Mobile Learning to Promote World Heritage Site Preservation Awareness in Least Developed Country: Perception Analysis among Higher Education Students in Luang Prabang, Lao PDR

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Introduction
ICT has been seen as a catalyst towards the improvement of the welfare as well as providing development opportunities for developing countries. Evidences from the literatures have strongly support the importance of implementation of ICT in different sectors in meeting operational and strategic objectives. Luang Prabang was inscribed as the World Heritage Site in 1995. Since then, tourism has brought economic benefits for the town. However, this has initiated the fear of Luang Prabang losing its unique fusion of French and traditional Lao architecture buildings. Moreover, individual modifications of buildings could also harm the overall natural coherency of the townscape. This is an impelling issue as Luang Prabang was inscribed under the three outstanding universal values, covering the building architectures and natural landscape. As a result, UNESCO (2008) has called for an urgent need to increase local residents’ awareness on the importance of preserving original and valuable heritage. Mobile phone adoption rate in Lao PDR has witnessed remarkable increase in recent years. Prior study conducted together with the Department of World Heritage of Luang Prabang shows that there is an acceptable degree of technology readiness among the target users (Poong, Yamaguchi & Takada, 2012). Extending previous findings, this paper intends to investigate young adults’ perception on using mobile phone as a learning tool in promoting World Heritage Site preservation awareness in Luang Prabang. The objective of this paper is in line with the notion that studying users’ perception forms the fundamental requirement prior to implementation in order to understand the acceptance of new technology (Davis, 1989).

Literature Review
1. Mobile learning and developing countries
Potential of mobile phone in promoting learning among people in developing countries has been gaining attention in international development arena. Since 2005, UNESCO has been organizing mobile learning conferences. Initiatives and policies were discussed during the Mobile Learning Week 2012 conference to encourage the use of these ubiquitous devices to elevate literacy skills and creative learning. As an example of UNESCO (2012) mobile learning project, mobile phones are used to facilitate teachers’ training in Pakistan. This enables teachers in the rural areas to be trained and be capable to deliver lessons to the future generations. Other than formal learning, mobile phones also play an important role in promoting awareness. The case in India illustrates that local organization has developed four mobile games available for download to increase local community awareness on HIV and AIDS prevention (World Bank, 2008).

The early definition of mobile learning stems from the extension of electronic learning, which has been commonly performed on desktop computers. However, in order to tailor to the context of this study, mobile learning is defined as “acquisition of any knowledge and skill through the use of mobile technology, anywhere, anytime, that results in an alteration in behaviour” (Geddes, 2004).

2. Theories of mobile learning
One of the most cited theoretical model is the Technology Acceptance Model (TAM) by Davis (1989). This theoretical model posits that intention to use is predicted by perceived usefulness and perceived ease of use. Perceived usefulness is defined as “the degree to which an individual believes that using a particular system would enhance his or her job performance” (Davis, 1989, p. 320). Perceived ease of use refers to “the degree to which an individual believes that using a particular system would be free of physical and mental effort” (Davis, 1989, p. 320). There are, however, more factors that determine the intention to use technology.
For instance, Fishbein and Ajzen (1975) argued that the interaction among people within societies asserts some form of influence to one another, which could change a person’s behaviour. This has generated the concept of social influence, which is defined as “the person’s perception that most people who are important to him or her think he should or should not perform the behavior in question” (Fishbein & Ajzen, 1975, 302). In addition, Agarwal & Prasad (1998) assert that personal innovativeness, which is defined as “the willingness of an individual to try out any new information technology”, is an important determinant of innovation adoption. It is also imperative for a potential adopter to possess a favorable judgment on their own capabilities in executing a task. This notion is termed as “self-efficacy”, posited by Bandura, 1986). Self-efficacy has been shown to be a significant predictor for intention to adopt mobile learning in Park, et. al. (2011) study. Since the use of mobile learning application is assumed to take place out of classroom and in voluntary settings, the idea of “fun-to-use” may play an important role. This proposition is backed by extensive literatures studying perceived enjoyment of information technologies. Davis et. al., (1992) defined perceived enjoyment as “the extent to which the activity of using the technology is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated” (p.1113). The use of mobile learning is expected to involve different kinds of costs. Given that Lao PDR is a least developed country, it is natural to consider the cost factor. Although prices of mobile phones may vary according to specifications, the use of mobile internet is mainly bounded by the price offered by telecommunication service providers. Whether the offered price is reasonable or not depends on users’ perception. Hence, perceived price is defined as the offered price for an innovative function or service is deemed reasonable (Liao, Tsou, & Shu, 2008). Finally, Taylor and Todd (1995) argue that “the absence of facilitating resources represents barriers to usage and may inhibit the formation of intention and usage” (p. 153). Based on the context of Lao PDR, this study intends to investigate perceived facilitating resources among the target users. The literature reviews have given rise to eight hypotheses:

