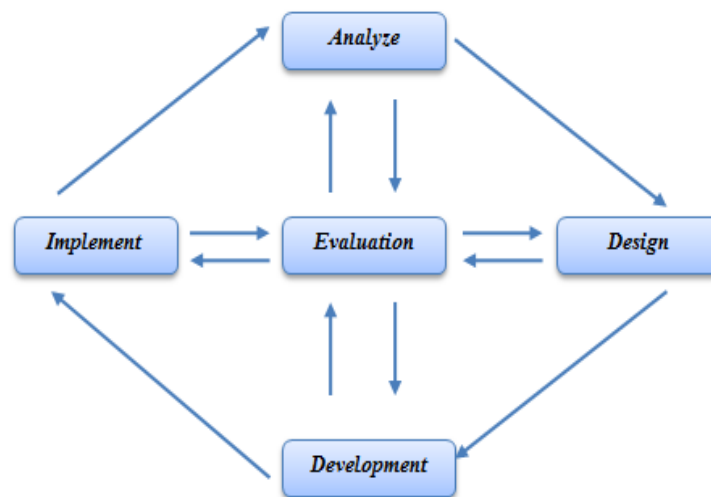


Figure 1. The steps of the ADDIE Model

1. Analysis

In this stage, the researcher identifies problems found so that can be used as references to develop infographic-based SOP of educational research methodology types. This step will explain an analysis of the problems and solutions, the analysis of needs in the form of functional and non-functional needs.

2. Design

The design phase using output from the Analyze step to planning a strategy to develop an animation video. The design stage of the ADDIE method is the pre-production of making video or animation. In the pre-production phase, the animation has not been created yet, but the preparation needed in this video production as planned as follows; Script Planning, Storyboarding, Character, and Layout Design.

3. Development

In this phase carried out the steps of production, editing with video of Infographic-based SOP Research Types for Lectures Using Educational Research Methodology

a. Production

On the production stage, Infographic-based SOP Research Types for Lectures Using Educational Research Methodology video is created based on the initial need that has been designed. Several things that should do in the production phase are audio recording or dubbing, modeling, texturing, rigging, animation, and 2D rendering per-scan based on the planned design.

b. Post Production

Post-production is an important stage because at this stage all 2D movements will be arranged based on the layout design and given effect and audio, so the video will be more interesting and easier to understand.

4. Implementation

The implementation stage is a phase where the application is ready to implement and its feasibility will be tested. This testing aims to ensure the video that has been created based on the plan can work well. At this stage, the video implementation environment is explained.

5. Evaluation

The evaluation stage is a step to evaluate the product development process based on the model used. The evaluation that used it this step is to collect data about the effectiveness and efficiency of media to achieve the stated goals. The data are intended to improve the media to be more effective and efficient. The evaluation consists of a content expert test, media expert test, and user response test.

3. Result and Discussion

The data were collected from the result of filling out the instrument in the form of a questionnaire given to two content experts, two media experts several respondents, or students to assess the results of the feasibility of infographic-based SOP media. Before the respondents fill out the assessment instrument, each respondent conducted a trial on the development of Infographic-based SOP Research Types for Learning Educational Methodology. The results of validation tests by media experts were in the form of the result of responses and evaluation from the media experts, then from the data that had been collected were analyzed and the product was revised based on advice.

3.1 Result of Content Expert Testing

The content expert testing was used to determine the validity of the contents of the video which concerned about the material/content (Candiasa, 2010). Gregory at (Candiasa, 2010) developed technique in testing quantified contents.

There are 7 indicators assessed, including:

1. Suitability contents of the SOP animation video research methodology with the steps of conducting the research.
2. Conformity of the contents of the SOP animated video class action research methodology with information needs to students.
3. Suitability of the contents of the SOP animation video research methodology with the material in the lecture.
4. The narration in the video is correct.
5. Information on research methodology has been conveyed.
6. The narrative in the SOP animation is clear.
7. Animated video SOP research methodology can already be used as a media to study research procedures

Data from expert test results can be seen in the analysis validity of content validity with the Gregory formula, then the data can be filled in the Gregory test tabulation table.

Table 1. The validity of Content with the Gregory Formula

Content Expert Test 1	
Less Relevant	Relevant
0	1, 2, 3, 4, 5, 6, 7
Content Expert Test 2	
Less Relevant	Relevant
0	1, 2, 3, 4, 5, 6, 7

$$\text{Content Validity} : \frac{D}{A+B+C+D} = \frac{7}{7} = 1,00$$

Therefore, the content validity coefficient of the tested instrument is 1.00. It can be concluded that this instrument meets the criteria of content validity with a very high category.

