

EXPERIMENTAL DESIGN: JAVANESE FOLKTALE PRESERVATION USING AUGMENTED REALITY TECHNOLOGY

Vera Jenny Basiroen¹; Damba Permatasakti²

^{1,2}Visual Communication Design Department, Bina Nusantara University
Jl. K. H. Syahdan No. 9, Palmerah, Jakarta 11480, Indonesia
¹nonjane@binus.edu; ²dambaster27@gmail.com

ABSTRACT

This research was conducted to discover innovative and interesting methods to preserve also to reintroduce Javanese folktale to today's society. The data were gathered from primary research through quantitative research to 104 respondents to know about folktale and opinion of modern preservation medium such as augmented reality medium, and also qualitative research through an in-depth interview to enrich the researcher's fashion knowledge about printed technic and fabrics. Besides primary research, the researchers also conducted secondary research through various sources such as websites, e-articles, survey, and interview. The result of this research is an interactive scarf as a collaboration of fashion accessory as a physical medium and augmented reality technology to enhance its interactive experience. Based on the survey held, the most favorite fashion accessory among woman from the age of 18 until 30 years old is a scarf. Most women have a scarf inside their bag, just in case they need it. By making an illustration of Javanese folktale on a scarf, it will hopefully attract the target market to retrace their memory and raise people's awareness about Javanese folktale that seems to be forgotten in today's era. The usage of augmented reality feature in this research is to give further information such as videos, images, or texts towards the illustration of the scarf by scanning the pattern by using the user's smartphone.

Keywords: *Javanese folktale, folktale preservation, augmented reality*

INTRODUCTION

Tourists who come to Indonesia are mostly expected to experience the mysterious and mystique vibe occurs in the traditional ceremony, to see or learn the Indonesian art or heritage, and to embrace the diversity of Indonesia's culture. It can be said that cultural wonder is one of the strongest aspects of Indonesia that needs to be well preserved. UNESCO World Heritage Center (n.d.) has stated, "Heritage is what we pass on to future generations as an irreplaceable inspiration." When gadgets are far from human's priority, a folktale is very popular among the society, but with the current condition where technology has reached into the top of human's priority, even the most popular folktales that are mostly come from Java seems to become obsolete and forgotten. According to the University of Massachusetts Center for Heritage and Society, Heritage does not only need to be preserved but also need to be discussed and excavate. By mean, society needs to be able to see which memories should be enjoyed or regret and make the pass as a lesson in the future. Therefore, this research is conducted to find a better solution of Javanese folktale preservation so that society can pass the heritage to the future generation. It can be done by shifting from word of mouth distribution into a physical artwork. Since technology has a huge impact on human lives, there might be a way for Javanese folktale to be preserved by using the existing technology such as Augmented Reality. It is used to superimpose information on the world we see by simply downloading the application on the user's phone (Empsak, 2018). Hopefully, the result of this research and experiment can give access to

the community to gain and maintain interest on Javanese folktale so they can preserve and pass this heritage to the future generations.

As an Indonesian, it is time for the researchers to convey the importance of preserving Javanese folktale through both research and artworks to the society by collaborating knowledge and technology that the researcher has studied during four years of university. This research will remind the existence of Javanese folktale to the society by applying illustration on fashion item as the platform for the user to use and share. Augmented reality will be applied on an application that will create a fun experience for the user to use and to educate themselves about one of Indonesia's precious heritage. This research can also be the merchandise of Java. At the end of this research, any survey that has been done will be a measurement of how concerns the local community with Javanese folktale. Perhaps the existence of Javanese folktale will be well preserved and can be passed through the younger generation as an inspiration.

