Making of the Animated Movie "Pangeran Diponegoro" With Stop Motion Techniques to Support Learning History

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Abstract— The development of information technology that supports everybody to be able to make something that looks boring becomes more attractive. As well as teaching history in schools which for most people is very boring. From that reason, created the idea to create a stop motion animated film about the resistance of Pangeran Diponegoro. The film can be a medium of learning in schools and can also alternative to provide knowledge. In Short Animation film use stop motion technique, video editing is something very important. The work is merging the images in order to become a video in accordance with the storyline. Create logo bumper and video opening for the early part of the video and the credits roll at the end of the video, adding effects, transitions and motion graphics that video look more attractive. Tests conducted to determine the resultant video addressed to elementary, junior high, high school, to college students. Calculations using a Likert scale. From the results of the questionnaire was obtained an average value of 86.67%. , These results it can be concluded that the storyline, visualizing and animating generated in the movie "Perang Diponegoro" was highly favored by the respondents.

Keywords— *Animation, Video editing , stop motion, war of diponegoro, History education.*

I. INTRODUCTION

Developments in information technology and the many animated films that come from overseas, so it is currently not a lot of kids who know the folklore and stories of indigenous people of Indonesia that is educative. Children prefer viewing the animated action movies that sometimes does not have the elements of education. As well as a medium of learning in schools, children tend to be treated books matter most children feel bored to read and learn. Moreover, historical documentation based only black and white form, thick textbooks, and laying photos on the walls hero classes that are generally less attractive to be liked by children. From the things that we need a media that can work introduces the history or heroes in a modern fashion, involving visual, and audio. Then creating the idea of making animation Perang Diponegoro that made a short animated film. Making the

short animation by using stop motion technique chosen because it is a very simple technique that is expected to be made by teachers in elementary school or in high school or even his or her students can be made, because it only requires equipment that is not too much, just a digital camera or standard mobile phone cameras and software to editing. The aim of this research is to produce a short animated film in which there are educational elements to introduce the history of the Indonesian nation and heroes struggle with the stop motion technique that gives more alternatives in the delivery of learning material of history elementary school or junior high school.

II. THEORITICAL BACKGROUND

A. Stop Motion Animation

Stop motion is an animation that uses shooting frame by frame. Using animation techniques that combine photography with animation technology. The media used can vary, for example, puppets, paper, drawing on paper, drawing on the board, wax, etc. All objects that can be made as an animated object that will be photographed in every movement. So that inanimate objects are used as objects can be as by life. Animation in general have lively movements like the one in the 12 principles of animation, but if using stop motion, motion will not appear lively due to limited motion of the object [1].

B. Video Editing

Editing video is editing a scene with a video or a camera which is then given an extra such as cutting the scene, adding pieces - pieces of image (insert appropriate transition), light settings, giving effects and transitions, merging graphics and audio to be a story that fit with the script and storyline.

Video editing is done by using software to look more attractive and appropriate to be published.Video editing is a process of a blend of between art and technique to take, cut, remove or add and assemble clips into a series of stories that is meaningful, interesting and life that worthy to watch [2].

III. RESEARCH METHODS AND RESULT

In this research using the method of luther's multimedia development, that concept, design, collection of materials, assembly, testing and the distribution as shown in the fig. 1.

A. Concept.

The making a video in which there are educational elements to introduce the history or heroes with stop motion technique. Then made a short animated film that tells of the struggle of Pangeran Diponegoro against the Dutch colonialists. Its main purpose to provide knowledge to public, especially students about the history of war Diponegoro. In the making of this animated movie using the table as a diorama and characters using paper-based media in 2D and then moved gradually were photographed and arranged sequentially according plot (frame by frame). In producing animated movies including stop motion, are generally divided into three main stages are pre-production, production and post-production as shown in the fig. 2.

