

User Modeling on Social Media for Art Museums and Galleries

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Abstract. This paper shows the results of studying relevant factors for expanding an experience of museum visitors by using social media technology. The constructed questionnaire was used as a tool to elicit the opinion of members in the Facebook fan page of Southeast Asian Ceramics Museum, Bangkok University, Thailand. In this study, there were 222 respondents whose occupations were related to either arts and cultures (42.79%), and not related to (57.21%). The results indicated that the perceived usefulness of technology factors and perceived ease of use to technology were related to the expansion of museum visitors experience with social media applications at statistically significant level of 0.01.

Keywords: Technology Acceptance Model (TAM) · Adoption computer technology · Digital museum · User experience · Facebook

1 Introduction

In the past decade, the role of art museums and galleries has been changing from static storehouses of artifacts to active learning environment for visitors [3]. The museums then must look both inward to their collections and outward to their audiences. Therefore, their role has changed from object collection to communication with people. The raised questions are how, with what, and to whom the museums should make links.

With the advanced technologies in Web and Internet, museums have been easily approach to their audiences via websites. There are two types of websites as follows: websites for general information of museums, and websites as a digital place where users can find information of the collections of their artifacts [7]. The latter one can provide some knowledge about the artifacts without traveling to the real place.

In this paper, we are interested in a use of Facebook (social media) as a communication tool between a museum and its audience. This communication must meet the audience needs such as new information, entertainment, and social activities, which is so-call “visitors’ experience [2].” The objective of this paper is to develop a user model to expand the visitor experience via the Facebook fanpage and the Facebook application (as shown in Figs. 1 and 2) for Southeast Asian Ceramics Museum, Bangkok University, Thailand, where is a sort of art museums.



Fig. 1. The Facebook fanpage of Southeast Asian Ceramics Museum, Bangkok University, Thailand

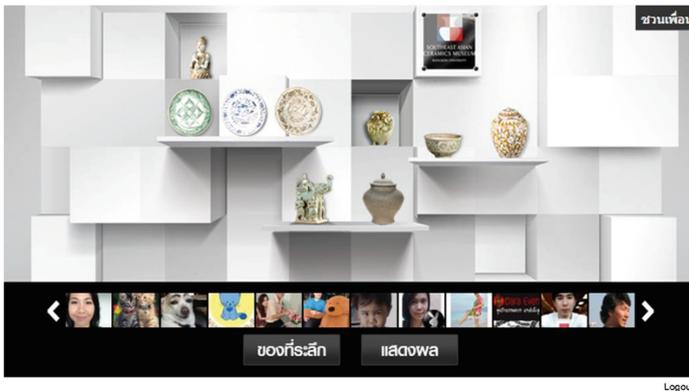


Fig. 2. The Facebook application of Southeast Asian Ceramics Museum, Bangkok University, Thailand

2 Experiences of Museum Visitors

2.1 Type of Experience

As addressed by Falk and Dierking [2], combination among individual, group of people, places can develop the experience of each museum visit. Three dimensions are the personal context, the social context and the physical context.

The interaction of these three dimensions constitutes the way in which a museum visit is perceived by every individual museum visitor as shown in Fig. 3.

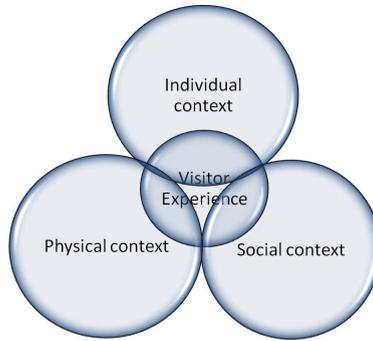


Fig. 3. Factors of the museum's visitor experiences

From the aforementioned dimensions, the other experience types will be developed inside the visitors (as illustrated in Fig. 3), but the formulation is depend on the intensity of each dimension. For example, the level of interaction among visitors that can develop a social network of special interest group for a particular museum. Increasing the degree of interaction will extend the size of social network. This is one of museum goals because the more shared knowledge and interest, the more experience will be perceived. Therefore, the online social media is the most suitable alternative to convey the visitor experience on these three dimensions.

While the visitors explore the exhibitions, the visitors' experiences surrounding with three contexts can be listed in the followings [4]:

1. Recreation: Visitors enjoy of free, relaxed, unstructured time and activity playful and diversionary activity. They can try out interactive devices, sit down for a meal, shopping in a gift shop, etc.
2. Sociability: Visitors meet with or participating with others, look at and spend time together with others, take part in shared, public activity.
3. Learning Experience: Visitors gather and acquire information, perceive new things and new patterns, exercise curiosity and a sense of discovery.
4. Aesthetic Experience: Visitors engage in sensory perceptions, especially visual and tactile, see objects with a view toward their beauty, rather than what is moral or useful, compare things and find patterns.
5. Celebrative Experience: Visitors observe and honor a leader, event, group, or organization, share in historical achievements.
6. Enchanting Experience: Visitors encounter things that uplift the mind, imagination, and spirit, find magic, delight, fascination, and rapture in things and places.

3 Methodology

3.1 Conceptual Framework

Our proposed user model is mainly adopted from Technology Acceptance Model (TAM) proposed by Davis [1], where are important theoretical bases in information system field [8]. We consider the following three two factors: perceived usefulness, and perceived ease of use. The model will present how the two factors are influence on the behavioral intentions for Facebook applications.

3.2 Research Method

Questionnaire-based survey was conducted in current study. Since we focused on the use of Facebook applications for art museums, the Facebook members of Asian Ceramics Museum, Bangkok University, Thailand were selected as the sample frame.

