Museum Guide Mobile Applications Development: An Examination based on Literature

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Abstract

Technology has become a part of our day-to-day life in modern society. Everyone increasingly deploys Smartphone usage. Mobile applications enable visitors to get advanced knowledge about the museum and the historical background of the artifacts by themselves easily. Today's mobile applications consist of language packages and an audio facility to give visitors to the advantage of language problems when using a normal human guide system. The main reason for introducing mobile applications was the difficulties that visitors faced when visiting the museum. So in this review, researcher intend to do an in-depth study on museums in the world and to find out how their technology, especially mobile application technology can be applied to optimize the museum experience. For that research is carried out by the pre-research study.

Keywords: ***Smartphones, Technology, Mobile applications, Museum Guide Mobile Applications***

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Introduction

For a long time, museums relied on human tour guides to assist visitors in finding objects, understanding the importance and history of the artifacts, and discovering and learning new collections. But in later, most of the museums turned to technology to utilize the museum process and increase the reach of visitors (Straughan, 2019). It was challenging to obtain a clear understanding of the artifacts without the assistance of a human tour guide. For those who need additional time to spend learning about the specific artifacts; pre-recorded tour guide can be deployed. So it provides facilities to translate the tour content into many languages. Thus, it gives facilities to staff members in various ways like they no need to spend their time talking about specific artifacts. Other than that, this can be made in cheaper ways and even this can be given to the public to use free of charge (Skulagata, 2018).

Due to the use of personal mobile phone technology and mobile applications, the majority of museums across the world have at some point offered audio tours. In order to boost tour throughput, the museum guide mobile application is still a strong contender. In general, the use of traditional museum audio guides for conveying knowledge of museum collections was an obvious choice due to their reusable and easy technology, multiple language possibilities, and changeable content (Straughan, 2019).

The public's interaction with the museum collection has changed as a result of the Museum Guide. Collections can be made accessible to new audiences by using multiple languages. Therefore, visitors can gain additional knowledge about objects in their places. They can revisit the objects they want to spend more time on and avoid things that are more accustomed to them. Many individuals throughout the world have access to learning after the invention of the smartphone thanks to the user-friendly technology (Noortje Bijvoets, 2017).

Therefore the museum guide mobile applications are the solution for overcoming difficulties when utilizing human tour guides and also getting visitor attraction to the museums.

Methodology

A qualitative research methodology was applied in this study to obtain a thorough and organized examination of museum guide mobile applications. Museum guide mobile applications and museum guiding systems are the main information sources for this paper. References to earlier research articles in reputed journals, books, and websites have been made to conduct this examination. In the first phase, the researcher discussed the general overview of technological enhancements in the global context and global museum guidance system. This research is based on the hypothesis as “museum guide mobile application is more effective than human guidance systems in the museum”. After an in-depth analysis of previous literature, the researcher discovered the advantages and disadvantages of

using mobile applications in museums and the provement and discprovement of the above mentioned hypothesis.

Technological Enhancement through Museums in Global Context

Museums are identified as valuable places for learning history and also art (Mark Schep, 2017). Museums and other cultural institutions like art galleries, archaeological sites, historic cathedrals and temples, castles, and so on are frequently looking for ways to increase visitor's experiences and are very interested in the newest technological advancements (Mohd Kamal Othman, 2013). The continuous changes occupied by museums have necessarily demonstrated that it is usually driven by the museum to increased their visitors' experiences, for instance, the introduction of various technologies in cultural spaces form introducing technologies such as audio-guided mobile tours, multimedia tours on various devices, introduction of mobile applications for smartphones, indoor navigation systems using location-based technologies, 3D scanning technologies, robotics technologies, projection mapping technologies and many more accelerating masterful advancements (Sun, 2016).

Technologies in museums last as long as they exist in the outside world (Koskiola, 2014). The inclusions of technology in museums are based on the interrelationships between these two fields. It can be seen from Figure 1 (Parry R., 2005). According to that figure, when development began in the 1950s, technology was separate from the museum context. Over the decades, the two fields have begun to overlap, and in the future, they believe that online and offline activities in museums will be merged separately (Koskiola, 2014).