\[ H1: \text{Perceived usefulness is positively related to behavioral intention to use mobile learning among young adults in Luang Prabang} \]

\[ H2: \text{Perceived ease of use positively affects behavioral intention to use mobile learning among young adults in Luang Prabang.} \]

\[ H3: \text{Social influence positively affects behavioral intention to use mobile learning among young adults in Luang Prabang} \]

\[ H4: \text{Personal innovativeness is positively related to behavioral intention to use mobile learning among young adults in Luang Prabang} \]

\[ H5: \text{Self-efficacy is positively related to behavioral intention to use mobile learning among young adults in Luang Prabang} \]

\[ H6: \text{Perceived enjoyment is positively related to behavioral intention to use mobile learning among young adults in Luang Prabang} \]

\[ H7: \text{Perceived price is positively related to behavioral intention to use mobile learning among young adults in Luang Prabang} \]

\[ H8: \text{Perceived facilitating resources is positively related to behavioral intention to use mobile learning among young adults in Luang Prabang} \]

**Methodology**

This study adopts questionnaire survey to acquire student perceptions on mobile learning. Questions on technology perceptions consist of nine factors, including personal innovativeness, perceived ease of use, perceived usefulness, self-efficacy, social influence, perceived enjoyment, perceived price, perceived facilitating resources, and intention to use mobile learning. These questions are adapted from existing literatures to suit the current research context. A five-point Likert-scale was used to assess the degree of agreement on each of the perceptions (1=strongly agree to 5=strongly disagree). A total of 484 questionnaires were distributed to the Faculty of Economic and Tourism in Souphanouvong University and to Northern Law College of Luang Prabang in March 2012. Guide to answer questionnaire was explained to the students in Lao language with the assistance of local ICT team members of the Department of World Heritage. A total of 443 questionnaires were returned, yielding 91.5% response rate. Finally, 365 questionnaires were considered valid for data analysis after screening for response completeness.

**Data analysis and findings**

61.4% male respondents and 34.5% female respondents answered the questionnaire survey. Majority of the respondents are in the age group of 20 to 24 years old (70.4%), and are studying in year 4 (56.4%). Mixed income distribution is observed among the respondents, in which those who receive more than 100,000 Lao Kip (13.07 USD) per month comprise a largest category (26.6%), followed by those who received the least, i.e. less than 19,999 Lao Kip (2.61 USD) per month (22.2%).
Mean value of each perception is shown in Table 1. Data shows that respondents tend to agree on each of the variables. Both self-efficacy and perceived price show higher mean values than other variables. Also, higher standard deviation on self-efficacy and perceived price suggests wider disperse of response around the mean. This implies that there is possibility that there are higher rate of conflicting responses on the two variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Values</th>
<th>Standard Deviation</th>
<th>Standardized β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness</td>
<td>1.948</td>
<td>0.843</td>
<td>0.108*</td>
</tr>
<tr>
<td>Perceived ease of use</td>
<td>1.966</td>
<td>0.638</td>
<td>0.105*</td>
</tr>
<tr>
<td>Personal innovativeness</td>
<td>1.569</td>
<td>0.468</td>
<td>0.097*</td>
</tr>
<tr>
<td>Social influence</td>
<td>2.225</td>
<td>0.787</td>
<td>-0.022</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>2.656</td>
<td>0.995</td>
<td>0.013</td>
</tr>
<tr>
<td>Perceived enjoyment</td>
<td>1.825</td>
<td>0.688</td>
<td>-0.022</td>
</tr>
<tr>
<td>Perceived price</td>
<td>2.610</td>
<td>1.029</td>
<td>-0.009</td>
</tr>
<tr>
<td>Perceived facilitating resources</td>
<td>1.890</td>
<td>0.780</td>
<td>0.263***</td>
</tr>
<tr>
<td>Intention to use mobile learning</td>
<td>2.042</td>
<td>0.852</td>
<td>Dependent Variable</td>
</tr>
</tbody>
</table>

***: significant at 0.001 level, **: significant at 0.01 level, *: significant at 0.05 level

Next, multiple regression analysis was used to test if the perceived factors significantly predicted respondents’ intention to use mobile learning. As shown in Table 1, the results of the regression indicated that five, out of eight perceived factors explained 35.2% of the variance ($R^2=0.352$, $F=24.223$, $p<0.001$). It was found that perceived enjoyment significantly predicted intention to use ($β=0.276$, $p<0.001$), as did perceived usefulness ($β=0.108$, $p<0.05$) and perceived ease of use ($β=0.105$, $p<0.05$). Intention to use is also significantly predicted by personal innovativeness ($β=0.097$, $p<0.05$) and perceived facilitating resources ($β=0.263$, $p<0.001$). However, social influence, self-efficacy, and perceived price did not significantly predicted intention to use mobile learning among the respondents. As a result, all hypotheses are supported except hypothesis 3, hypothesis 5, and hypothesis 7.

