

USABILITY, DESIGN, AND CONTENT ISSUES OF MOBILE APPS FOR INDONESIA CULTURAL ART PROMOTION: A BALINESE MASK

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ABSTRACT

Various ways had been taken to promote the Indonesian culture in conventional media such as magazines, books, and even articles. The receiver generation who had lived in the abundance of technological world of digital media was the next target of inheritance and one way to do it was with the mobile application technology. So, it would be nice if the society started to take a big step to be more focused in the dissemination of culture and pass it following the development of the time, of course, without losing national identity. One of many interesting Indonesian Culture was Topeng Bali (Balinese Mask). Through observation and field research, knowledge about the art of Balinese mask was gathered, and later present it in form of mobile application. This research used the qualitative and quantitative method. The qualitative research was done by collecting data sampling from some of the selected target markets in limited quantities, while quantitative research was done by spreading the questionnaires that will be created and distributed to the main target market but not in the number and selected resource persons. This research finds that the mobile application is deemed appropriate to be one medium that can distribute effectively and efficiently in promoting one of Indonesia culture, Balinese mask.

Keywords: mobile usability, mobile application design, mobile content, cultural art, art promotion, Balinese mask

INTRODUCTION

These days, it is important to preserve the Indonesian's diverse culture so that it will not claimed or be recognized by other nations, which indirectly it can make Indonesian society lose identity. The irony of some of the last few years' events, the cultural identity is being taken and recognized by other nations or difficult to find the right information can be trusted. It happens because of the lack of preservation and dissemination of the culture inherited from the old days. The absence of real effort on a large scale from all the Indonesian people to keep these cultures "exist". Culture is the identity of a nation that cannot disappear because it will affect many aspects. Culture has the order value of human life as a complete human with the ownership of thought and sense. This is supported by the culture expert opinion, Koentjaraningrat (1974) that has said, "Culture is the whole system of ideas and taste, actions, and the resulting work of man in society, which is used as theirs with learning."

Humans have more value and unique identity due to having a strong cultural root and also have a cultural order that departs from the roots of a culture that are maintained for a long time. Humans cannot just create a new culture or a rich contemporary culture without having the previous cultural heritage that is no less rich as well. From here, the task and participation of the society to preserve and introduce the culture or their identity must continue to be implemented tirelessly.

Introducing the culture is not only to the environment and the recipient generation but also to the world because in the development of globalization and the information networks era that is connected at this time. The world has become one and anyone can know something without any obstacle or restriction from any party.

Bali has long been one of the tourism destinations in the world since the Dutch colonial era in Indonesia; Bali has become a tourist area. The concept of Cultural Tourism emphasizes the processing and development of culture-based tourist attraction in improving the regional economy of Bali (Picard, 2006). A few ideas begin to introduce performance arts that are specific for foreign tourists. With a base of sacred dance that is danced in the temple, taken from the sacred realm, and performed on the stage performances as entertainment. This has become the model of development of Bali tourism to this day. Although it had experienced a period of decline due to the Bali bombing incident in 2002, Bali tourism continues to survive and starts to rise again until today. According to Central Bureau of Statistics Indonesia (2008), Ngurah Rai Airport is the largest gateway for foreign tourists and it continues to increase. This shows Bali is still a major tourism destination for Indonesia.

Based on the Bali Tourism Office (2012), the highest number of tourists by country of origin is still dominated by Australia and followed by China, Japan, Malaysia, and Taiwan. From the data rating of the Top Ten Island by Travel and Leisure magazine (2012), Bali is ranked as the second. Bali includes in the ranking of the Best Destination, Traveller's Choice 2012 by Trip Advisor that was placing Ubud in the rank 14 of 25 tourist destinations. It is interesting that the sub-district level scaled Ubud can compete and juxtaposed with the big cities like Taipei and Tokyo. This shows that Bali is known enough in the worldwide society. Balinese culture that has been popular in foreign countries is considered appropriate as the culture that used as a case study to be placed on the new media chosen.

