

## Conference Paper

# Nusantara Mask Heritage (Nusmari Indonesia): Augmented Reality-Based Infographic Application for Mask Collection in Museum Panji Malang As Learning Media for Traditional Masks and Gender Performativity

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## Abstract

Masks have varied roles and uses in every region and country due to the different cultures and beliefs, and uses include worship, provision, and dance. Today, a lot of historical masks are preserved in museums, offering information about shapes, uses, and gender performativity. In Museum Panji, Malang District, Indonesia, a big collection of historical masks is used as a learning source for teenagers, adults, and researchers. Unfortunately, most of the masks displayed there do not have informative labels, despite the educational benefit of such tagging for visitors. However, researchers have developed a product called NUSANTARA MASK HERITAGE (NUSMARI INDONESIA): Augmented Reality-Based Infographic Application for Mask Collection in Museum Panji Malang as appealing and innovative Learning Media for Traditional Masks and Gender Performativity. This application was based upon a study of traditional masks and gender performativity which is then developed into a digital learning media that helps visitors acquire information.

**Keywords:** Gender, Application, Museum, Mask, Augmented Reality

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Published: 29 July 2020

Publishing services provided by  
Knowledge E

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Selection and Peer-review under the responsibility of the WCGS Conference Committee.

## 1. Introduction

A museum is not solely a place for recreational purposes, but also study and research purposes. It is one of the public facilities whose existence and use are for the interest and improvement of the people. In its relation with cultural heritage, a museum is an institute, space for storing, caring, protecting, and using of material evidence of human culture along with its nature and environment to support the protection and sustainability of national cultural treasure (Article 1. (1). PP. No. 19 Year 1995).

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Museum Panji is one of the museums located in Tumpang Sub-District, Malang District. It was built in 2014 with the concept of tourism of education, culture, and recreation. The museum space is divided into four: Cerita Panji in Performing Arts, Cerita Panji in the History, Diorama of Popular Cerita Panji, and Cerita Panji in Present Time. Cerita Panji is more than just a literature work. It has become a *Budaya Panji* or Panji Culture, a concept of awareness upon local wisdom with Panji's character values, which are simplicity, confidence, populist, and inseparable from the purpose (Kieven, 2018:25). In *Budaya Panji*, there are ethics and views of life that can be seen through Cerita Panji. (Vickers, 2009).

One that was used as the research location in Museum Panji is Cerita Panji and Performing Arts because the iconic Malang mask which is Panji mask is in this room. Panji mask itself is displayed in the museum as learning media for culture of tradition and gender performativity for teen, adult, and researcher visitors. Unfortunately, from the observation that the researchers did, the Panji mask is accompanied by little information, the name tag was not even situated near the mask. Therefore, the function of the museum as learning media and source cannot be fulfilled completely and visitors were not able to acquire sufficient information

From the stated problems, researchers are looking for a solution to make the museum and its artifacts have maximum use and that led to the developing of Nusantara Mask Heritage Indonesia products (NUSMARI INDONESIA): Development of Augmented Reality-Based Infographic Application for Mask Collection in Museum Panji Malang as appealing and innovative Learning Media for Traditional Masks and Gender Performativity, because with this application visitors will be able to see how the mask looks when it is being worn. The discussion in this article raises the character of Panji Asmoro Bangun as a representative of the male mask character and Dewi Sekartaji as the representative of the female mask character which will be elaborated in this paper. This NUSMARI INDONESIA application was developed with the character design results of the analysis of traditional art rules and gender performance in the Malangan Mask dance and was also developed following the times and technology where today's society can use gadgets in all respects. Moreover, this application can be used by using the mobile phones of visitors.

## 2. Materials and Method

The development method of the application NUSMARI INDONESIA: Augmented Reality - Based Infographic Application for Mask Collection in Museum Panji Malang as Learning

Media followed the Borg & Gall development method. The reason for choosing the Borg & Gall's method is because the stages in this research match the beginning concept of development that the researchers will do. Nana Syaodih Sukmadinata (2006: 169-170) explained that the development model of Borg and Gall has ten implementation steps but in this research, they are simplified into 4 steps considering the limitations of research time and they can be described as follows:

## 2.1. Research and Information Collecting

At this stage, the researchers made observations in the field, which is Museum Panji to collect data to identify the problem in the museum which then is used as a basis of solution faced by visitors of the museum. In addition, researchers also collect data about the Panji mask as the infographic that will be showcased in the augmented reality-based application of NUMARI INDONESIA.

