

Indonesian Cultural Preference in Designing User Interface

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Abstract. Interface design is the first thing users can see when accessing website. First impression is presented here. If they feel interested, users will continue exploring website. But, if they feel not interested, users will leave website with negative impression. They will be reluctant to access the website in the future, because the first impression is not good. In order to design good and interesting interface design, there is no particular methods can be used to absolutely measure it. Measuring the interface design is closely related with the domain of social behavior. Each user has different perspective, which means has different taste of design. So far, there is no existing method that can be used to measure the taste of interface design accurately. Interface design tend to be measured subjectively. The only way to measure interface design is use usability principles, which is tend to focus on the interaction not to the interface design itself. Indonesia has there are 1331 tribes across the country which are have unique and richness of cultural ornament. Their ornament has known well by people because it had been applied into their various kinds of product, such as carving, clothes, and house. Finally, the purpose of this research aim to provide new idea about cultural preference in order to design the interface. At the end of this research, we offer methods which can be used to ensure the interface design based cultural is met with the usability principles.

1 Introduction

Interface become the first things that users can see when they are interacting with the systems. Unfortunately, users which are accessing systems are come from different socio or cultural background. Therefore, cultural aspect can be considered in the designing user interface [1] In dot net era, there are a lot of information that will be accessed utilizing systems, especially website. Website is special because it can be accessed by heterogeneous peoples, across countries and cultural boundaries. So far, generalizing Interface that is designed do not consider local wisdom yet. In order to introduce something regarding local wisdom, cultural aspects should be considered to be implemented [2]. The reason why cultural-based interface design must be considered to be applied, because different user has different preference of design and perception across the countries [1, 3]. So, it is very interesting to discuss about these issues in the rest of papers. In fact, cultural preference is less considered to be used by designer. Designer may believe that good design should be proven well against the principles of design. Aside from those principles, designer may set aside them. Whereas, several industries such as Electrolux, General Motors, and IKEA had experienced on failed production due to missing the cultural aspect on their products [4]. In this paper, we take examples on the official website of Indonesia local government. Why local government website? Because local government

website expected able to represent the diversity of social culture. In Indonesia, there are diverse range of social culture. Each culture has special and unique characteristic. According to BPS (Statistical Center of Indonesia) data in 2016, there are 1331 tribes in Indonesia [5]. Each tribe has its own unique characteristics, such as language, ornament, belief, ceremony, carving, clothes, etc.

Based on that fact, it is interesting to discuss and attempt to relate between tribe characteristics and interface design of website. Specifically, how to apply tribe characteristics into interface design of local government website. Each of Indonesian tribe goods have unique ornament, pattern, and staining, so it is appropriate to be used as case study on this topic of research. Reinecke and Bernstein had revealed on their study, Asian websites contains more multimedia elements, such as animation and staining. Otherwise, European websites contains less multimedia elements, but the information which is presented is more structured [2]. This conclusion shows that each region has potentially different taste of design. There are a lot of website in Indonesia has not implemented cultural preference into their interface design yet. Surely, this not aligned with the richness of tribes in Indonesia. Even though, cultural preference that is implemented into interface design hopefully can attract users feeling. The feeling expected can influences users when measure website. This study aims to provide another point of view about the interface design of website. Each Indonesia tribes has a lot of resource to be implemented into interface

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design. One of the example, Batik is one of the Indonesian cultural heritage that is famous in this country. Batik has interesting and diverse style in their pattern. It is potential to be used into interface design. If those cultural resources are utilized, it is expected that the local wisdom can be seen by users when accessing website. In 2002, McSweeney criticized about the generalizing of the interface design, which treat them equal in wherever location [6]. Specifically, contribution from this paper is trying to gain another point of view in order to design the cultural-based interface of website.

In the rest of the papers, we divide into several sections. First section, we provide the objectives and limitations of the study. Second, we provide some literature studies which has relation to the issues of the relationship between cultural preferences and interface design. Third, we discuss about the result of the literature studies. Forth, we discuss about the cultural preference that exist in Indonesia and its potential implementation. Last, we provide conclusion based on whole discussion, then it is closed by future works that is give recommendation to increase the empirical evidence related to the results obtained from this study.