Globalization, which has been going and growing since the 1970s, is still growing and the development tends to accelerate. Currently, in terms of information delivery media, globalization has entered into the stage of New Media. There have been several new media that is slowly but surely will replace the once major media that support globalization era such as print media; magazines, newspapers, books, pamphlets, and so on. Although today the term new media is considered less appropriate because there are so many new media emerging, it has always been a reference to explain the new media (Creeber & Martin, 2009). New media that are widely used currently by the general public are all the media connected to the Internet. However, this discussion does not stop on what the new media is, rather to how is the relationship of new media to society as the user in this modern era. Especially in terms of preserving the conventional and traditional cultures where the cultures are presented through conventional media. And what is the effectiveness when information about these cultures presented in the new media? Why the new media is now considered to be much more effective than the conventional media, especially if associated with its target market.

From many new media, the mobile application is one of the new media that has developed very fast these days. Since the emergence of smartphone and portable tablet device, the features of the internet have a new formation; one of them is mobile applications. Filippini-Fantoni and Bowen (2008) have said, "The use of mobile devices is increasing dramatically in the cultural and museum sectors". A feature can be uploaded online and presents the very diverse information ranging from education, games, and entertainment. Mobile applications become very appropriate media at this time to become a primary tool in terms of enriching culture knowledge because nowadays the use of mobile applications is growing very rapidly. Although statistically internet browsing experience is still going to be a habit that will continue to be made, the use of mobile applications is a very promising new industry (Dawson, 2010).

Nowadays, most people have accessed the digital world in daily lives. The mobile technology had changed the way how people use to do in searching information (Ceconello, 2012). Mobile applications become an important platform because mobile phone user from year to year has increased

significantly. Public awareness towards this platform is even higher because nowadays the daily activities of the people in the world already cover surfing in cyberspace using some mobile applications.

To create mobile applications that are ready to present the selected cultures cannot be separated from the design science specializing in the process of designing mobile applications properly. This science is relatively new developed along with the development of mobile applications itself. Design science, in general, can be applied to the new media because the principle of good design, especially visual design has the same principle. In the discussion of the future development, it touches on the visual character of the culture that will be presented and will be associated with style design. Style design needs to be concerned because it will be very influential in terms of developing the suitable design to present cultural diversity. It also can affect the target market intended for users of the mobile applications. Each of the groups of the different target market, of course, will have a different flavor to a visual exposure. For it, what style design will be chosen should also be noted later when a process of design.

When the style design is selected and manufacturing process design has been started, in outline, in designing mobile applications, there are two main things that must be considered. The first is how to design a good design interface and the second is how to create an appropriate user experience on the intended target market.

Design Interface is an important thing because mobile applications have a special design science that can only be applied to a media device that can access mobile applications such as mobile phone or tablet device. In terms of the design process, it must have good considerations, especially when the ornament chosen is Balinese Mask. The ornament that inserted into a layout and how the layouts will convey the information properly and appropriately. Moreover, every developer of the mobile phone has its rules in making a design interface. To become a prototype, this time, it takes one of the platforms from software iOS 8 of developers Apple Computer. There have a few things to consider to make a good application display, according to the standard, and deserves to be distributed in their application store.

In the subject of user experience, mobile applications must be able to address the limitations of existing media when conveying information of a variety of Balinese masks. In the term of navigation, from the beginning, the user opens the application, browse all the information in the applications until understanding all the details that exist on the Balinese masks. It must be designed in such a way so that the experience to browse the information feels easy, but in the end, when the user closes the application, they can remember all the information they have seen. In the process, the design interface and user experience is certainly should be able to answer all the needs of the target user. After the design process has been completed, generally in making an application, a beta version of the application will be launched. There will be a follow-up process to assess whether the application can answer the needs of the target user or there are additional things that can be the instruction to quickly complete this application.

METHODS

This research is initiated through a series of recording of a variety of Balinese masks. Recording using the medium of photography is expected to be able to record every detail of decoration that cannot be obtained simply if only relies on the study through literature and online media. Surely there will be discoveries in the field, which technologically can be captured properly by the recording medium of digital photography.