## 2.2. Planning

At this stage, the researcher compiles work steps and alternative solution should there be a problem in making the application so that the best solution to the problem can be found.

## 2.3. Develop Preliminary Form of Product

At this stage, the activities carried out are:

- Create a design for the application of *NUSMARI INDONESIA*
- Develop the application of *NUSMARI INDONESIA*, at this stage, the application has been processed into an Augmented Reality-based product
- Arrange a set of validation instruments that will be filled by expert validators
- Conducting an expert validation with media expert validators, namely visual communication designer, language expert, and material content validator

## 2.4. Final Product Revision

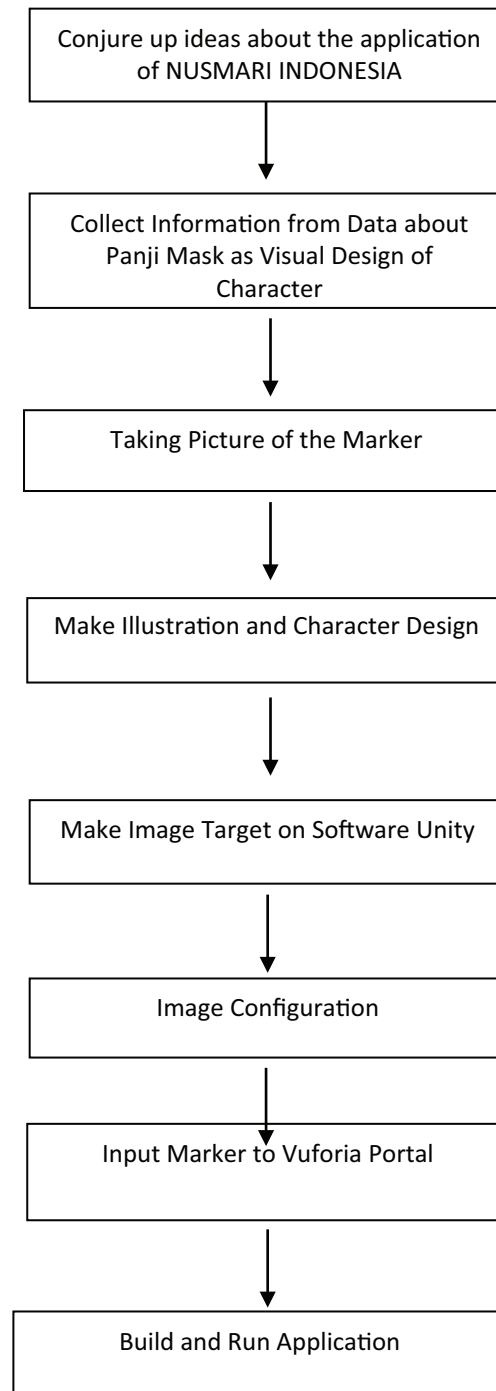
At this stage, the final input by the validators is used to finish the application and turn it into a ready-to-use product.

### 3. Discussion

Museum Panji is located in Tumpang Sub-District, Malang District. It was built in 2014 with the concept of tourism of education, culture, and recreation. The museum space is divided into four: 1) Cerita Panji in Performing Arts, 2) Cerita Panji in the History, 3) Diorama of Popular Cerita Panji, 4) Cerita Panji in Present Time. This research is focused in the first room, especially in Mask Room because this is the most popular room in Museum Panji. In this particular room, there are dozens of kinds of Panji masks displayed in glass display cabinets with no name tags.

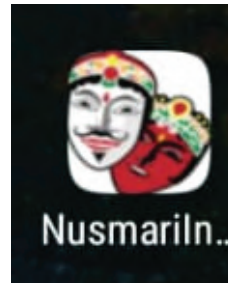
The development result of the application of NUSMARI INDONESIA is in the form of infographic 2D character designs of the masks in the museum. In this paper, researchers took 2 out of 10 masks to be discussed as representatives of male and female characters because the other 8 used the same principle in developing the character design. They also used these 2 masks as markers. The marker itself is augmented reality media tracking that is used as an image target. Meanwhile, the application of NUSMARI INDONESIA here is markerless, a method without a marker to display 2D or 3D objects on mobile phone and gadget screens. Nevertheless, the markerless method still uses a marker as an image target that functioned as a trigger to show 2D or 3D objects. Therefore, users can use any image that the researchers want. Siswanti, 2016 mentioned how Image Target works on AR. The system will detect and track features in the image that the camera sees that represents the image from the database. It is recognized by comparing features in the image with the one in the database. When this feature is recognized, the image will be continuously tracked as long as the image is within the camera's range of view.