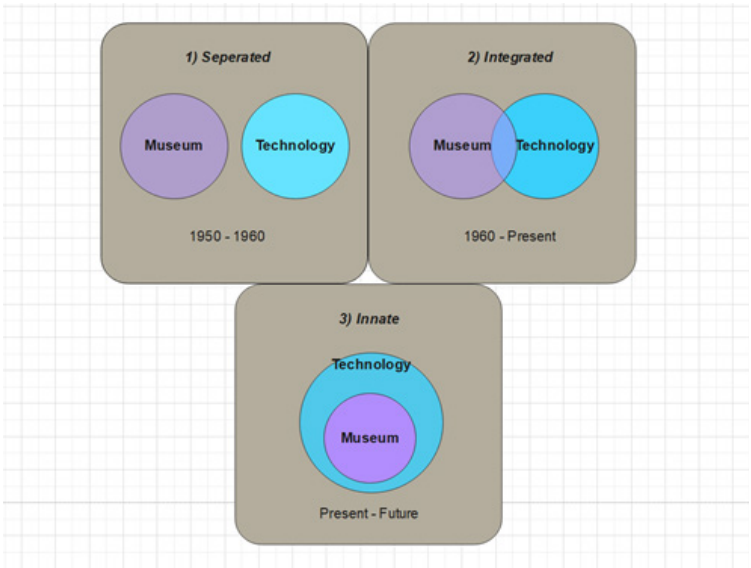

Figure 1 – An advancement in digital interaction within galleries (Parry R., 2005)

Museum digital technologies continued to evolve from virtual to real and from social to anti-social. This structure provides an understanding of the activities that mobile solutions can provide and assesses how they can enhance the museum experience. Moreover, it takes into account the personal context of the museum tour (Moses, 2017).

All of these studies reflect a very positive attitude towards the use of mobile phones and technological things in a museum among visitors.

Global Museum Guidance Systems

When a group of art enthusiasts in Dresden requests for a sight of the royal collections in 1590, the Elector of Saxony, Christian I, invites his curator to lead the tour (Noortje Bijvoets, 2017). It is the fundamental step of the museum tour guide. At the Stedelijk Museum in Amsterdam, the first audio guide debuted in 1952 to the public. (Mohd Kamal Othman, 2013). That new technology gives a positive impact on the museum industry in an adorable way (Straughan, 2019). The introduction of the first random-access mobile guide, INFORM, at the Louvre museum in Paris in 1993 marked a dramatic shift in how museum visitors utilize mobile guides. It was the first digital wand player ever made (AudioGuide, 2019). The free choice mobile guide or random access mobile guide enabled users to select which exhibits to view in whatever sequence they desired. An extensive body of study on the usage of mobile devices and smartphones in cultural settings has revealed significant effects on visitors, notably in terms of visitor engagement, learning, and interaction with the museum's multimedia guide (Botturi, 2009).

Museums frequently employ museum guides to facilitate the museum visit and aid visitors in making personal connections with the objects in order to suit visitors' learning processes (Mark Schep, 2017). For more than a century, museum guides have been a pillar of the museum collection, and they are crucial to the sharing of information that takes place there. In general, museum curators or trained human guides employed by the museum gave the majority of the museum guides (Hooper-Greenhill, 1991). (Grondman, 2010).

Before introducing the museum guide mobile applications, other approaches, such as museum audio guide systems, were used (AudioGuide, 2019). As a result, museum guides are frequently made available to visitors in museums and archaeological sites to let them request more information about their preferred displays. Most of the time, these guides exist as pre-recorded audio tapes that let the user select and listen to an audio track related to the exhibit they're interested in (Takumi Toyama, 2011).

Immigration of Development of Mobile Applications for Guiding Purpose

The emergence of new technologies in the latter half of the 20th century placed them in a position to alter the world's periphery. As a consequence of these technological developments, educational development has become a prime concern in the world. It is now required to adopt new technologies and instructional methods due to the integration of technology and computers into academic life. Different ways that educational technology affects the lives of educators, students, and contributors. In order to keep up with society's evolution, technology has forced educators to update their curricula and adopt new teaching methods. These new technologies are mobile devices and the internet (Burcu 2013). Both of these are present in mobile applications.

Mobile applications are a kind of application software created specifically for use on portable devices like smartphones and tablet computers. It's also referred to as mobile apps. Typically, mobile applications are discrete, compact, and have a modest set of features (technopedia, 2020).

In recent times mobile application development is growing exponentially. Today every person has a smartphone. Smart phone’s consisting of a range of tasks such as cameras, media players, and GPS with developed computing abilities and touch screens are enjoying ever-accelerating popularity (Verma, 2015).

Presently, museums have shifted to more integrated functions, such as facilitating active learning and collaborating to find and share information, as well as interacting with exhibits and visitors. Digital technology display equipment and related hardware allow users to choose from a free learning environment in a variety of ways to explore museum exhibits to suit their tastes. Besides, it is hoped that the use of such technology will enhance museum landscapes by allowing visitors to self-direct and discover differently than traditional approaches. Modern technologies like smartphones and mobile devices can help facilitate special learning environments in cultural settings. It is clear that audio and multimedia tours have improved their function as free-choice learning resources when compared to multimedia presentations and video guide tours. These models give knowledge utilizing technologies that increase accessibility and make the museum a more desirable place to spend time (Mohd Kamal Othman, 2013).