From the result of the record, the raw materials will be obtained to be translated into a digital visual form that will be created as the mobile application. This mobile application is what will be learned when the main target market interacts with all the features that will be designed later. Some of the selected research methods to study this interactivity process are as follows.

This process will complete the three stages to be conducted over the next three years which will be a complete research. For the first year of the study, the research team will focus on collecting data stage and preliminary process for the app development stage. The following are the design of three phases which will be conducted by the research team to create apps that are active, can be tried and concluded in a user testing scenario. Table 1 shows the framework of this research.

Table 1 Research Framework

Field Research	The field research is the direct visit to the site of Balinese Mask artisans at Rumah Topeng and Wang Setia Dharma, Kubu Bingin, Gianyar, Bali to documenting and study the physical of the Balinese mask. These two places are chosen because they have the complete collection of masks and have a representative resource to find out more about the Balinese masks and how its progress to this day. During the visit, all forms of the visual and verbal form of conversations and interviews will be recorded.
User Testing	Once the data have been collected, both written and visual will enter the design stage to be used as mobile application. Mobile applications will go through graphic design stage and construction of Apps. After this mobile application ready, it will be distributed free of charge to the selected target market to be taken its sampling data that can be used as research material for the use of mobile application interactivity.
Qualitative Research	Included in the user testing, but only collect data sampling from some of the selected target markets in limited quantities. The target market will then be made a kind of focus group to invite then later to do an intense discussion about the mobile application interactivity. It is hoped that in this discussion would obtain the supported data that are good and complete on how the mobile application has touched an everyday lifestyle of society and could be a good tool for the purpose of preservation of the culture of Indonesia.
Quantitative Research	Questionnaires will be created and distributed to the main target market but not in the number and selected resource persons. This questionnaire will find the general data and also can represent the general opinion. General opinion if the data is properly taken would be able to support the study of mobile application interactivity in society's daily life. Also, if the qualitative and quantitative studies were collected together, it is hoped the findings that will appear to be a result that can be justified and in accordance with what is happening in today's society.
Summative Research	In the long term, if the application is completed, the quantitative and qualitative research completed, research to the target market will still be run by the last method that is summative. This method is executed last due to seeking the unexpected discoveries that could be the additional data to enrich the research results. The target market is expected to continue to use the mobile application simultaneously within a period of time and then provide feedback that can be assessed qualitatively although collecting data using the quantitative method because the data can be obtained from anyone using the application.

RESULTS AND DISCUSSIONS

The writers' team does an interview and observation in Studio I Wayan Tangguh, a craftsman of Balinese mask, BR Mukti-Singapadu-Gianyar-Bali. At the time of the survey, documentation is conducted in the form of the photographic and oral interview with Mr. Kodi, who is the son of Mr. I Wayan Tangguh. Besides, the writing team also visits the Setiadarma Museum, House of Mask & Puppet that located in the Banjar Tengkulak Tengah Kemenuh Village, Sukawati, Gianyar, Bali. The survey that carried out is only in the form of photographic documentation to support additional research data and a bit of a brief discussion with the manager of the museum, Mr. Agustinus Prayitno about how the importance of preserving culture, especially for young people and what are the obstacles for cultural preservation.

In the daily lives, the word *topeng* (mask) can be interpreted as a face cover. The meaning of face cover here is to hide the identity of the mask wearer so that it becomes a new identity. Mask as a face cover can be seen from the formative meaning of language (word formation); the word *topeng* (mask) is derived from the *tup* that has a meaning of *tutup* or cover (Dibia, 1994). Mask is a human work of art that is created as a new facial expression that is used in a show. It can be concluded that the mask is a work of art in the form of "face" of human or animal as a face cover, and it is an important element of the dance or drama of mask dance (Suardana, 2008). The existence of mask art in Bali has grown since prehistoric times, but it is uncertain when the Balinese began making masks and use them in the performing arts. The corroborating evidence that the Balinese mask has existed since prehistoric times is the presence of Bhairawa statues in the Kebo Edan temple and Catur Kaya from Pejeng that describes the reliefs dancing using a mask. Other evidence that suggests the development of mask dance in Bali is the inscription of Bebetin that made in 818 Saka or 896 AD, who wrote the word *pertapukan* which has the same meaning as the mask.