Facebook Application: The Facebook application [6] has important features such as an virtual gallery of museum objects with their description, an virtual souvenir shop, the visualization to illustrate the visitors' comments having links to the objects and the visitors. For the virtual gallery, the photographs of museum objects, which were taken by a museum expert, are displayed in six views (top, bottom, and 4-side views) and all the series of photographs can be zoomed in (as shown in Fig. 4). The description, which were written by experts and curators, will be pop-up when holding a mouse over a particular object.



Fig. 4. Zoom on an museum object

Questionnaire: The questionnaires with a 5-point Likert scale were constructed based on the definitions of three variables [1,5] as shown in Table 1. The independent variable “behavioral intentions” in this research emphasized the Facebook application in order to expand the visitors’ experience in the following dimensions: from immersive to integrative and active participation to passive participation. There are six areas in the dimensions as follows: learning experience, aesthetic experience, celebrative experience, sociability, issue-oriented experience, and recreation [4].

Table 1. Definitions of considering variables

Dependent variables	Perceived usefulness	The degree to which an individual believes that using a particular system would enhance his or her knowledge.
	Perceived ease of use	The degree to which an individual believes that using a particular system would be free of physical and mental effort.
Independent variables	Behavioral intentions	The degree to which an individual intend to use a particular system

Subjects: After the contact with the Facebook members of the museum, five hundred questionnaires were distributed to them who agreed to participate in our research. Because the sample size determined by using Taro Yamane’s formula [9] is 222, we collected the first 222 responses who returned the questionnaires.

4 Results and Conclusion

4.1 Demographic Information

Among the two hundred twenty two respondents, most (59.46) of respondents were aged above 35, and they (56.76) hold the master degree or higher. Detailed descriptive statistics relating to the respondent’s characteristics are shown in Table 2.

4.2 User Modeling

We construct the user model with the linear regression on the two dependent variables influencing on each area of visitors’ experience as shown in Fig. 5. We found that only the perceived usefulness influenced on the overall areas of experience with the following Eq. (1). The averages of the expectation to gain experiences are shown in Fig. 6.

$$Visitors' Experience = 0.781 * PerceivedUsefulness \quad (1)$$

Table 2. Demographic information of the respondents

Demographics		Frequency (%)
Gender	Male	112 (50.45)
	Female	110 (49.55)
Age	Under 26	13 (5.86)
	26-35	77 (34.68)
	36-45	82 (36.94)
	Above 46	50 (22.52)
Education Level	Below senior high school	24 (10.81)
	University/College	72 (32.43)
	Graduate school	126 (56.76)
Professional field	Relating to museums and galleries, arts and cultures	95 (42.79)
	Others	127 (57.21)

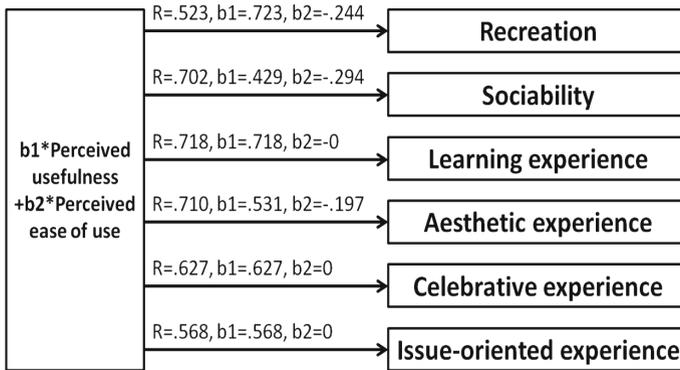


Fig. 5. User model of social media for art museums and galleries

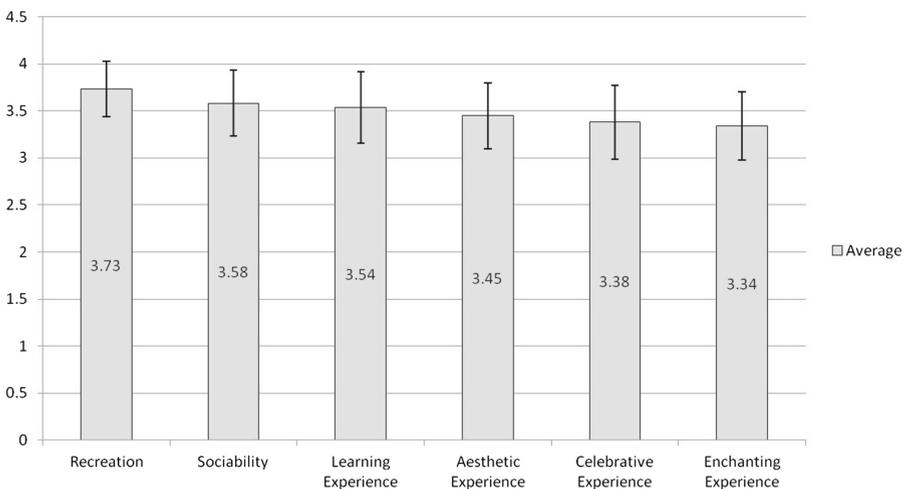


Fig. 6. Average of the expectation to gain six experiences (SD represented by error bars)

4.3 Conclusion

The propose of this research was to investigate a model of TAM to understand the determinants of users' intention to use the Facebook application of art museums and galleries. The perceived usefulness was found to be more influential than perceived ease of use in developing usage behavioral intention.

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