Companies all over the world are experimenting with their capabilities, particularly their superior processing skills and connectivity, and this is leading to a rapid expansion of the field of developing mobile applications with museum content. The most striking aspect of it for museums is that it opens up the opportunity of engaging new audiences not only during their museum visit but also through a personal device of their choice and familiarity, as well as before and after the museum tour, regardless of where the user is. This capacity to connect with consumers in their preferred settings and circumstances

creates new possibilities for sharing cultural content for lifelong learning and education, in addition to the possibility of cultural marketing. Additionally, the integration of these users into a large network enables social networking and the development of user communities interested in cultural content in addition to enabling individual connection between the cultural organization and the user (Maria Economou, 2011).

According to the analysis of previous researches majority of museum guide mobile applications were developed by museums in the USA. (Maria Economou, 2011). The number of the museum guide mobile applications recorded per country before 2011 as follows,

Table 1 – Number of museum guide mobile applications documented by country prior to 2011. (Maria Economou, 2011)

Country	**Number of mobile applications for Museum Guides**
United States	27
France	19
United Kingdom	9
Italy	3
Netherlands	3
South Korea	2
Spain	2
Australia	1
Asutria	1
Brazil	1
Canada	1
Colombia	1
Germany	1
Total	**71**

Those mobile applications are not just mobile phone acoustic tours and those mobile applications have multimedia features (Maria Economou, 2011).

Among those mobile applications 64 mobile applications examined in more depth and categories which can divide these mobile applications as follows,

Table 2 – Types of mobile applications before 2011 (Maria Economou, 2011)

Types of mobile application	**Number**
Presentation -guided tours of the museum's general collection and permanent displays	29
Presentations - guided tours of temporary exhibitions and practical information about the museum visit	20
Blend of the two examples above	5
Apps that focus on a certain object piece of artwork from the collection	5
User-generated content that has been altered or created in response to artistic inspiration	3
Games inspired by the exhibits	2
Total	**64**

Over 2.5 billion people own a smartphone today. As a result, it enables many museums to utilize the technology that their visitors already possess. They focus on reducing the hardware cost while providing content for their mobile application and downloadable tours. So now a day museum experience can reach hundreds of visitors at once rather than just a small group (Straughan, 2019). Another reason for museum guide mobile applications reach a wider audience is because it provides tour content in multilingual languages. So it can use any tourist with their mother tongue (Skulagata, 2018).

Conclusion

It is undeniable that the effectiveness of user-guide interaction is one of the key indicators of how well users are experiencing a museum guide mobile application in cultural spaces. It is said that, visitors have the best experiences when they can simply follow the offered instructions without having to learn and re-learn new technology. The capacity of guides to react to users' actions is now more important than ever in determining the quality of engagement. Both the creators of museum guide mobile applications and the person in charge of cultural spaces are very interested in these aspects since they are crucial in evaluating the user experience while using these applications in cultural spaces. Because it offers more freedom of involvement, the museum guide mobile application should be seen more favorably than the current human guide system and the audio guide systems used worldwide. An effective museum guide shouldn't stand between visitors and the exhibits. This does not happen without any interruptions between users and the mobile application. By using that mobile application, for instance, users can remove information that is not necessary while still having access to as much information as feasible when

needed. The usage of museum guide mobile applications in cultural spaces is obviously intended to have an impact on visitors in a variety of ways. Users should be able to learn more about the exhibitions and have a meaningful experience in the cultural space by using this mobile application there.

The newly designed mobile application greatly outperformed the human guide system and audio guide systems in terms of mean ratings for the Learnability and Control components. Because the mobile application user should theoretically have better control over the guide and learn better than the users of the existing alternatives, this is interesting and merits further study. One of the reasons why users of mobile applications have more influence over the museum guide is because they just follow a predetermined path through the material. This reduces the need for learning and increases user control over the museum guide. The use of the mobile application should allow more consumers more freedom and flexibility over what they wish to see throughout the exhibition and not impose any usage restrictions. For visitors who have some prior understanding of the exhibitions, mobile application might be appropriate. According to some earlier research, visitors who had no prior familiarity with mobile technologies had trouble using the device, necessitating the creation of museum guide mobile applications that were simple to use and understand. By allowing visitors to utilize their own devices and download the contents of the museum exhibitions onto them, this issue can also be solved.

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