The making process of Balinese mask is still somewhat unique. Apart from having to see the date to start the mask process, the wood used also cannot be picked carelessly. Pule wood, Jepun wood, Bentaru wood, Jaran wood that commonly grows on the beach, Dadap wood, and Kepuh wood or Rangdu are the woods that often used to make sacred masks that have to go through various ceremonies processes. The reason for the wood to be used is for its light texture and porous, so it will quickly be possessed by spirits or ancestors' spirits. In addition to the wooden materials that are carefully selected, also the time process is adjusted to the ritual, and the way the wood is carved is no less unique. It is believed, the wood carving process by holding the wood using foot is the only one in the world. The log to be carved will be placed on a table or the like. While in Bali, the sculptor commonly sits on the floor and holding the log using legs, so both hands are free to sculpt the wood.

But over times, the mask for the commercial purpose has begun to be done by craftsmen for the needs of domestic and international markets. The time needed to create a mask is around two weeks to one month. The wood used does not have to be a sacred wood as described above. For inspiration to create the masks is usually derived from the everyday life character by the mask craftsmen or take an existing key figure such as Adipatih Gajah Mada. Wood that has been cut to size then begin to be imagined a sketch of the face that will be designed. Usually, the craftsmen have already etched in their mind the mask design to be created. The tool used is simple that consists of several kinds of blades for cutting, shaping, up to gouged out of the wood. Once the basic shape already created, the making process in detail is started gouged slowly by the craftsmen. Unlike some countries, typical of Balinese mask processing is done on the floor with the help of the foot to hold the wooden foundations that will be gouged. Figure 1 shows the making process of Balinese masks.



Figure 1 The Making Process of Balinese Mask

After that, the finished mask begins the coloring process. Traditionally the colors used to decorate the mask are using natural ingredients that are believed to be more durable color. Usually, for a sacred mask is still using traditional materials consisting of pork bone for white, coconut charcoal for black, and *kencu* for intense red color. Although the price is higher because it is difficult to get, until now the natural color is still sought after and used to maintain a natural impression of a mask. It can be seen in Figure 2 and 3.



front side

Figure 2 Rough Mask (front side)



using kencu

pork bones

coconut charcoal

Figure 3 The Traditional Dyes

The masks that have been dyed and then they are dried in the sun. In the last stage, the ornaments or accessories start to be attached to increase the wealth of detail on the desired character like the mustache, crown, until the ears. The materials also use natural stuff such as cow leather for ears and horsetail for mustache or eyebrows. The interesting fact from the attachment of these accessories is they do not use glue but connect it with bamboo, yarn, or other natural materials. The craftsmen do not use nails or glue because they think it will damage the durability of the mask itself. Rust is one thing that should be avoided for the durability of the mask. The mask that has finished is ready to be sold on the market or to be used for religious rituals and dance performance. Debondresan Dance, which is a dance that is usually used as an opening dance show or dance performers in a Hindu ceremony in Bali, uses masks when its performance.

In the next stage after the observation process is completed and the data that needed for the production of mobile applications have been completed, then the preliminary design stage will be carried out. Preliminary design stage includes two main things, they are the stage of determining the sitemap and wireframe. The two stages are more focused on the value of user experience of this

mobile application. Before entering the design interface stage, these two things must be designed properly so that the applications become more compact and easier when the target user will do the search process.

In creating an interface design for mobile applications is certainly not the same application when creating a website. Although current technology makes it possible to have a high enough resolution to full HD, with the size of smartphones or portable tablet device that is smaller than the size of a computer monitor in general, the approach of the user interface should be different. Before entering the stage of the user interface, it must first translate the data that will be communicated to the user in a sitemap. The sitemap for the mobile application will be divided into three main pages that are the page of about, rituals, and dances. The information will be centered on the rituals and dances pages because it refers to the types of masks that are made tailored to the making purpose that is for the needs of rituals and dances.

With so many kinds of masks that will be presented, then the layout of the sitemap will be long downward linearly so that later it is expected that the target user will see any masks one by one. If the user wants to find out other information can simply press the home page button. The sitemap can be seen in Figure 4.