2 Objective and Limitation of Studies

This paper is just an early part of the study that should be broader in the future. The scope of study in this paper not specific on the technical discussion, such as what methods to be used to apply cultural preference into the interface design. In this study, focus lies on the ideas about how cultural preference is related to the interface design. In this study, official local government websites are used as case study. Why official government website? Because there are 34 official government websites in Indonesia [5]. Each website represents each province where one or some tribes are living. The discussion of this research begins with the literature studies of previous similar research about the advantages of cultural preferences. Those literature studies can be used to formulate the problems. Next, we discuss about the potential relation between cultural preference and interface design. Indonesian tribes are used as case study. Indonesia is a country that has a lot of tribes. Each tribe has richness of cultural tribe. The richness and potential ornament then discussed and can be applied into interface design. This research hopefully become the initial discussion that is expected to be a trigger on the future study. This study was closed by a brief discussion of the principle of usability. A brief discussion about the principle of usability is used to accommodate the part of doubt regard to the result caused by this study. Usability principles tend to be considered to ensure the usability of website is maintained.

3 Previous Studies

There are a lot of papers discussed about the relation between interface design and cultural preference [1-4, 8-9]. Based on Hostfede (2010), culture can be defined as the collective programming of the mind that distinguishes the member of one group or category of people from others. There are several culture meaning refer to, they are tribes or ethnic group, political or social menegement, and organizational [7]. Indonesian tribes have resources to be used in this study. Based on Lee and Harada, cultural preference can be considered to understand the cultural behaviour of users [8]. So, cultural approach is expected to be used to attract user's attention. Cultural dimension should become necessity to be applied into the theory and practices of interface design strategy [9]. There is similar result about the cultural preference on the interface design conducted from several studies before. All of those studies said that there is relevancy between the cultural aspect and the interface design. Those results are expected to represent results in other similar studies that can not be presented in this papers. So far, there is no existing method that can be used to measure quality of the interface design accurately [10]. Difference culture means difference users behavior. Difference user behavior means difference preference of design [11]. Although it is related, it does not mean it has positive impact on the usability [8]. Only a few studies stated that cultural preference has positive relationship on usability [2]. So, there are still some disagreement about the usability impact on the implementation of cultural preference. Moreover, interface which is designed based on cultural preference can perceived as more attractive. Interface based cultural preference can attract users where come from certain regional.

4 Indonesian Culture and Interface Ornament

There are 1331 tribes or ethnic groups in Indonesia. Different regional, linguistic, and country are strongly effect on the way they measure interface design [3, 4]. Those tribes have unique cultural patterns whereas implemented into their carving, ornament, clothes, etc. Such as Batik, one of the most popular cultural heritage in Indonesia. Batik has unique pattern that is implemented in several usage, both formal and informal need. Based on Callahan (2005), provided three cultural aspects of user interface, they are staining, navigational support, and information density [3]. Two of those three aspects, staining and navigational support, can be accommodated when implemented cultural preference on Indonesian tribes. Example of the navigational support adopted from the

Javanese culture can be seen in Figure 3. Javanese is one of tribes in Indonesia. Staining, can be seen in almost all cultural style, such as Batik as we can see in Fig. 1 (credit to www.welovesolo.com/tag/batik/) [12].



Fig. 1. Example Ornament of Batik

In Indonesia, majority of the entire websites, whether private or state, have not implemented their local culture into their websites. On the Table 1, shown the list of the official government website. This data is taken on January 2018.

Table 1. List of Government Website and Its Characteristics

Name of Province	Symbol of Culture	Scenery of Culture
Aceh	No	Yes
Bali	No	No
Banten	No	Yes
Bengkulu	No	No
Gorontalo	No	Yes
Jakarta	No	Yes
Jambi	No	No
Jawa Barat	No	Yes
Jawa Tengah	No	Yes
Jawa Timur	No	No
Kalimantan Barat	No	Yes
Kalimantan Selatan	No	No
Kalimantan Tengah	No	No
Kalimantan Timur	Yes	No
Kalimantan Utara	No	No
Kep. Bangka Belitung	No	Yes
Kep. Riau	No	No
Lampung	No	No
Maluku	No	No
Maluku Utara	Cannot be accessed	
Nusa Tenggara Barat	No	No
Nusa Tenggara Timur	No	No
Papua	No	No
Papua Barat	Cannot be accessed	
Riau	No	No
Sulawesi Barat	No	No
Sulawesi Selatan	No	No
Sulawesi Tengah	No	No
Sulawesi Tenggara	No	No
Sulawesi Utara	No	Yes
Sumatera Barat	No	No
Sumatera Selatan	No	Yes

