

The 3D Digital Story-telling Media on Batik Learning in Vocational High Schools

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Abstract. The aim of this research is to make 3D digital Story-telling Media on Batik Learning in Vocational High School. The digital story-telling developed in this research is focused on 3D-based story-telling. In contrast to the digital story-telling that has been developed in existing learning, this research is expected to be able to improve understanding of vocational students about the value of local wisdom batik more meaningful and "live". The process of making 3D digital story-telling media consists of two processes, namely the creation of 3D objects and the creation of 3D object viewer.

1.Introduction

Digital story-telling is a new direction in the study of learning media and a part of the humanities discipline. This media unites computer, science, and visual culture [1]. Digital story-telling is designed in a multimedia form consisting of text, images, audio, and video [2]. Digital story-telling is a new technology in the field of learning media that contains elements of culture pedagogy. The development of this pedagogical aspect is not only a cognitive dimension but also the affective or value dimension that needs to be embraced in life [3].

Introduction aspect and internalization process value can be lifted from local wisdom value. Digital story-telling is believed to be able to uncover the "ideology" or meaning contained within the culture and the unique identity of a community [4]. Identity setting of a community which becomes the focus is shown in the digital story-telling. Digital story telling without the elements of community is less able to express the moral message of a culture powerfully [2].

The digital story-telling elements that are important to display in the learning setting are emotional content, voice and images, economy (brief in presentation), and pacing [5]. Digital story-telling needs to contain elements of information, visual, technology, and media literacy [2]. Digital stories consist of three main elements: personal, informative / instructional, and historical stories. [4] Other components of digital story-telling are digital media software, computers, image capture devices, and audio capture devices [6].

The main approach that underlies the digital story-telling learning media is narrative approach [3] [4]. The narrative approach in the educational context is a means for critical reflection and identity



constructions. [3] The theories that underlie digital story-telling are social behavior modification [6], spatial humanities [1], and directed to the process of transforming experience in the context of their own voices [2].

Digital story-telling is one of the ways to present intangible culture mapping, relating to people, places, and things / events [7]. Batik Indonesia is one of Indonesia's unique intangible culture that is the world's cultural heritage. Batik is an artwork that contains elements of Indonesian culture and local wisdom displayed in a piece of cloth [8]. Batik as the voice of culture of Indonesian culture is able to become a culture expression [9] and can connect a person with a place, event, and culture of a community [10].

This study examines the development of digital story-telling that can be utilized in batik learning in Vocational High School (SMK). The digital story-telling developed in this research is focused on 3D-based story-telling. In contrast to the digital story-telling that has been developed in existing learning, this research is expected to be able to improve understanding of vocational students about the value of local wisdom batik more meaningful and "live". Batik that has been composed of motifs / patterns in the 2 dimensions (2D) form will be developed in the 3 dimensions (3D) form to make it more interesting and meaningful.

2. Methods

3D digital story-telling media content for batik learning in SMK is Batik Kasumedangan. Batik Kasumedangan is a term for batik from Sumedang, one of the districts in West Java. Batik Kasumedangan is known as batik loaded with elements of history. The two main motifs raised in this paper as the main material for the development of 3D digital story-telling media are a historic site that stands firmly in Sumedang in the form of a statue named "Memorial Cadas Pangeran" and the tomb of one of the national heroes "Tjut Nyak Dien". Both historical relics are adapted in the typical batik motif Kasumedangan which are named the motif "Memorial cadas prince" and Tjut Nyak Dien.

In general, the process of making 3D digital story-telling media consists of two processes, namely the creation of 3D objects and the creation of 3D object viewer. The tool used to display 3D objects is a smartphone (mobile phone or tablet) on an android basis. The use of smartphone is intended to facilitate the learning process by storytelling method. The software that used to create 3D objects is Blender. Blender was chosen because it has many features that support the process of making 3D digital story-telling, including modelling, UV mapping, texturing, rigging, skinning, animation, and particle. Figure 1 shows the flowchart of 3D object creation process using Blender.

3D viewer application creation is done by using Unity3D software. The 3D object will be displayed by the app by moving the marker. The concept of 3D viewer application can be seen in Figure 2.

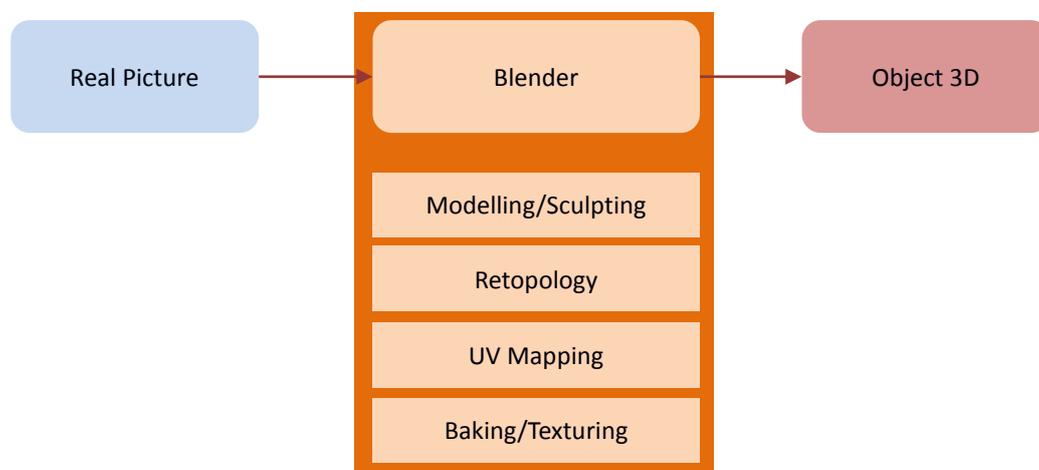


Figure 1. 3D object creation process using Blender.