This test is the process of processing and evaluating an animation video to test whether the animation video met the requirements or not, to determine the difference between the expected result and the actual result. Content expert testing aimed at determining the content compatibility of the media with the formulated procedure in research methodology books.

At this trial stage, it was carried out by the developers' Infographic-based SOP Research Types for Lectures Using Educational Research Methodology with general results can be said to be appropriate or feasible.

3.2 Result of Media Expert Test

The media expert test is conducted to validate the accuracy of the layout form of the designed video. The media expert test is conducted by using a questionnaire that involves the experts of animation media.

There are 12 indicators assessed, including:

1. The narrator's voice clarity in the animated video SOP of the research methodology is appropriate
2. The suitability of back sound with animation in the animated video SOP of the research methodology
3. Conformity to the use of words, sentences in the animated video SOP of the research methodology
4. The selection of sound effects is appropriate.
5. Color quality is appropriate and attractive
6. Illustration of figures and pictures are appropriate and interesting
7. The quality of the layout is appropriate and attractive.
8. The animation quality is appropriate
9. The selection of writing fonts is appropriate
10. Quality concepts/story ideas
11. Clarity of storyline
12. Clarity of presentation of story content

Data from expert test results can be seen in the table of content validity with the Gregory formula, then the data can be filled in the Gregory test tabulation table.

Table 2. The validity of Content with the Gregory Formula

Media Expert Test 1	
Less Relevant	Relevant
0	1,2,3,4,5,6,7,8,9,10,11,12
Media Expert Test 2	
Less Relevant	Relevant
3	1,2,4,5,6,7,8,9,10,11,12

$$\text{Content Validity} : \frac{D}{A+B+C+D} = \frac{11}{12} = 0,92$$

Therefore, the coefficient of content validity of testing is 0.92. It can be concluded that this instrument met the criteria of content validity with a very high category.

At this trial stage, it was carried out by the developer of Infographic-based SOP Research Types for Lectures Using Educational Research Methodology with the general results can be said to be 99% appropriate and feasible.

3.3 Result of User Response Testing

The user response testing was conducted to determine the response of the user after watching the developed video. The test was steered by giving a chance to the users to watch the whole SOP animation video that had been developed.

The respondent testing was conducted to determine how the user responses after watching the SOP animation video that was developed. In conducting respondent testing, the researcher tested 36 students from several undergraduate departments in the Ganesha University of Education who had studied research methodology courses or completed any research.

After collecting the data from the user response test, then recapitulation was conducted to determine the achievement level of each statement. The recapitulation of the achievement level in user responses test of infographic-based SOP research types for learning educational research methodology can be seen in Figure 2.

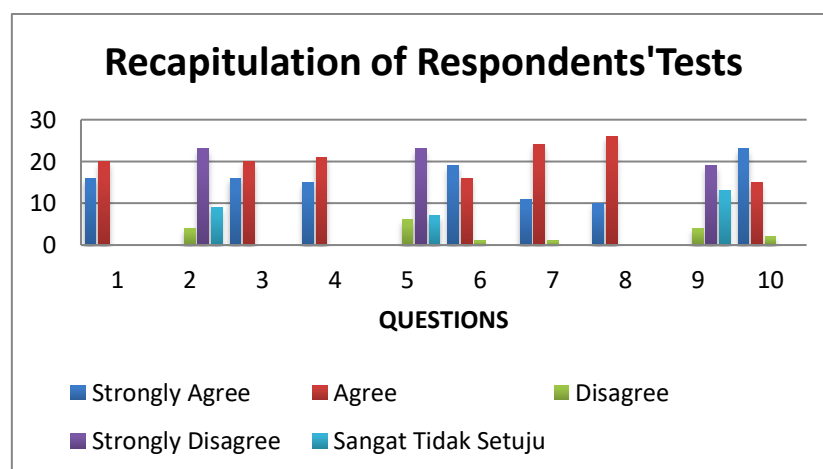


Figure 2. Graphic of Respondent's

After watching the animated video of infographic-based SOP research types for learning educational research methodology, the results are obtained from the user response test showed that the score obtained was 1557 with 86.3 of percentage. It can be seen that SOP animated video that was developed properly. The development of Infographic-based SOP research types for learning educational research methodology was aimed at helping students to comprehend the procedure in research. In developing this infographic-based SOP research type for learning educational research methodology video was using the ADDIE model. In the analysis phase of making this infographic-based SOP research types for learning educational research methodology video was initiated by identifying problems encountered in the field by conducting observations and interviews. From the data obtained, there were several problems found in the learning process of educational research methodology courses, such as, there were many students who were difficult to understand the materials related to research methodology and descriptive materials. Afterward, the second was students reading interest is still low so that their understanding of the lesson material was still very low and the last there were only a few learning media that discussed research methodology.