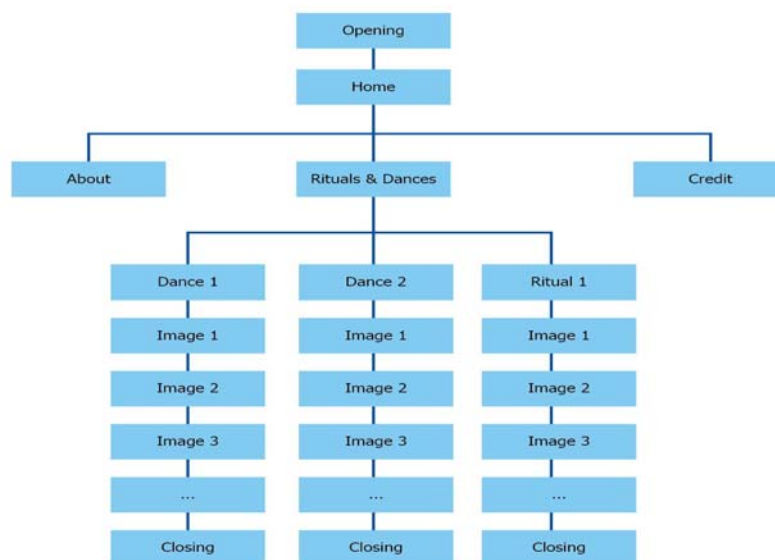


Figure 4 Sitemap

The wireframe is the preliminary design stage before going on the stage for the creation of visual works for its interface display. In this stage is specified the layout of a page by page corresponding with the predetermined sitemap. The focus of the layout is the need to accommodate the visual needs and verbal communication of information simultaneously. Visual accommodates the results of photos that have been made so that the users will be able to see with clarity and detail every mask ever made and can admire the variety of its decoration. Verbal accommodates all the information that supports the photo. Of course, the user will not only be satisfied to see the photos.

They also have to know what the details behind each mask are. So that, it is expected that they will become more knowledgeable about Balinese masks, not only its form, but also the stories attach to each of the masks. The wireframe itself can be seen in Figure 5.

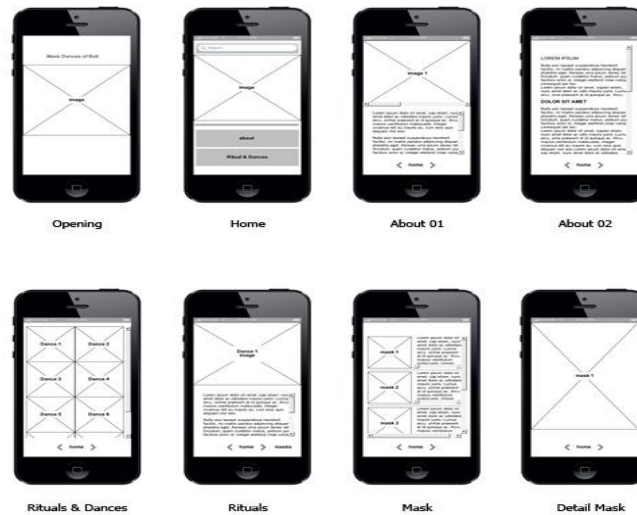


Figure 5 Wireframe

In this stage, it is quite clear that later the proportion of the visual content is more dominating than the verbal content. The purpose of this step is due to the design of the Balinese mask is very rich with ornaments that are certainly very interesting to be seen by the target user. Enjoying a treat of the attractive, beautiful, good, and stunning visual should become an attraction of any arts and culture that will be introduced. With all the space and limit from the medium of a smartphone, it must be utilized as much as possible to remain able to maximize the visual presentation of every detail of ornaments from each of masks.