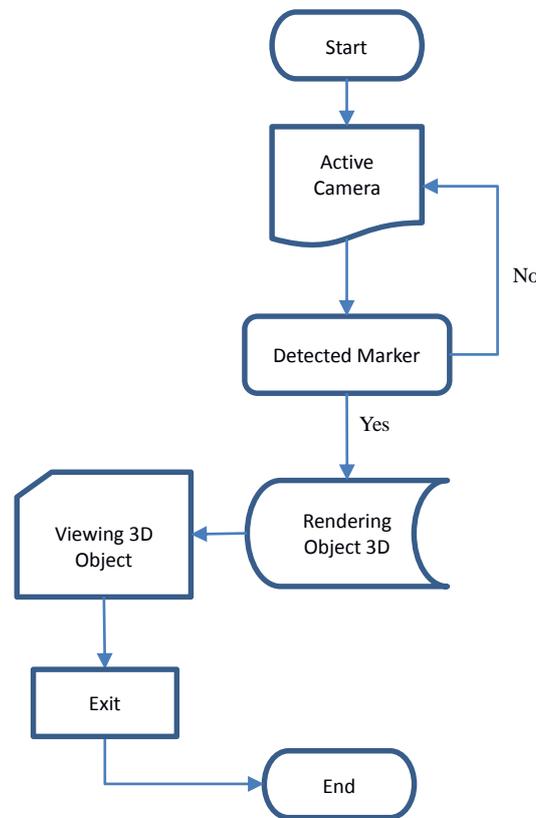


Figure 2. Flowchart of 3D Object viewer app.

3. Results and Discussion

Icon that stands out on Cadas Pangeran batik motif is the silhouette of Cadas Pangeran monument. In Figure 3 (a), (b), the cadas pangeran motif is shown by the silhouette of Cadas Pangeran monument (Figure 3 (c)). Based on this, the 3D digital story-telling media for learning about Cadas Pangeran motif, the 3D object created is a Cadas Pangeran monument, which consists of Pangeran Kornel and Deandless characters who are shaking hands with the left hand.

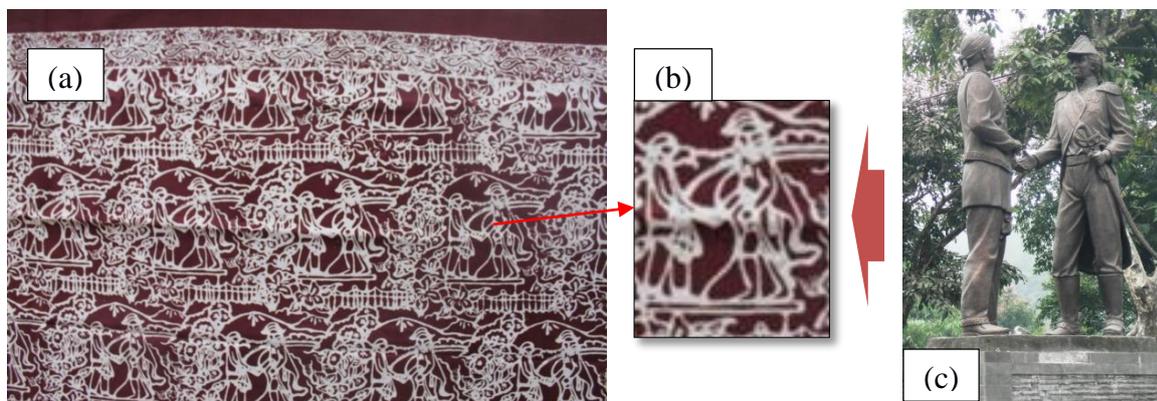


Figure 3. Cadas Pangeran batik motif which is inspired by cadas pengeran monument (Prince Kornel and Deandless characters are shaking hands).

The result of making Cadas Pangeran Monument 3D object using blender software is shown in figure 4. This 3D object which is displayed in application viewer is used for learning about Cadas Pangeran batik motif with storytelling method. Cadas Pangeran batik motif is inspired by cadas pangeran street located in Sumedang district. Cadas pangeran is a road that has a history of its development. The construction of the Daendels Highway crosses this area. The statue depicts Pangeran Kusumadinata (more popularly known as Pangeran Kornel) as the ruler of the Sumedang region shakes hands with Daendless using his left hand while the right hand holds the dagger, as a form of “stay alert” to the opponent.