According to Sibarani (2013), folklore comes from two roots of the word, which are folk and lore. A folk is a group of people who have some identifiable characteristics as well as physical, social, and cultural so that it can be distinguished from other groups. Most importantly, they have had a tradition, which has been inherited from generation to generation. Lore is the practice of folk, which is part of their culture that orally passes to at least two generations or through an example of which is accompanied by gestures or auxiliaries reminder. So, folklore can be defined as a majority of collective culture, which is inherited and hereditary in many kinds of form in a traditional and different version, either verbally or giving examples also accompanied by a gesture. Folklore has important functions in human's life; Bascom (1954) has stated that there are four functions of folklore, which are: (1) a projective system that serves to reflect the vision of the community which perhaps motivating the member of one community in order to achieve their goal and vision; (2) a validation tool of the cultural institution; (3) a normative guide and supervisor; and (4) pedagogical device to connect people to their traditions and shape the culture.

Nielsen and Kernaleguen (1976) have mentioned that clothing known as a part of appearance that provides data for perceptions. According to Martin and Nakayama(2010), what a person chooses to wear might deliver complex assortment information of who they are or what they want to deliver. That is why clothing is also known as a nonverbal tool to channel human's visual expression. In 2013, a British fashion designer named Vivienne Westwood used her Red Label Spring/Summer collection as a form of non-verbal social communication and dedicates her fashion show to highlight sets of social issues, one of them is climate refugees (Shin, 2013). Those findings convince the researcher that fashion accessory can be used as a unique media to preserve Javanese folktale. The illustration is a work of art that helps to explain of written text. In this research, contemporary style illustration will contribute to creating a pattern that portrays the Javanese folktale and later will be applied to the chosen fashion accessory as the final product. This research should use the right color combination to attract potential consumer's attention, so then they can process the information with ease. The majority of color that will be applied into the product will be pastel color. Pastel colors are described as colors that induce openness and relaxation. Those effects created by pastel colors will be beneficial for this research (Purbasari & Rahardja, 2016). Those colors range will help people to accept the new way of Javanese folktale preservation.

Augmented reality technology is applied to enhance the experience of the final result. According to Tiwari et al. (2016), this technology uses the existing environment and overlay new information. Because the user cannot objectify the virtual object without this tool; it is helped by the gadget's camera. Phone camera will work as a medium to identify the virtual object, which later the virtual object or information will appear on the device. Wright (2011) has said that the main advantage of augmented reality is to "enables fundamentally more compelling user experience and enrich the content, meaning that user will have a great potential to explore and discover new information within objects by using this technology."

METHODS

The overall research question that makes up the entirety of this research lay within these questions that may complement the researcher to get more in-depth information from the respondents on several points, which are; (1) how genuinely care respondents towards Javanese folktale existence? (2) According to the survey result, which preservation method (traditional method or innovative method) will be the best solution to preserve Javanese folktale in today's era? (3) Which fashion accessories that are most liked by the respondent that later will be used as the platform to preserve Javanese folktale? (4) Would respondents give a positive reaction to the use of augmented reality in this project?

The scope of this research is to see on how much do people care towards Javanese folktale, to acknowledge which preservation method that will work best on today's era, and to determine their respond towards the idea of this research based on a specific gender, region, interest, and lifestyle. This will help the researchers to specify the target market of this research. Javanese folktale is one of those Indonesia's heritage that its existence seems to be forgotten because of the lack of awareness of its preservation by the society. Folktale traditionally spreads from mouth to mouth from one generation to another. This method considers as challenging because when one generation has stopped distributing this heritage, then this culture will be gone. According to the survey done, there might be reasons why folktale starts to the downfall its popularity, one of them will be the perception of the Indonesian which sometimes thinks that story or folktale that comes from another country should be better than the local story. Another possible answer will be the local folktale labeled as antique and does not appeal to the society in today's era anymore.

In this era with rapid technology development, for some people, Javanese folktales might consider as something that is outdated and no longer needed. In fact, Javanese folktale not only can help children to develop their imagination and support them to think creatively but also instilling values and etiquette. Young adults or adults might still remember some of the traditional stories that are told by the older generation when they are a little, but the younger generation might know nothing about any of the Javanese folktale. Parents these days tend not to share Javanese folklore with their children anymore because they might forget or ignore the existence of the tradition itself. If most parents are careless towards traditional culture, then the chance of a younger generation to preserve it will be unlikely because they are not used to the culture. With all the existing technology, the industry produces loads of new creative story that seems to be more attractive than Javanese folktale, so then children may be interested into those characters as their inspiration or role model because those characters appear to be the only choices that they currently have. According to the interview conducted, there are only 15 of parent respondents who share folktale with their children and 48 prefer to tell non-Indonesia stories such as Disney princess stories, Marvel or DC superhero stories, and other fictional characters. This phenomenon happens because people are complacent with modernization and the lack of awareness of the importance of folktale preservation. If the percentage of public awareness of Javanese folktale is in decline, soon or later this heritage will be extinct.