B. Design

In the making of A stop motion animated movies, it takes some designs, such as character design, background, property, design storyboards and design on the packaging. the design and production of animated movies refers to the animation production pipeline as in the figure 2. to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.
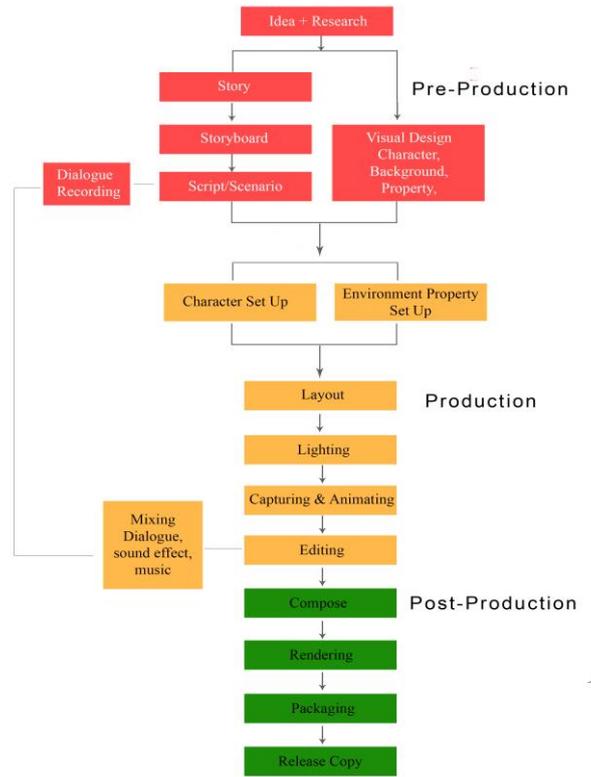

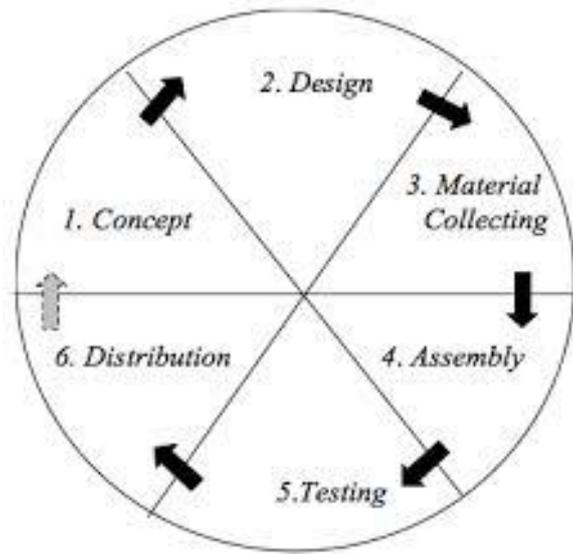Fig. 2.   Stop motion animation production pipeline[4]

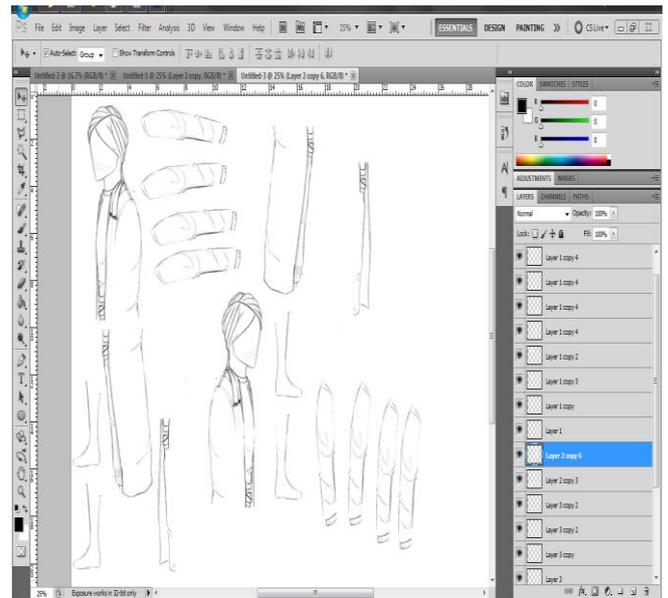Fig. 1.   Luther's multimedia development method.[3]

Fig. 3.   Making the characters in the stop motion animation.

C. Material Collecting.

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D. Assembly.

At this stage of the character and property that had been prepared placed on a background appropriate to each scene. Then the object is moved gradually photographed and arranged sequentially according plot (frame by frame).

After the shooting process is completed, then is done into the composing phases are where there is a merger process the photos and the background music is based on the existing storyboard. At this stage and music background image adjustment is needed, so there are mismatches contrast of light, and also the emotions that are not appropriate due to the incompatibility of the background music.

Furthermore, after the process of composing, editing was done by combining too bumper at the beginning of the video, adding effects and transitions, and credits. And that is more exciting video and audio live also inserted character dialogue and sound effects.

E. Testing

In this research, the need for analysis of the feasibility test is whether or not the project that has been made. This is conducted in the testing phase. Feasibility test is done on three targets, are media expert (professional), a material (a history teacher, history student), and a small scale as users (school students). Feasibility assessment based on content, manufacturing techniques, and benefits as learning materials. Feasibility test is done by distributing questionnaires 50 respondents.