After the wireframe stage is completed, before going into the design stage, there is a need for design planning stage. The major stage form is begun to enter the stage of sketches and layouts. Sketch to determine how adequate a mask can be informed on one screen page, as well as other important data in addition to images such as buttons, titles, and subtitles to the verbal content. After going through the sketch stage, it enters the stage of the design making. In the design making, this time is using two alternative designs with two different approaches; they are the approach of the contemporary design and a classic design approach. These two approaches are taken to answer the needs as limitations of the smartphone display screen.

As mentioned before, technologically, today the smartphone screen technology has been able to represent the level of color accuracy and detail in accordance with the physical form. But, the size of a smartphone is still a handful, so that any detailed of the image results that can be presented, remain physically challenging for the eyes to take more concentration when compared to see the computer screen in general. For that, it needs to be explored and assessed whether two different design approaches can represent well every detail of the Balinese mask that wants to be told in this application. For contemporary design alternative, an approach that is common to be done because the greatest operating systems that are iOS and Android always advise developers to follow their design guidelines. Latest design guidelines of iOS8 and design guide for Material Design, in general, are a guide to producing the contemporary design. This guide in broad outline is to accommodate a good User Experience so that the purpose of the application can be successful because well targeted for the intended user.

As for the design of the second alternative is the classic approach, it is necessary to be able to continue the spirit of the classic design of the Balinese Mask to be applied to the design display of the application. Does the classic design can be more successful or not, later will be done the advanced studies in the last stage of the research which is the stage of User Testing.

In the design process will be explained more detail about the results of the design that has been done by making as many as two alternative designs with different concepts which are contemporary design and classic designs. Visual of the application must be able to deliver a sense of Balinese culture itself. The colors of the masks, costumes, and dances can be a basic reference for the design. Besides that, the traditional Balinese formations could also be used so that the sense will be stronger. But it must also be noted that the ease and simplicity of use of the application will not be disturbed. The balance between 'sense of culture' and easiness of 'user experience' will produce the good overall design.

Poleng pattern as a visual reference, black and white pattern (chess) is a Balineseness fabric. *Poleng* fabrics can be found on almost every corner in Bali, such as in the temple, statues, clothing, and so on. *Poleng* fabric philosophical meaning is a reflection of good and bad energies (dualism), known as *Rwa Bineda*. *Poleng* cloth is used as a guard symbol. *Poleng* pattern has a very strong visual characteristic; people easily associate it with Bali. It is also simple in shape, so it is easily combined with modern design. With a colorful mask visual, the use of black, white, and gray as the color of the *poleng* pattern as the support color confirms the visual power of the masks. It becomes fit with the colors that seen on the costumes of the characters such as Merdah, Tualen, Hanoman, Bima, and the others on the Balinese mask dance. Figure 6 shows the result of alternative design 1.