Here are visions of this research: (1) gain awareness of Javanese folktale among the society; (2) portray Javanese folktale using contemporary illustration style; (3) deliver and embrace moral of the story of Javanese folktale; (4) inspire others to conserve other Indonesian cultural aspects. The mission of this research is as important, which the final result of this research seeks to expand the possibility of how to preserve Javanese folklore creatively and innovatively. Fashion item as a media of application that allows people to explore the diversity of Indonesia's cultural wonders. Technology's development will always occur for the sake of product uniqueness.

Both the survey and interview are considered a credible source because the survey data are collected from the target market and interview done with the expert on this subject. There are two methods used to collect data for this research, which are; (1) survey (quantitative research). The survey is held for one week with 104 respondents in total. The survey works as a point of reference on respondent's folktale knowledge, get the insight of their opinion towards traditional preservation method also which modern preservation method will be appropriate for today's era, how familiar the respondent with augmented reality terms, and how would respondent responds towards researcher's idea to preserve Javanese folktale by combining fashion accessories as a media of application and augmented reality technology to explore the pattern of it. (2) In-depth interview (qualitative research); the interview is conducted to enrich the researcher's fashion knowledge about fabric and printed technique. The interview helps the researchers to decide on which material or fabric will be suitable for this research and which printed method will be possibly used to achieve the goal. During the process of experimenting, the researchers only need to make sure that the user scans the right pattern with their phone; this will allow the camera to detect the tracker. When the tracker has detected by the camera, a virtual video will slowly appear on the screen device following by the text. Figure 1 shows the application workflow.

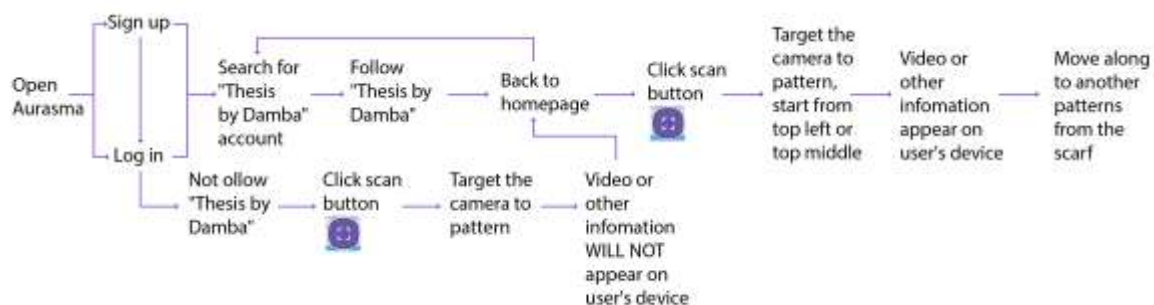


Figure 1 Application Workflow

RESULTS AND DISCUSSIONS

According to research and data that are collected, this survey is disseminated to teenager to adult from the age of 18 until 40 years old. After conducting this survey, it is shown on the result that the appropriate target market for this research is starting from the age of 18 until 30 because women on that range of ages are still able to comply with innovative technology and the chosen illustration style. The most voted accessory is a scarf, followed by eyewear, jewelry, and watch. This result truly supports the idea of a fashion platform selected for this research which is a scarf. The first thing that will come up to the respondent's consideration while looking for a scarf is its aesthetical aspect such as its pattern and color. This result motivates the researcher to choose the best color combination and to create the best pattern to attract consumer's interest. 84% of the respondents state that they are attracted to purchase scarf based on the physical and functional feature. 16% of the respondents are interested in the product based on the story behind the product, but unfortunately, there are few available products with insight story of its pattern or design. This can be the strength of the final product so that target market can have an understanding about the existence of Javanese folktale, and perhaps it can engage and encourage the society to preserve one of Indonesia's heritage, specifically Javanese folktale.