The development process of the application of NUSMARI INDONESIA can be explained as follows:



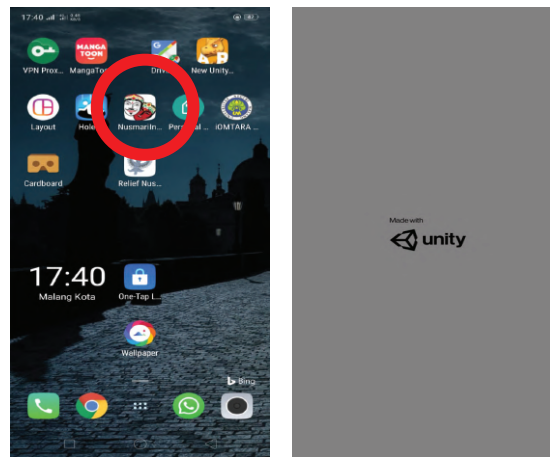
The icon of NUSMARI INDONESIA application on phone and tablet screens are using a picture of Panji masks with the name of the application below the picture. NUSMARI INDONESIA is an acronym of Nusantara Mask Heritage Indonesia. The acronym was chosen because it is short, legible, and spatially economic, therefore it is suitable for an application name. The characters chosen to be the icon of this application is the character of Raden Gunungsari and Patih Klan Sewandana. These characters represent good (Raden Gunungsari) and evil (Patih Klana Sewandana), matching with

the characters played in *Tari Topeng Malangan* (Malangan Mask Dance). The mentioned icon manifested the actual condition because an icon is something that works as a marker similar to the real object (Ulinnuha:2018). The appearance of the icon can be visualized as follows.



**Figure 1:** Icon of Nusantara Mask Heritage Indonesia (NUSMARI INDONESIA) Application (Source: Research Result, 2019)

The appearance of the application after being installed in mobile phone and tablet is as follows:



**Figure 2:** Appearance of NUSMARI INDONESIA Application on Mobile Phone and Tablet Screens (Source: Research Result, 2019)

Visualization of the marker and the character along with the infographic writing of Panji can be explained as follows:

#### 4. Panji Asmoro Bangun

Panji Asmarabangun is an heir to the throne that will replace his father Prabhu Lembu Amiluhur. Panji needed experience before claiming the throne. For that reason, he embarked on a journey. In the middle of his journey, he witnessed the suffering of his people. His journey was more than searching for a woman, the woman here was

a symbol of commoners. Panji's quest for his missing wife was a symbol of a king searching for his people (Hidayat, 2008:378).

Researchers drew the essence of the story to be showcased in the visualization of the augmented reality. Drawing the essence of the story is important to help the visitors of Museum Panji acquire compact, clear, and quick information. Infographic is an acronym of Information Graphics. It is a visualization of data, ideas, information, or knowledge through charts, graphics, schedule, etc. so that they can be conveyed through more than words, have a strong visual impact, and more appealing (Kurniasih:2016). Therefore, it can arouse awareness of the readers to understand the data, ideas, information, or knowledge more quickly and correctly.

According to Kurniasih (2006), the purposes of making infographic are as follows:

1. To communicate a complex message in a simpler manner
2. To make information more compact and legible
3. To explain data easier
4. To monitor every change parameter periodically

Infographic visualization of Panji Asmoro Bangun's character was taken from when the mask was used in the mask dance and from the real shape of the mask. Therefore, one character animation representing Malangan Mask Dance is produced.