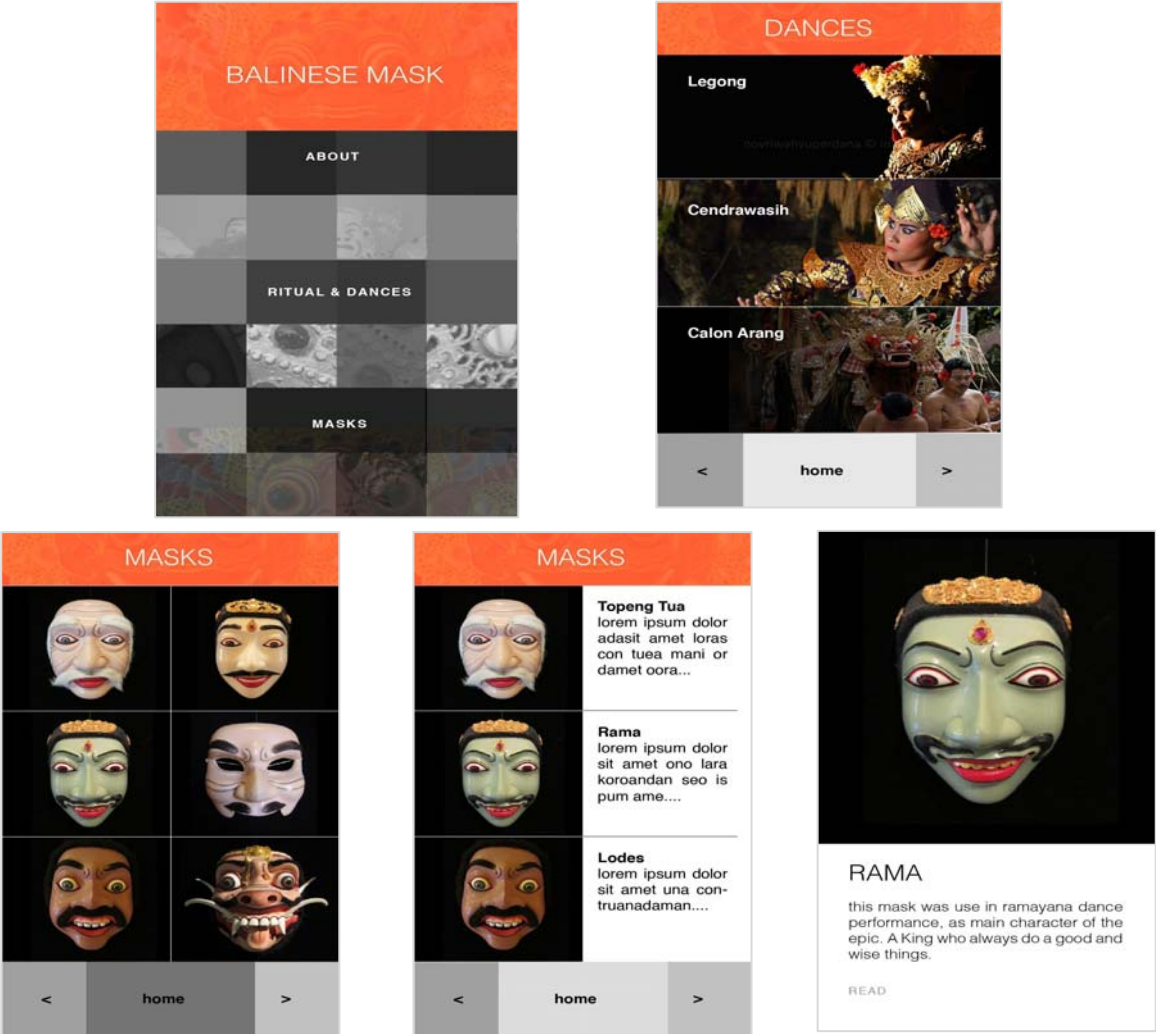


Figure 6 Contemporary Design 1

In the second visual references, the design approach is the classic style minimalist. The use of this design style is done with a classical art approach in which at that time the art was developing from need and belief. Where the early development of the art was based on the cult of ancestor spirits then shifted to understanding the worship of the gods. Classical art that grows in Indonesia based on Hindu and Buddhist beliefs. Hinduism believes the gods give birth to the embodiment of the worship of the gods. Brahma and Shiva are one of the gods embodied in the statue based on Hindu society's belief. Usually, the king who leads a group is also regarded as an incarnation of the god, so it is possible for a king to be made its statue. Until now, Bali, which is a region where the Hindus are the largest in Indonesia, is still continuing the tradition.

Based on the above considerations, to support the overall look of this mobile application visual reference, the minimalist layout is chosen to perfect it. In addition to supporting the aesthetic which is based on classical art, the minimalist layout also allows for a user-friendly platform. So that, it is easily accessible with the warm colors display and the dominant use of white space. This helps to the make the app as accessible as possible, especially for physically challenged or older people who may have difficulty using technology (Bowen, 2005). The selected color represents the classic impression or 'oldest'. But it is possible that the selected color gives the impression of a friendly and characterizes the Balinese classical culture based on the long history of Hindu. Classic colors are identical to the colors of the soil or earth if traced the color range between light brown to dark orange. The color scheme of it can be seen in Figure 7. While Figure 8 shows the initial sketch alternative for the mobile application visual reference.