There are 34% of the respondents think that Javanese folktale becomes endangered because it is no longer remains on the society's lifestyle. This possibly happens because the existence of the competitor and the society tends to categorize local or traditional folktale as old-fashioned. Respondents believe that folktale's preservation method is no longer suitable in today's era. 64% of

the respondents agree that by using additional props might help people to recall local folktale. 62% of the respondents vote interactive digital media as the best preservation method that will be suitable for today's era. 45% of the respondents would love to get more in-depth information or the story behind the pattern. There are 52 out of 104 respondents that admit to always keeping up with the latest technology trend, and this lifestyle leads people to introduce themselves into augmented reality. Plenty of applications that are using augmented reality as their main feature (Snapchat, Pokemon Go, and Instagram); it comes up to the conclusion that there are 70% of the respondents (teenager – young adult) seems to be familiar with augmented reality, and the other 30% are mostly adults who are not into the technology trend or whatsoever.

The idea of the research itself has a good opportunity since 91% of the respondents are very supportive of this research and they give loads of positive feedback at the end of the survey form. Most of the respondents are familiar to the augmented reality technology since they are pretty active on social media such as Snapchat and Instagram. For others that might not sound that familiar with this technology, they still very supportive and willing to try or explore about this augmented reality feature. These will be considered as a good sign for the researcher to continue this research.

In the qualitative research results by an in-depth interview, the researchers interview with a graphic designer who applies the design to various fashion accessories. Fika Julia applies Indonesia's cultural wonder through her creation, and it makes her name become popular in the industry. She innovatively puts Indonesia's heritage on her design and uses vibrant color to appeal consumers. This way, she has contributed to save local culture from its extinction. She agrees that scarf will be the most suitable fashion item to apply illustration that later will ease the scanning process because of its large surface. The scarf is known as a versatile accessory that seems to present in the woman's bag. She has suggested several fabric materials and printing method for this research. She explains that there needs to be a fabric-testing process or ask for a fabric sample before deciding on the material. For printing techniques, the digital printing method is considered as the best techniques to execute this product because it does not take that much of time and the result will still be pleasing.

Besides the point of view from the respondents, the researchers also must be considered some point in developing the design and concept of the project: (1) strength; contemporary illustration style that applies to the scarf will attract the target market to observe the product, target market might not expect the story behind the illustration, and Javanese folktale may create excitement to the target market because it can remind them to their childhood memory. (2) Weakness; target market may not understand the story in the first place and target market might not be familiar to the augmented reality technology. (3) Opportunity; increase Javanese folktale awareness, there might be a possibility for target market to collect our product because of the love that they have towards Indonesia's heritage and may increase the value of the scarf itself. (4) The threat is by the emergence of the competitor with a similar idea.

Moral, rational, and emotional approach are the three strategies that are being used in order to design the final research. The moral approach will raise empathy to the society about the importance of Javanese folktale preservation, as well as gaining Javanese awareness folktale. The researcher chooses a Javanese folktale that has the strongest moral story, which might inspire the reader. The rational approach in making the scarf as a media can fulfill the need of Javanese folktale preservation and attract the interest of common people towards this topic. Augmented reality will help the target market to understand the story behind the illustration. Moreover, the emotional approach; pastel color, playful composition, and organic shape will trigger the target market's curiosity towards the product. This will be a breakthrough method to portray Javanese folktale, and it will give fresh impressions into the traditional culture. Perhaps people's awareness of Javanese folktale will be raised after they discover the scarf.

According to the strategies mentioned, which aims to raise people awareness about Javanese folktale, there are some key facts can support these strategies, they are; (1) Javanese folktale themes illustrate scarf that implements augmented reality technology that has not available in Indonesia. (2) People tend to attract on the visual aspect rather than any other aspect. (3) Teenagers and young adults seem to be attached to their gadgets, so they can use their gadgets to gain awareness of Javanese folktale.