F. Distribution.

The distribution conducted in two ways, namely in the form of physical and non-physical. Physically, the project is packaged in the form of a DVD, with the included made the cover, the synopsis on the back cover, and a poster size A3. In non-physical, distributed to youtube website and social media

Fig. 4.   Compositing in the stop motion

Fig. 5.   Property and backround

Fig. 6.   Output of rendering process of movie Perang   Diponegoro.

Fig. 7.   Movie Poster "Perang Diponogoro"

TABLE I.   LIST OF QUISTIONNAIRES

Question	Answer		
	very suitable	suitable	a rather suitable
Do you understood storyline on movie "Perang Diponegoro "?			
What is your opinion about the quality of visualization of the movie "Perang Diponegoro "?			
Are visualization displayed was appropriate with the contents of story?			
What is your opinion you about the effects Animated images from the film "Diponegoro War"?			

IV. ANALYSIS AND CONCLUSION

A. Analysis and Discussion.

After completed the process of making animated films, then performed a feasibility test by distributing questionnaires about stop motion animated film "Perang Diponegoro" to 50 respondents with different levels of education.

After the questionnaires collected, then grouped accordance with a group of questions with the following formula:

Total Score = T * Pn

T = Total number of respondents who select any item.
Pn = Option numbers Likert Scale Score. (3,2,1)

To get a result interpretation, must be known scores The highest (X) and the lowest number (Y) for the grading scale the following :

Y = highest score Likert * number of respondents (150)

X = lowest score Likert * amount of respondents, (50)

From the questionnaires distributed to respondents, after watching the animated movie "Perang Diponegoro " obtained the results as shown in the following chart :

1) Storyline on movie "Perang Diponegoro "
Based on calculations of data, obtained percentage Index value of 69.3%. And of this percentage can be concluded that the plot of the animated film "Diponegoro War" is so understood by the audience

2) The quality of visualization
Based on calculations of data, obtained percentage Index value by 82%. And of this percentage can be concluded that the quality of visualization of the animated film "Perang Diponegoro " is very good (excelent) by the audience.

3) Suitability visualization and content
Based on calculations of data, obtained a percentage of the index value is 72.67%. And of this percentage can be concluded that the images are displayed according to the content of the story animated film "Perang Diponegoro " is very suitable assessed by the audience.

4) Animation Effects
Based on calculations of data, obtained a percentage of the index value is 86.67%. And of this percentage can be concluded that the effect of animation in the animated film "Perang Diponegoro " is very good assessed by the audience.
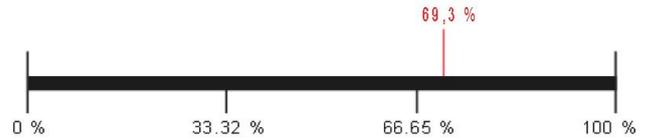
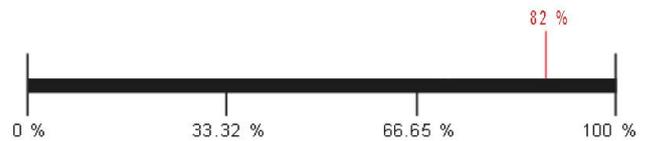Fig. 8.   Graphics of the suitability storyline

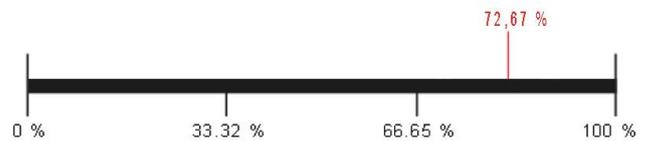Fig. 9.   Graphics of the quality of visualization.

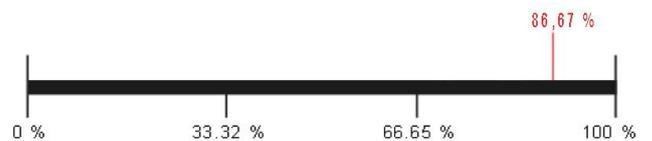Fig. 10. Graphics of the suitability visualization-content

Fig. 11. Graphics of animation effects.

V. Conclusion

Based on the results that have been done that is in the process of video editing then produced a stop motion animated movie "Perang Diponegoro ". Merging photographs, motion graphics, text, and audio has produced a movie that according to the storyboard. The movie begins with the initial appearance of the logo in the form of bumper, then the opening video, story content, as well as the credits roll at the end of the movie.

The story of the movie also is appropriate with the script the story. And the results of tests conducted to determine the feasibility of public response to the results of the visual design.

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