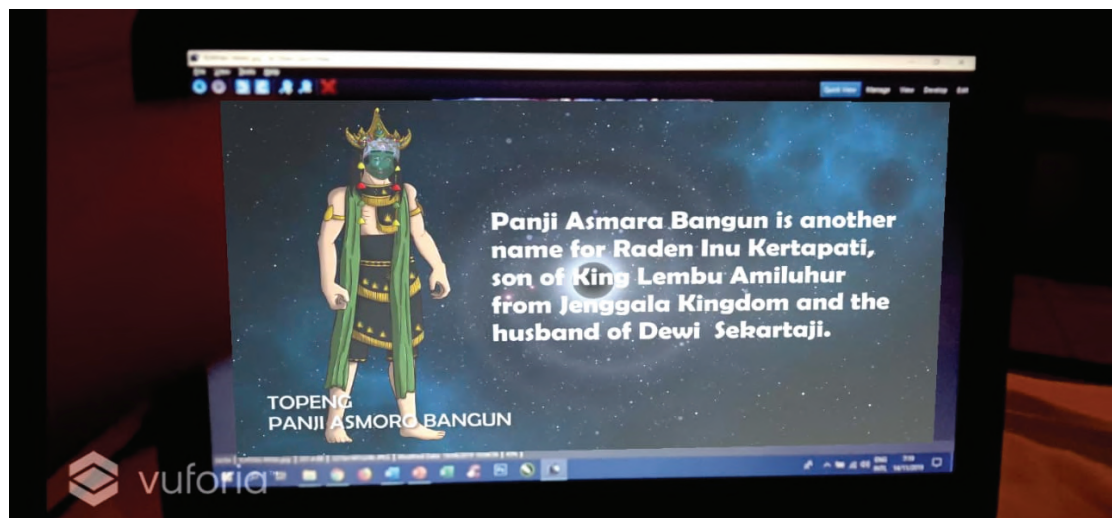
The visualization can be seen below.



**Figure 3:** Mask of Panji Asmoro Bangun (Source: Researcher's Documentation, 2019)

The mask of Panji Asmoro Bangun above is the one in Museum Panji Malang. That mask was used by the researchers as a markerless marker so that visitors can directly

scan the real mask of Panji Asmoro Bangun in the museum and information will appear on their mobile phone or tablet screen. The dancing character wearing this mask is the base used by researchers to display as a 2D character animation of Panji Asmoro Bangun. On a visitor's mobile phone or tablet screen, Panji Asmoro Bangun is on the left side and the information is on the right side. This was developed with the basis of the graphic design principle, namely sequence. Sequence is making priorities and sorting them out based on the ones that need to be read first to last (ilmunesia.com:2019).



**Figure 4:** Infographic Visualization of Panji Asmoro Bangun Mask on Augmented Reality Display (Source: Research Result, 2019)

Malangan Mask can also be understood through two approaches, namely nature approach and nurture approach. In nature theory, the difference between the two lies on the sex difference, meaning a characterization or separation of two sexes based on the biological aspect that is permanent or often called as the nature of God (Fakif 1999: 9). Panji Asmoro Bangun's mask is portrayed as clear as the real mask. The male mask is physically different from the female. The male mask has a sharper nose, has a mustache, and wider eyes. These are showing the transformation of a human face. Even in the dance performance, the dancer of Panji Asmoro Bangun creates movements with bigger steps and hands that appear more static and wide open, representing men's action be it leading or fighting.

The character animation in the application of NUSMARI INDONESIA was made bulk just like a male anatomy. Costumes and attributes displayed were also suitable to the male characters in the dance, such as wearing pants instead of a skirt. The difference between male and female was already discussed scientifically by Charles Darwin in his book *The Descent of Man*. He claimed that men and women are different in physique, body strength, thoughts, etc. Other scientists seem to be in his favor, including Hardaker



(1882) who stated in one of his writings that women have lower thinking ability and creativity than men but have better intuition and perception.

Meanwhile, in nurture theory, the difference is more inclined to the division of labor between males and females based on the cultural factor which is known as the term 'gender' (Utomo 2005: 175). In the visualization of this application and the character design, the body posture of Panji Asmoro Bangun was made solid, the skin was made just like typical Nusantara people, symbolizing a manly and respectable knight. The mentioned characteristics refer to the embodiment of Panji Asmara Bangun whose alias is Raden Inu Kertapati, son of King Lembu Amiluhur from the Kingdom of Jenggala, husband to Dewi Sekartaji, a figure persistent in fighting for the truth, defending for his people and his land, and faithful to his spouse. Green colored face symbolizing kindness in his heart. The background of the screen was made in dark blue to represent a great and reliable man. Dark blue in color theory means trust, loyalty, gentleness, greatness, and reliability (Wicaksono:2013).

## 5. Dewi Sekartaji

Dewi Sekartaji is another name for Candra Kirana, daughter of King Lembu Amerdadu from the Kingdom of Panjalu and wife to Panji Asmara Bangun. The Infographic visualization of the character of Dewi Sekartaji was taken from the real shape of the Dewi Sekartaji mask and combined with the costume of Malangan Mask Dance.



