Incorporating Cultural Design Elements in Mobile Applications Creative Industries in Malaysia: A Conceptual Study

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Abstract

This paper aims to propose a conceptual study by a researcher who developed mobile application guidelines containing cultural design elements. In the creative industries sector, mobile applications are the creative multimedia division for advancing technology, the industry revolution 4.0 (IR 4.0), in developing creative products. The creative industries benefit from mobile applications since it allows for the digital manufacturing of creative products that meet the IR 4.0 era. However, research on the use of cultural design elements in mobile applications is understudied. The scope of this study focused on the development of mobile applications in Malaysia's creative industry facing IR 4.0. According to preliminary findings, there is a lack of cultural design elements in the current mobile applications. Therefore, the researcher will further develop design guidelines for mobile applications for the creative industries in the IR 4.0 era that include cultural design elements.

Keywords: creative industries, IR 4.0, mobile applications, cultural design elements.

INTRODUCTION

Creative industries are an industrial sector that is involved in the production of cultural products that are commercialized directly to users or through intellectual property (Kementerian Penerangan, Komunikasi & Kebudayaan, 2010; Taylor & Smith, 2007). The advancement of the world with technology has also made the creative industry introduce digital media as a new platform for the digital creative industry (Geng & Zhou, 2015; Kementerian Penerangan, Komunikasi & Kebudayaan, 2010; Dewan Rakyat Malaysia, 2009). The development of technology these days, especially in Industrial Revolution 4.0 (IR.40), significantly impacts creative industry development and related fields (Gui et al., 2021). This development directly contributes considerably to the social, economic, cultural, and technological development of all corners of the world.
The National Creative Industry Policy (Kementerian Penerangan, Komunikasi & Kebudayaan, 2010) was formed in Malaysia to lay out the foundations for developing creative industries. The policy leads and drives all creative activities more productively and economically through the synergy of the public and private sectors. Therefore, Malaysia has the potential to generate a high-income economy while also strengthening the country's cultural identity. Likewise, creative multimedia is the platform for developing digital creative products with a local touch. However, in IR 4.0 era, the policy must be re-evaluated and modified to foster and empower the expansion of the multimedia creative economy. Aside from that, the usage of cultural elements (Ariffin, Yatim, & Daud, 2019) in the creation of creative products should be considered in developing mobile applications (Ariffin, 2016a; Ariffin, 2016b).

This article aims to propose a preliminary conceptual analysis of cultural design elements to construct Industrial Revolution 4.0-compliant mobile applications for Malaysia's creative industries.

BACKGROUND

The National Creative Industry Policy was launched in 2010. The policy focused on three main scopes of the creative industries which are creative multimedia, cultural arts, and cultural heritage. The creative multimedia industry is mainly focused on industries that apply the latest technology in producing creative products such as films and TVs, advertisements, design arts, animations, and digital content (Kementerian Penerangan, Komunikasi & Kebudayaan, 2010).

The evolution of current technology is in trend with current development. In this era, the current technological evolution is Industry Revolution 4.0 (IR 4.0). Industry Revolution 4.0 refers to a group of cutting-edge innovations that are supposed to change the industrial landscape drastically. Nowadays, the change towards the evolution of technology has affected many parties, including the creative sector. IR 4.0, first used in Germany, aims to increase the attractiveness of German manufacturing to the world (Acatech, 2013).

The researcher in this study focuses on the use of mobile applications technology in creative industries. These days, technological advancements are altering the human landscape. With the advancement of technology, cell phone usage has become incredibly popular. Malaysia, for example, had a demand for mobile phones that exceeded 550,000 units sold via the Shopee app (Berita Harian Online, 2021).

According to data from Buildfire (2021), 88% of today's mobile phone usage is spent on applications. Statista (2021) reported, 204 billion apps were downloaded in 2019, representing a 6% increase over the previous year.