The communication processes that the researchers intend to introduce scarf as a media to preserve Javanese folktale is by making a tutorial video on how the whole product work, so people can clearly understand the intention of the product and how to explore the product by using augmented reality technology. The purpose of this scarf is to preserve Javanese folktale. Besides, the researchers aim to enrich user knowledge about Javanese folktale for those who are not familiar with this topic. To enhance the perception of the society that local story might not be less interesting to the story from another country. The visual design of the scarf will be dominated with the playful layout and whimsical character that will attract the consumer. Color combination will play an important aspect to create excitement for them to explore not only the product but also the intention of this research. Typography is used to deliver the story behind the illustration. Different kind of typefaces will be applied to differentiate between narrative, dialogue, and moral of the story.

The illustration for each character of Javanese folktale that applies on the scarf will be unique and different from any existing illustration. There will be artistic divider to separate one scene to another to avoid error or clash on the scanning process. Fabric that will be used is cotton, because it is the type of fabric that is unreflective and thick enough to reduce the risk of error for the augmented reality scanning process. The user interface of the augmented reality application manages to be not overpowering but still complementing the illustration, and each narrative box will automatically appear once the scene is scanned. Minimal animation will appear on the screen device to maximizing the augmented reality experience. There will also be some invisible scene on the scarf to encourage the user to explore the product using the augmented reality technology.

The narrative of the folktale will be launched in two languages version, Indonesian and English which aim to gain the local interest towards Javanese folktale and also to introduce local heritage to a foreign society. Since this product is targeted for teenagers to adults, formal language that easy to understand will be used as the verbal communication style. The making process of the final product and will be divided into which are the detail of design process, illustration process, fabric testing, animation process, augmented reality development, and prototype. Before actually getting into the digital procedure, as an interactive digital media student, the researchers get used to composing the ideas manually and successfully create a mind map during the brainstorming activity. It helps to plan and structure this research also focuses on the message that the researchers want to convey through it. Mood board is very helpful for the researchers in selecting the style of illustration or color selection. It also gives the researcher scope while sketching. It can be seen in Figure 2.

On the character development process, the researchers try to sketch both Timun Mas character in various styles in order to get the best result possible. After that, the next step is digitalizing one chosen sketch from each character. This process takes much time because the researcher starts to put colors and details into each character. It can be seen in Figure 3.

There are various materials on one book of fabric sample that the textile printing company gives to the researcher, after analyzing every fabric, the researcher finds two fabrics that is suggested by Fika Julia. She recommends silk and velvet fabric, but the researcher discovers a fabric material that is appropriate for this research. It has a smooth texture that will be ease user on the scanning process to activate augmented reality feature. The researcher chooses Satin Hermes material because this fabric is not too thick nor transparent, even though this material has a slight shiny effect on it but

this material is less shiny than silk or regular satin. This fabric will give an elegant look for the wearer. Figure 4 shows the scarf layout development and Figure 5 shows the final layout.



Figure 2 The Moodboard



Figure 3 Character Development (Timun Mas)



Figure 4 Scarf Layout Development



Figure 5 Scarf Final Layout

Animated video is created to enhance augmented reality experience. 2D Animation will appear on the user's device once the camera has detected the tracker on the scarf. The first animation process is to create a storyboard. The process of making storyboard will help the researcher to share the vision of this story, it really helps the researcher to brainstorm how each scene will look like, and storyboard will be researcher's while doing the production segment. Figure 6 shows an example of the animation video and Figure 7 shows the pattern marking.