Discussion

The results confirm five out of the eight hypotheses. The interpretation can consists of the following five main points. First, perceived enjoyment, perceived usefulness, perceived ease of use, personal innovativeness, and perceived facilitating resources are the determinants for intention to use mobile learning among the young adults in Luang Prabang. This discovery is consistent with prior technology acceptance studies conducted in other countries. Interpreted within the context of this study, the application to promote heritage site preservation awareness is expected to be enjoyable in its own right, as indicated by perceived enjoyment, which is also the strongest perceived factor. Second, it appears that respondents consider facilitating resources, such as telecommunication infrastructure, to use mobile learning as the second most important factor to positively influencing their intention to use mobile learning. Third, finding reveals that although Lao PDR being a least developed country, young adults are open towards trying new technologies. This is evidenced from the support of personal innovativeness as a determinant for intention to use mobile learning. Forth, the positive result of perceived usefulness on intention to use mobile learning suggest an affirmation on the possibility to use mobile learning to promote heritage site preservation awareness is obtained from this empirical survey. This finding is particularly important, as innovation that improves one’s performance forms the necessity of intention to adopt that innovation (Davis, 1989). Fifth, data shows that lower requirements on physical and mental effort in the process of operating mobile learning application improves target respondents’ use intention. This is in line with the findings from other literatures, where perceived ease of use facilitates technology adoption.

Further, data shows that there are three contradicting findings with the literature as well. First, as oppose to previous studies, the hypothesis that social influence would directly affect intention to use mobile learning is not supported. In the context of this study, mobile learning is thought to be adopted in a total voluntary environment. This is in contrast to a technology that is forced to be used in an organization. Therefore, compliance and conformity aspect of social influence may not be strong enough to directly affect intention to use mobile learning (Zhou, 2011). Social influence may indirectly affect intention to use through other factors under voluntary settings, and thus, it requires further empirical investigation. Second, self-
efficacy does not appear to be the predictor for intention to use mobile learning, controlling for other variables. Higher disagreement on self-efficacy suggests that exposure of mobile phone capabilities beyond simple use may boost self-efficacy perception among the young adults. Third, a possible explanation for perceived price to be not statistically significant could be due to the contrast of income level among the respondents of this study. There may be possible for some respondents to think that current price offered by telecommunication operators is reasonable, while the others disagree.

With regards to academic implication, this study has contributed knowledge to the limited literature on mobile learning acceptance in Luang Prabang, Lao PDR. Specifically, the theoretical model was tested through empirical survey. As this study is conducted in a least developed country context, while most of the established theories were tested in developed countries context, and thus, similarities and differences are intended to be identified in relation to existing theories. The discovery warrants future research to enrich the understanding of mobile learning acceptance in both developed and developing countries.

Discussion on practical implication is centered on developing mobile learning application to promote heritage site preservation awareness. Data shows that it is imperative to design the mobile application in a fun and attractive way. Hence, interactive and well-designed interface are considered as essential elements in the design process. A well-designed interface facilitates flatter learning curve for potential users to grasp the way to use the application. Highlighting the functions and objective of the mobile learning application and stimulating interest of target users are suggested. Finally, the study results suggest for relevant authorities, such as government agencies and telecommunication operators, to look into the possibilities of providing better infrastructure quality to support the increasingly technologically savvy residents.

Limitation and future research

The findings from this study should be interpreted cautiously as the data comes from the perspective of young adults, especially those who are studying in higher education level. Future research with sufficient resources could embark on wider range of target respondents to better understand the dynamics of the society on mobile learning acceptance. Integrating other culturally relevant theoretical constructs on the existing theoretical model is essential to obtain further understanding on mobile learning acceptance in least developed country. In order to assess the effectiveness of mobile learning in promoting heritage site preservation awareness, several possible measurement approaches are suggested. These include performing comparative study between mobile learning users and non-users, as well as pre- and post-use of mobile learning on level of heritage preservation awareness. In conclusion, this study has provided further insight on mobile learning acceptance among the local young adults. The findings serve as important aid for the effective development of mobile learning application to promote heritage site preservation awareness in Luang Prabang, Lao PDR.

References