Digital Story-telling media is suitable to be used to provide understanding to the younger generation, because it looks more interesting and dynamic. Digital Story-telling is a technology in education based on the theory of social behavior modification. So, it is believed able to provide understanding and change of learners behavior on the response to socio-cultural aspects that occur in the environment [6].

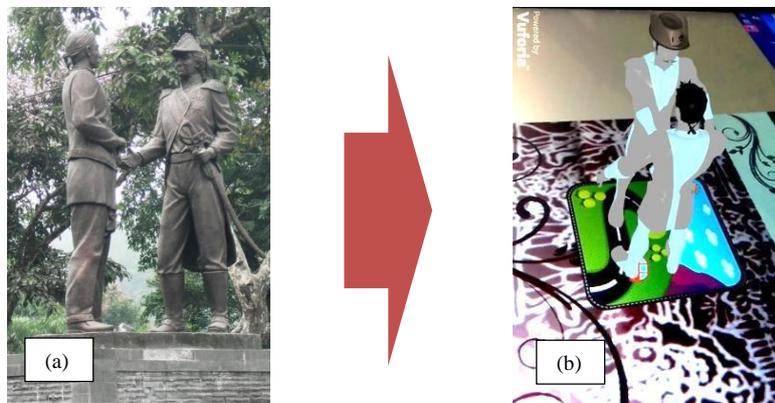


Figure 4. 3D object of Cadas Pangeran monument.

Batik motif "Tjut Nyak Dien" can be seen in figure 5 (a), inspired from the tomb of Islamic women heroes located in Sumedang. In this motif, there is a motif that describes the gate of Cut Nyak Dien's tomb (Figures 5b and 5c), rencong (Figure 5d) as an illustration that Cut Nyak Dien comes from Aceh, as well as a picture of Cut Nyak Dien statue.



Figure 5. Batik motif “Tjut Nyak Dien”.

3D Objects created for learning with 3D digital story-telling of "Tjut Nyak Dien" motifs are 3D tombs (picture 6 (a)) and 3D rencong (figure 6 (b)).

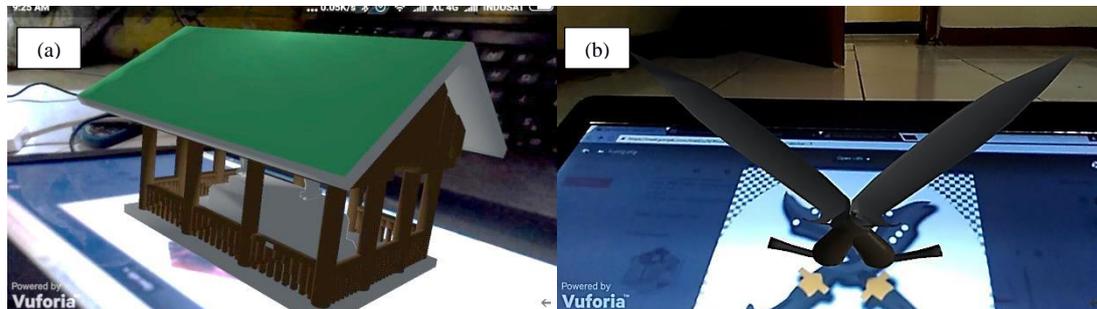


Figure 6. 3D Object of Batik motif “Tjut Nyak Dien”.

3D Digital Story-telling provides many benefits for learners in learning local wisdom value of nation’s culture. Benefits that learners get are able to explore and communicate their experiences with student's personal voice and as a stimulation that can increase interest in both creator and audience [5]. Digital Story-telling can act as a social mirror [4] and can provide value because the technology tools contain elements of psychological domain that is very useful to improve the sense of belonging and appreciate the elements of local culture [6].

In the context of cultural mapping, Digital story telling will motivate learners to preserve and carry out the process of cultural conservation [11] [12]. Digital Story-telling media will also fully reveal about identity vs knowledge, past vs future, and inside vs outside [10].

4. Conclusions

The process of making 3D digital story-telling media consists of two processes, namely the creation of 3D objects and the creation of 3D object viewer. The tool used to display 3D objects is a smartphone (mobile phone or tablet) on an android basis. The use of smartphone is intended to facilitate the learning process by storytelling method. The software that used to create 3D objects is Blender. Blender was chosen because it has many features that support the process of making 3D digital story-telling, including modelling, UV mapping, texturing, rigging, skinning, animation, and particle.

Digital story-telling in this research is made in 3 dimensional form, so it is expected that the learning process of batik will be more interesting. This 3D story-telling digital display will provide more meaningful and "live" stimulants compared to 2-dimensional media. Visual batik motifs in 2 dimensions is projected into 3 dimensions so it provides more real information and understanding.

Learning batik in Vocational High School will provide insight and extension of competence. Batik learning is no longer just learning the skill of making batik, but it further provides insight into character education and values about the need to love the culture based on local wisdom. This love is expected to evoke a stance to preserve the nation's cultural heritage.

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