The creative sector can use mobile applications as a tool to develop more creative digital products as
the use of mobile applications continues to grow. South Korea, for example, leverages existing mobile applications technologies to promote their creative products while promoting their country's culture (Kim, 2013, 2012; Jin, 2006). Another example is Indonesia, which promotes traditional foods via smartphone applications based on the notion of Augmented Reality technology (Alfian, Suyoto & Albertus, 2020). Among other uses of mobile applications in the creative industries sector today, are stated in Table 1:

**Table 1: Mobile Applications Used in Creative Industries**

| **Source & Year** | **Mobile Apps** | **Technology** | **Sector** | **Country** |
|-------------------|----------------|---------------|------------|-------------|
| Astro (2021)      | Astro Go       | Interactive Mode | Entertainment | Malaysia    |
| Digital (2021)    | Tonton         | Streaming Service | Local Content | Malaysia    |
| Weking, Suyoto & Santoso (2020) | Traditional Food | Augmented Reality | Traditional Indonesian Food | Indonesia |
| Wahab, Setiawan & Wahdiniwaty (2017) | Bandung Raya | Location-Based Service (LBS) and Global Positioning System (GPS) | Tourism and Creative Industry | Indonesia |
| Korea Times (2018) | YouTube | Broadcasting | Music Video | South Korea |
| IOC (2021)        | The Olympic Museum in AR | Augmented Reality | Exhibition on Sports Manga | Japan |
| TikTok (2021)     | TikTok         | Video Feed     | Creative & funny Video | China |
| Future (2021)     | WeTV           | Streaming Media | Dramas & Shows | China |
| FZE (2019)        | Quran          | Audio Playback | Religion | Dubai |
| IKEA Systems (2021) | IKEA | Augmented Reality | Home Furnishing Products | Sweden |
| InstantEncore (2021) | Florida Grand Opera | Recording | Music Entertainment | Miami |
| Instagram (2021)  | Instagram      | Minimum Viable Product (MVP) | Social Media | California |
| Google (2011)     | Google Arts & Culture | Virtual Reality | Cultural | California |
| Netflix (2019)    | Netflix        | Artificial Intelligence (AI) and Machine Learning (ML) | Digital Entertainment | California |
| Facebook (2021)   | Facebook       | Machine Learning (ML), Smart Displays & Virtual Reality | Community | The U.S. |
| BBC (2021)        | BBC Sounds: Radio & Podcasts | Measure Audience Behaviour | Music and Audio | The U.K. |
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In the table above, the results of the study indicate that the users of these mobile applications are worldwide in the creative industries. TikTok has become the largest revenue-earning non-game app on the App Store by 2020 (AboveAvalon, 2021). Hence a study to investigate the mobile applications setting (Ariffin, 2018; Ariffin & Dyson, 2015; Ariffin, 2014), for creative industries for IR 4.0 is significant for this research in Malaysia.

CHALLENGES

In general, to obtain good quality of mobile applications as a digital media platform, it is required to build mobile applications led by design principles elements. However, a review of studies on current design principles revealed that research on the necessity for cultural design elements in mobile applications for the creative industries is still limited. Culture is such an essential and core notion in the creative sector because cultural design elements are required in the development of mobile applications used in the creative industries (UNESCO, 2012; Kementerian Penerangan, Komunikasi & Kebudayaan, 2010). Furthermore, cultural components are significant since they reflect national identity, and customers prefer to access local cultural mobile applications (Kementerian Penerangan, Komunikasi & Kebudayaan, 2010, 2010; Taylor & Smith, 2007). This research examines five current design principles: 1. CADG (Ariffin, 2014); 2. Don Norman (Norman, 1988); 3. ISO 9241-11: 2018 (ISO, 2018); 4. 10 general principles of Jakob Nielsen (Nielsen, 1994); 5. Shneiderman’s eight golden rules (Shneiderman, 1998). A comparison of each design principle is shown in table 2.

Table 2: Comparison of Design Principles

| ELEMENT                              | CADG (Ariffin, 2014) | Don Norman (Norman, 1988) | ISO 9241-11:2018 (ISO, 2018) | Jakob Nielsen (Nielsen, 1994) | Shneiderman (Shneiderman, 1985) |
|--------------------------------------|----------------------|---------------------------|-----------------------------|-------------------------------|---------------------------------|
| Accessibility                        | ✓                    | ✓                         |                             |                               |                                 |
| Affordance                           | ✓                    | ✓                         | ✓                           |                               |                                 |
| Consistency                          | ✓                    | ✓                         | ✓                           | ✓                             |                                 |
| Constraints                          | ✓                    | ✓                         |                             |                               |                                 |
| Effectiveness                        | ✓                    | ✓                         |                             | ✓                             |                                 |
| Efficiency                           | ✓                    | ✓                         |                             | ✓                             | ✓                               |
| Error Handling                       | ✓                    |                           |                             | ✓                             | ✓                               |
| Error Prevention                     | ✓                    |                           |                             |                               |                                 |
| Feedback                             | ✓                    |                           |                             |                               |                                 |
| Local Culture                        | ✓                    | ✓                         |                             |                               |                                 |
| Mapping                              | ✓                    | ✓                         |                             |                               | ✓                               |
| Match Between System and The Real World | ✓                    |                           |                             |                               |                                 |
| Permit Easy Reversal of Actions      |                      |                           |                             |                               | ✓                               |
The table of comparison of design principles shows that design elements with cultural concepts are still limited. This is because the design principles that exist today are generic in use, and do not focus on the use of a particular industry such as the creative industry.