Furthermore, after the problems were identified, a medium was made in the form of an infographic-based animated video that discussed the SOP of research methodology. Then the data were collected from books, journals, and researches that related to infographic-based animated video and educational research methodology materials. Hereafter, after the data collection process was complete then the need analysis process was conducted consisting of functional and non-functional needs. At the end of the analysis phase, an

evaluation was conducted to see whether all activities in the analysis phase had been accomplished.

The process of making design at this stage was creating the story ideas, then arranged it into a synopsis that guided the story in making an animation of research methodology SOP. Then after the synopsis was complete, it was continued by making a narrative based on each material on research methodology SOP video followed by making a storyboard based on the synopsis to simplify the contents of the story in the process of making animated infographic-based SOP video. After the storyboard was finished, the characters were created based on the synopsis and storyboard that had been designed, then at the end of the design stage, an evaluation was carried out to see if all the design needed have been made.

The video development of infographic-based SOP research types for learning educational research methodology, where at this stage began by developing the production stage. At the production stage, voice recording was conducted based on the script that had been planned. After that, it was continued by making 2D characters layout and layout that had been designed. Afterward, it was continued by giving textures or coloring the characters and layout. The next step was rigging phase or arranging the bone structures of the 2D characters that had been made by an add-on in after effect, after making bones or rigging, followed by making animation in Adobe After Effect. Then after adding the position, scale, rotation, transition, and blur in the animation process, it will be continued to render step to get output in the form of mp4 video. Next, in the post-production phase where the editing process was carried out on the animation that had been rendered into a video by combining all scenes and giving sound effects, the back sound that related to the infographic animated video on Adobe Premiere. After editing, the development phase was evaluated.

Implementation, where the content and media expert were tested from the video of infographic-based SOP research types for learning educational research methodology. The result of the content expert test towards infographic-based SOP research types for learning educational research methodology using a questionnaire shows that the information in the video of infographic-based SOP research types for learning educational research methodology was appropriate and feasible to be tested with revision. Afterward, proceed to the next stage that was the media expert test. The media test result of the video of infographic-based SOP research types for learning educational research methodology based on a test conducted by 2 people who are declared "appropriate" and feasible to be tested with revision. The user response testing was a test to find out how the user responds after watching the video of infographic-based SOP research types for learning educational research methodology actually will use user experience (UX) test. However, it cannot be conducted because the authors had not been able to get the statement items and limitations of research time. So that the expert response testing was conducted using the Likert scale test. The response test involved 36 students in Undiksha as the respondents. The result of the response test showed that the total percentage obtained was 1557 with 86.5 % of the percentage that converted into the conversion table and the result was good.

Based on the discussion above, it can be explained that the information on infographic-based SOP research types for learning educational research methodology can be conveyed well and get a very good response from users. Infographic-based SOP research types for learning educational research methodology video in line with Arinata's research (2016) by designing interactive animated infographic video about the procedure of Indonesian manpower departure within android-based system and research developed by Sastrawan (2017) with the development of an animation-based video SOP of Engineering and Vocational Faculty in Ganesha University of Education. Through video of infographic-based SOP research types for learning educational research methodology expected to be a media of information that can help students in learning SOP of research methodology and lecturer as a medium for the learning process. Media infographic has been proven to improve students' learning achievement (Umami, 2016)

The research of infographic-based SOP research types for learning educational research methodology had several obstacles. It included a lack of references such as books and journals that discuss infographic animated videos. Another obstacle in the process of

making this video was the breadth of the discussion in educational research methodology and there were different opinions from several sources so narration, dubbing, and animation must be added and improved several times and it made this research was conducted for a long time.

4. Conclusion

The development of Infographic-based SOP Research Types for Learning Educational Methodology was designed using the ADDIE (Analyze, Design, Development, Implementation, and Evaluation) model. In the analysis phase literature studies, observations, and interviews were conducted to obtain software requirements. The results of the analysis phase were used in the design phase. The design that had been made was used as a reference in the development stage. In the development phase, the process of developing an object in 2 dimensions was carried out. Followed by testing the animated video at the implementation phase. This test was the process of testing and evaluating an animated video to test whether the animated video had met the requirements or not to get the expected results. The development of Infographic-based SOP Research Types for Learning Educational Research Methodology was carried out in several ways and got the following results. The first was the content expert testing that got 100% of the result percentage after doing the revision that had been completed properly so it can be categorized very well. The second was media expert testing which gets the results of all features in the video that were shown as what's expected with a very good category. The third was the user response test using the Likert scale, the test result showed that the total score was 1557 with 86.5 % of the percentage. From the result of this percentage, it can be concluded that Infographic-based SOP Research Types for Learning Educational Research Methodology video got a good response from the respondents or users.

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