Sumatera Utara	No	No
Yogyakarta	Yes	Yes

There are three indicators used, they are official government logo, symbol of culture, and scenery of culture. Almost every province places official government logos. Symbol of culture means there are some ornaments, such as logos, buttons, which adopted from cultural aspects. Scenery of Culture means the design implemented cultural preference on their theme, such as background, language, and sound effect. As we can see in Fig. 2, official website of Jawa Barat who has implemented cultural preference almost comprehensively. It has implemented scenery of culture on its interface design, but has not implemented the symbol of culture perfectly.



Fig 2. Jawa Barat Government Website

In the Fig. 3, the official website of Yogyakarta shows informal impression. They has implemented both symbol of culture and scenery of culture almost comprehensively. As a tourism city, the website of Yogyakarta is already capable of presenting their local culture when access by visitor. Another region also has a lot of cultural richness. There are diverse of ornament that can be used. For example, Jawa Tengah has a lot of cultural ornament that potentially can be used, such as Prambanan Temple or Borobudur Temple. Papua Barat, as an area where is well known for its amazing natural tourist destinations, such as Raja Ampat, they can implement their nature landscape into interface design of their website. Another advantage of the implementation of the cultural preference is to gain tourism purpose. Just by access website, users can feel the impression just like being in the city.



Fig 3. Official Website of Yogyakarta Government

Whereas, there are some cultural preferences that can be applied into the interface design. A Javanese scenery can be implemented to give the impression of local culture on the interface design of the website. For

example, this scenery can be used as background of the website. In Fig.4, Javanese alphabet or we can call it *Aksara Jawa* is used to welcome the visitor when homepage is first appeared.

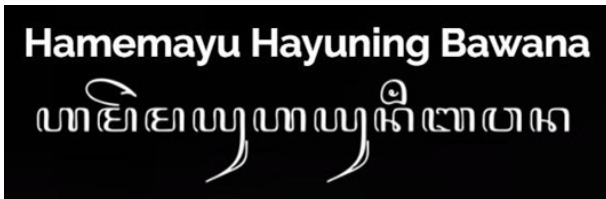


Fig 4. Utilization of *Aksara Jawa* on Interface Design

Some of cultural symbols can be used to replace previous commonly elements. Commonly elements used in website such as *Home*, *Navigation*, and *Back*, can be replaced using ornament based cultural. As shown in Fig. 5 (Credit to <https://www.pinterest.com/pin/530510031084835341/>) [13], the analogy on the left is *Home* (general) can be replaced by the *Home* on the right (cultural).

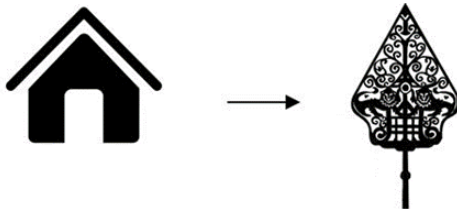


Fig 5. Home Analogy Can Be Replaced By Cultural Ornament

Furthermore, expression of language can be used to enhance the scenery of culture aspect. In Table 2, we can see example of expression on Javanese language that can be applied into design.

Table 2. Example of Javanese Expression

Conventional	Cultural Based Language
Welcome	SugengRawuh
Thank You	MaturNuwun

5 Usabilities Issues

In order to apply cultural preference into interface design, usability aspect is a defiance. ISO 9241-11 defined usability as the capability of the system being used by users [14]. Based on previous research, it was said that the implementation of cultural preferences does not guarantee it will improve the usability of website [8]. Therefore, it is important to consider the aspect of usability in order to implement cultural preferences in this study. It is useless, if the cultural aspects are successfully implemented, but the aspect of usability is ignored. In usability study, there are two approach that we can use, they are cognitive walkthrough and heuristic evaluation. In cognitive walkthrough approach, users are the key. Users will always be involved in every design process. Users, in this case are person who understand about the culture who living in place where the cultural preference is located. For example, person who live in certain

location with similar culture will communicate in similar language. Daily, they are uses similar language, even though they are using national language (Bahasa Indonesia) in formal business. Furthermore, expert used in heuristic approach are humanist and interaction designer. Humanist actively involved in the design process. He asked to ensuring the ornament remains in line with the intended purpose. He works together with interaction designers to apply ornaments into the interface design. So, it is expected that ornament of the interface design is accordance to the cultural philosophy. In other way, heuristic evaluation can be used to measure the usability of website using design principles. One of the most commonly used is Nielsen's Heuristics [15]. Based on Quinones and Rusu, after reviewing 73 papers, they have stated following methodology:

- (1) Determine specific features of system
- (2) Identify existing sets of usability heuristics
- (3) Specify new set of heuristic based on standard template
- (4) Validate new set of heuristic

Several ordinary elements which are replaced by cultural ornament potentially confuse users. Some ornament may seem unfamiliar with users at the first sight. Design principles can be used to guide interaction designer to design the interface fulfill the usability principles. Cognitive walkthrough and heuristic evaluation model are related closely to user-centered design (UCD). In UCD, observation is very crucial phase. The deeper we understand users, the more we can obtain good result. In this case, the more we understand cultural preferences and its ornament philosophy, better results hopefully we can obtain. ISO standard divide into several terms as follows [14].

- (1) **Goal** - what is the goal to be achieved. Relevant Goal for this research is to replace recent website interface into cultural-based website.
- (2) **Personas** - is the person who understand and involved in the design process. Community of person who located in similar culture can be select as cognitive walkthrough respondents. Humanist can be selected as heuristic evaluator to ensure interface design match against the rules.
- (3) **Effectiveness** - the accuracy and completeness of Personas while achieving Goal. Cultural-based interface should guarantee users of being not confused. There is some unusual ornament used, so it is potentially confused users.
- (4) **Efficiency** - resources expended in order to achieve Goal. There are a lot of cultural ornament potentially used in the interface design. So, the utilization of ornament such as logo and image should be restricted. High quality image will impact on higher size of image.
- (5) **Satisfaction** of Personas while interacting with website in order to achieve Goal. Cultural ornament aims to lure users.
- (6) **Context of use** – analysis of the tasks, equipment, physical, and social environments.

If those six principles are met, we can say that website has good usability. Cultural preferences do not directly

affect usability. Good implementation on cultural-based website does not mean it is good in usability principles. Otherwise, good implementation on cultural-based website does not mean it is bad in usability principles. There are some interesting findings revealed from this study:

- (1) Cultural preference is not necessarily in line with the usability of website, but it is recommended to maintain local wisdom on local website.
- (2) Difference region has difference preference of design, difference tribe also has difference culture and diverse ornament.
- (3) This topic is just the beginning of the potentially bigger, so the concept and discussion in this research can be used as a trigger to the future work.
- (4) There are many and various cultural tribes in Indonesia, so it is relevant to be used as sample in this domain of research.
- (5) Cognitive walkthrough and heuristic evaluation can be used as guidelines to ensure the cultural-based website stick to the usability principles.

6 Conclusions and Future Works

User interface is the first gate of the interaction between users and website. Therefore, the design has important role in the way of luring and influencing users to continue using it and help them understand the information that is presented. However, it is rare for websites, especially in Indonesia, that implement their local cultural preference into their interface design. In fact, user interface is potentially capable of luring both beginner and advanced users. Cultural preference can make interface design more interactive to the users. However, the cultural-based interface design has no absolute relation to the usability. In Indonesia, there are so many websites, both private and government, have not implemented their local cultural preference into their design. Indonesia has richness and diverse of cultural tribes, which are each tribe has special and unique ornament. Some of these cultural ornament can be implemented to add local wisdom into their websites. But, this study has disadvantages, it has not proven empirically that cultural-based interface design can improve the usability of website. In order to implement cultural preference into design, we recommended to use one of these two approaches, cognitive walkthrough and heuristic evaluation. There are still so many weaknesses in this paper. This paper is still a small part of the discussion that should be broader. To obtain more comprehensive results, findings on this research can be proven empirically. On the future works, the result of this study can be improved by comparing two conditions. First condition, we can measure conventional design against the users. Second, we can measure cultural-based design against the users. Finally, we can compare the result and provide result empirically, whether positive or negative. Positive means cultural-based design is empirically providing good impact than conventional-based design. Negative

means cultural-based design is empirically providing less effective than conventional-based design.

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