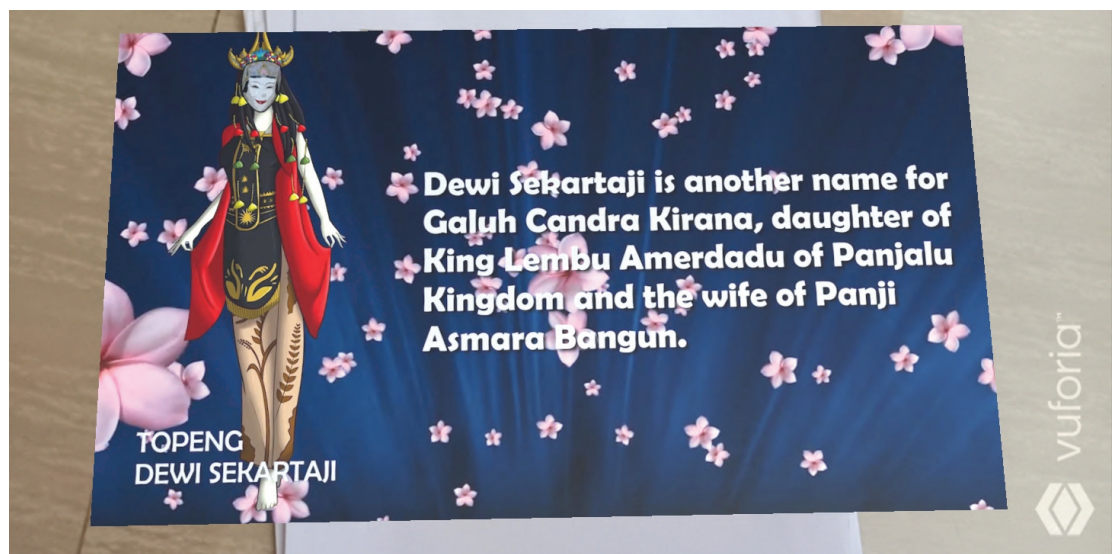
**Figure 5:** Mask of Dewi Sekartaji (Source: Researcher's Documentation, 2019)

In nature theory whose differentiation is based on sex or biological aspect, Dewi Sekartaji was portrayed with white complexion, nanggal sepisan eyebrows (thin and

arched eyebrows), and lips that are slightly smiling just like how female anatomy should be.

The character animation in the application of NUSMARI INDONESIA especially the anatomy was made following female anatomy, be it the body shape, the arms, or the legs. Dewi Sekartaji was also equipped with costume supporting her role as a female character, which is *jarik* (ankle-length batik wraparound skirt used by women in the old days) and not a pair of pants.

Even in her dance performance, it can be seen that the movements were not the same as the movement of a man and showing her gender performativity that is feminine.



**Figure 6:** Infographic Visualization of Dewi Sekartaji Mask on Augmented Reality Display (Source: Research Result, 2019)

Meanwhile, in nurture theory, the difference is more inclined to the division of labor between males and females based on the cultural factor which is known as the term 'gender' (Utomo 2005: 175). In the visualization of the application and the character design, the character was made like a woman walking slowly. It is to show that Dewi Sekartaji is amiable in nature and she was devastated to find out that she was put in an arranged marriage with the man she did not fancy. In the story, there was also a scene where Dewi Sekartaji asked for advice and protection from her sister Dewi Ragil Kuning. This shows that she is indeed a woman possessing typical female traits such as sensitivity, cry easily, and tend to contain her feelings. The background on the screen was made in dark blue color to represent Dewi Sekartaji's determination in any situation. Dark blue in color theory means wisdom, strength, friendship, and truth (Wicaksono:2013). In addition, on the background, there are effects of floating pink

frangipani flowers to represent love and affection. Those things refer to the manifestation of Dewi Sekartaji, a woman full of love who holds fast to the truth and is also determined.

## 6. Conclusion

The development of infographic application of NUSMARI INDONESIA, with the character design development that holds the principle of education of tradition and gender performativity has succeeded in conveying information about mask artifacts showcased in Museum Panji Malang. The design of the character animation was developed based on nature theory, a theory that differentiates gender based on its sex or biological aspect, and nurture theory, a theory that differentiates gender based on male and female roles in culture.

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