SOLUTIONS

This study proposes a modified Design and Development Research (DDR) approach (Siraj et al., 2018), which will go through 3 phases. The first phase of the study was the needs analysis phase, which used the content analysis methods to identify the needed elements in developing design guidelines. The second phase is the design and development phase; the initial instrument will be developed based on the findings of the first phase and the Fuzzy Delphi method to obtain the expert’s agreement on the elements used in the instrument development. Finally, the evaluation phase will be based on the descriptive statistics method to rearrange each element according to the findings from the second phase based on its ranking values. The diagram of the proposed conceptual framework in this study is in Appendix 1.

RECOMMENDATION

This article proposed a conceptual framework. The research indicated the need to develop Culturally Appropriate Design Guidelines (CADG) for mobile applications for the creative industries in the IR 4.0 era. This is on par with the need to embed cultural design elements in constructing mobile applications for the creative industries, particularly for the users. After all, there is limited literature supporting cultural design guidelines (Ariffin, 2014) in the previous studies. Therefore, the researcher will conduct studies related to developing Culturally Appropriate Design Guidelines (CADG) for mobile applications used in the creative industries in favour of the IR 4.0 era.

Three objectives are to be executed in the upcoming research to achieve the main objective that is to develop guidelines with the cultural design elements for mobile applications. Firstly, it is to identify the cultural design elements needed in the design guidelines of mobile applications for creative industries in favour of IR 4.0. Secondly, it is to develop the design guidelines that will be used in mobile applications based on the Fuzzy Delphi Method (FDM). Thirdly, it is to rank the order of design elements based on their importance.

FUTURE RESEARCH DIRECTIONS

In the next phase, the researcher will conduct content analysis to construct the CADG design principles for the development of mobile application design. This is to discuss the elements needed
in the guidelines to be developed. Additionally, the study will also seek the contribution of experts’ verification in determining the suitability of each element used in the guidelines (Siraj et al., 2018).

CONCLUSION

To conclude, the advancement of technology has brought a meaningful change to the creative industries in the era of IR 4.0, particularly for mobile applications. For example, the utilization of mobile applications in digital creativity has become more advanced. Yet, there are limited researches conducted about the incorporation of cultural design elements in mobile application advancement. To resolve this issue, the study aims to develop culturally appropriate design guidelines (CADG) for mobile applications used in the creative industries in favour of IR 4.0.

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APPENDIX 1

DEVELOPMENT OF CULTURAL APPROPRIATE DESIGN GUIDELINES (CADG)

**INPUT**

- Academic Article Journal (Scopus, ACM, IEEE) (RQ1)
- Preliminary Study (RQ1)

**PROCESS**

- Design & Development Research
  - Needs Analysis Phase
    - Content Analysis (RQ1, RO1)
  - Design & Development Phase
    - Instrument Development - FDM (RQ2, RO2)
  - Evaluation Phase
    - Descriptive Statistic (RQ3, RO3)

- Design Elements for Mobile Application for Creative Industry in IR 4.0 Era.

**OUTPUT**

- The cultural design element for mobile application for the creative industry (RO1)
- Cultural design instrument for mobile applications for the creative industry. (RO2)
- Cultural design guidelines for mobile application for the creative industry (RO3)

Notes:
- Design Guidelines for Mobile Application for Creative Industry in favour of IR 4.0 Era.
- The cultural design elements for mobile applications for the creative industry in IR 4.0 (RQ1, RO1).
- Design guidelines for mobile applications for the creative industry in IR 4.0 using Fuzzy Delphi (RQ2, RO2).
- Design guidelines with the order of important elements (RQ3, RO3).

5 Design Principles – CADG, Don Norman, ISO 9241-11 2018, Jakob Nielsen, Shneiderman.
RQ – Research question, RO – Research objective