Figure 7 Color Scheme

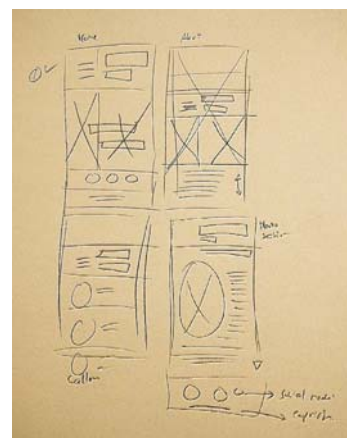
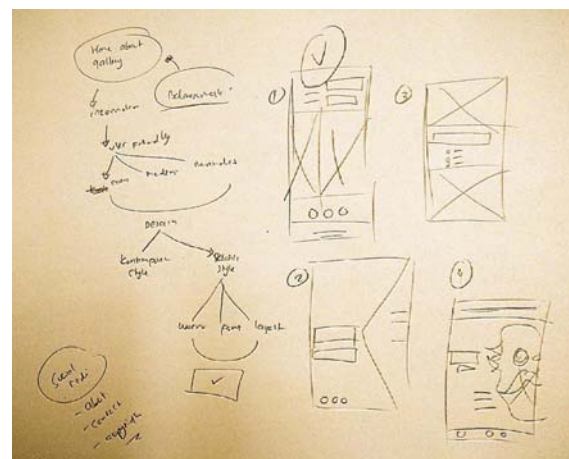


Figure 8 Initial Sketch Alternatives

Besides the use of the right color to represent the classic color, the simplicity of the layout that maximizes the empty space also helps to build a classic atmosphere. The font used is divided into two, serif and san serif. It is done to bring the classic impression that can be captured quickly by the target market; the young generation. The selection of the font also is not excessive, taking the fonts serif and san serif are common but still look neat and update. Overall, the final visual display that is created not only shows the aesthetic for physical needs only, but also pay attention to the mood or atmosphere that made up of all the applied graphic elements.

The following will be presented the results of alternative design 2. This sketch stages up to the final draft for the modern classic visual to facilitate the reader to understand the flow of the design presented. It can be seen in Figure 9.



Figure 9 Selected Layout with Its Interface

CONCLUSIONS

Balinese mask is a unique work of art of Balinese. The work of the hands and sense of Balinese with the beliefs, customs, and traditions, they make the shape and results to be different and has its characteristics. With the making process that 80% cumulatively still use traditional techniques such as the use of dyes and adhesives from natural ingredients that are still maintained until now, the Balinese mask has the advantage that is eligible to be appointed as one of the icons of Indonesian art and culture to be introduced to foreign countries.

Regarding spreading information about the art and culture of Indonesia, of course, there are several methods and ways that can be used. The mobile application is deemed appropriate to be one medium that can distribute effectively and efficiently. The mobile application is a new medium and its use on the internet makes it a medium that is capable of distributing information from any field in a short time and distance of the spread is very wide. Ornament designs from Balinese mask are very interesting, detailed, rich of carving, and majestic. In the case of interest of a mobile display application, these ornaments should appear clear and detailed so that the target user intended not only getting to know the information related to Balinese mask but also can just enjoy the results of the visual that have been created by artists of the Balinese mask. For that, the user interface, in its design later should be able to prioritize the maximizing of images in the layout design of mobile applications.

Smartphone screen technology already is quite adequate and good for the exposure of the designs of Indonesian art and culture. The technology has been able to represent well the physical condition of the art without any reduction in quality when transformed into a small screen of the smartphone. In the preparation of User Experience, there should be some considerations that should be done especially in designing mobile application; the simplicity of navigation becomes the main. The level of complexity must be low because space for visual exposure tends to be linear, it cannot be in parallel two or more, visual information presented in a page layout. Layout design of mobile application still has limitations regarding the spatial space where the size of smartphones tends to be long that of course would have some difficulty. The difficulty is obtained especially if using a case study of Balinese mask that has the magnificent design, not all of the design work can be presented properly and optimally.

The very new appearance of mobile applications will always adapt and evolve to become the perfect form. The hope is that when the media is growing, preservation of traditional arts and culture should also be able to participate or assimilated to the development so that its conservation measures are not only made of individuals, but it has become conservation measures undertaken by a large group of organizations.

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