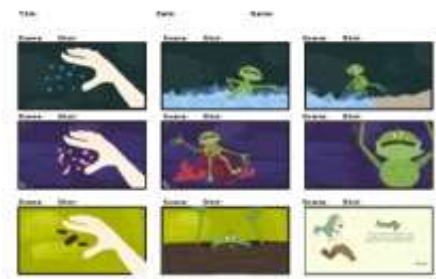


Figure 6 Animation Video



Figure 7 Pattern Marking

Augmented reality development is executed by marking specific part of the illustrated scarf as the tracker that later can be detected by the camera and then overlays that tracker with animated video or other information to it. In this process, the user can put photos, videos, and texts as overlays. The

user can adjust overlay objects as they wish. After this process is finished, then the project is ready to launch. Figure 8 shows the process of overlaying pattern with video and Figure 9 shows the scanning process of the pattern.



Figure 8 Overlaying Pattern with Video



Figure 9 Scanning Process

CONCLUSIONS

To conclude this research, the existence of Javanese folktale has been decreasing cause by competitor and people's mindset that assuming this topic seems to be outdated. Javanese folktale is traditionally preserved by word of mouth method from one generation to another. Once one generation stops sharing this heritage, this heritage will be disappeared. The researcher decides to create an innovative method that can be fit for today's era, which is creating an interactive scarf. This scarf is not just a regular scarf, but this scarf has a special feature on it which is called the augmented reality feature. The scarf will have several patterns that can be scanned using the user's device and it will superimpose information from the illustration. This technology gives the story of Javanese folktale illustration in detail. Hopefully, by collaborating accessory and latest technology trend, people will be attracted into the product, so then people can retrace their memory or obtain more knowledge about this topic. Perhaps the society can gain back the awareness of Javanese folktale and share this heritage to the future generation because it is all Indonesians responsibility to preserve and save the culture and heritage.

REFERENCES

- Bascom, W. R. (1954). Four functions of folklore. *The Journal of American Folklore*, 67(266), 333-349. <https://doi.org/10.2307/536411>.
- Empak, J. (2018). *What is augmented reality?* Retrieved July 18th, 2018 from <https://www.livescience.com/34843-augmented-reality.html>.
- Martin, J. N., & Nakayama, T. K. (2010). *Intercultural communication in contexts* (5th Ed.). New York, NY: McGraw-Hill. Retrieved from http://content.lms.sabis.sakarya.edu.tr/Uploads/65470/42678/intercultural_communication_in_context.pdf.
- Nielsen, J. P., & Kernaleguen, A. (1976). Influence of clothing and physical attractiveness in person perception. *Perceptual and Motor Skills*, 42(3), 775-780. <https://doi.org/10.2466/pms.1976.42.3.775>.

- Purbasari, M., & Rahardja, A. (2016). Documenting the richness of Indonesia through the cultural color of Sumatera's traditional textile and culinary product. *Humaniora*, 7(2), 179-188. <https://doi.org/10.21512/humaniora.v7i2.3517>.
- Shin, K. (2013). Fashion as a communication tool. *International Journal of Fashion Design, Technology, and Education*, 6(3), 121-131. <https://doi.org/10.1080/17543266.2013.852758>.
- Sibarani, R. (2013). Folklor sebagai media dan sumber pendidikan: Sebuah ancangan kurikulum dalam pembentukan karakter siswa berbasis nilai budaya Batak Toba. In Endraswara, S. (Eds.), *Folklor nusantara: Hakikat, bentuk, dan fungsi*. Yogyakarta: Penerbit Ombak. Retrieved from <http://staff.uny.ac.id/sites/default/files/penelitian/dr-suardi-mhum/folklor-nusantaradamicetak.pdf>.
- Tiwari, V., Tiwari, V. P., Chudasama, D., & Bala, K. (2016). Augmented reality and its technologies. *International Research Journal of Engineering and Technology*, 3(4), 1416-1420. Retrieved from <https://www.irjet.net/archives/V3/i4/IRJET-V3I4280.pdf>.
- UNESCO World Heritage Centre. (n.d.). *World heritage*. Retrieved July 18th, 2018 from <http://whc.unesco.org/en/about/>.
- Wright, J. (2011). *Mobile augmented reality - What's possible (Presented by Qualcomm)*. Retrieved from <https://www.gdcvault.com/play/1014699/Mobile-Augmented-Reality-What-s>.