Executive Summary for Summer 2015 Research Grant

Title: Does knowledge matter to seniors’ usage of mobile devices? Focusing on motivation and attachment

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Introduction

Technology companies have produced hundreds of gadgets and applications for smartphone-addicted teenagers and young professionals; however, now companies are developing information technology that targets seniors (Somerville, 2013). For example, some manufacturers have implemented senior-friendly features on mobile devices: larger keypads and screens, amplified speakers, simplified cameras, and hearing-aid compatibility (Lasalle, 2013). Mobile devices are important because smartphones and tablets are becoming the primary tools through which many travelers access the Internet in search of travel-related information (Stienmetz et al., 2013; Zhong, 2013). Smartphones can change tourists’ behavior and emotional states by addressing a wide variety of informational needs (Wang et al., 2012). Travelers’ mobile device usage directly relates to their receiving information or bookings trips and excursions (Lubbe and Louw, 2010). Specifically, seniors use mobile devices because they benefit from them (Lasalle, 2013).

Previous studies (e.g., Marquié et al., 2002; Palau-Saumell et al., 2013) have examined knowledge as a moderator in the context of technology, seniors, and tourism. In addition, while previous research has investigated the moderating influence of level of knowledge on consumers (Chuang et al., 2009), little research has studied the moderating influence of knowledge on seniors’ use of mobile devices. In this respect, research on knowledge of technology as a moderator on seniors’ use of mobile devices might be valuable, especially concerning the relationships among motivation, attachment, and usage intention. To bridge the gap, this study examines the moderating effect of knowledge on the relationships among determinant (ease of use), motivations (usefulness and enjoyment), attachment, and usage intention regarding seniors’ use of mobile devices for tourism. This study provides insight for tourism research and the tourism industry on predicting seniors’ behaviors related to their use of mobile devices.

Literature and Data Collection

Technology usage adoption in tourism

Research on technology usage adoption in tourism has been well documented (e.g., Amaro and Duarte, 2015; Escobar-Rodríguez and Carvajal-Trujillo, 2014; Huang et al., 2013). Specifically, Huang et al. (2013) extend the technology acceptance model, incorporating the hedonic elements of enjoyment, emotional involvement, positive emotions, and flow experience in the three dimensional-virtual worlds of tourists. In the context of low-cost airline websites, an extended unified theory of acceptance and use of technology model indicates that key determinants of online purchasing tickets are online purchase intentions, habit, and ease of use.
(Escobar-Rodríguez and Carvajal-Trujillo, 2014). An integrated model of the theory of reasoned action, theory of planned behavior, technology acceptance model, and innovation diffusions theory show that intentions to purchase travel online are mainly predicted by attitude, compatibility, and perceived risk (Amaro and Duarte, 2015).

In recent years, within the tourism field, researchers have intensively conducted studies on mobile, in particular, technology adopting models (e.g., Morosan, 2014; Okazaki and Hirose, 2009; Wang et al., 2014). For example, Subasi and Reithner (2012) investigate needs and motivations of senior travelers for the adoption of travel assistance systems on information technologies. However, few studies have investigated the applicability of the integrated framework of the technology acceptance model and attachment construct in the context of seniors’ mobile usage for tourism. Thus, the key contribution and value of the present study are to develop a research framework that integrates technology usage adoption, along with attachment and knowledge constructs to identify the factors affecting seniors’ usage of mobile devices for tourism-related activities.

Based on the literature review, this study proposes a research model for the relationships among usefulness, ease of use, enjoyment, attachment, and usage intention and the moderating effect of knowledge on the relationships.

Data collection

The authors used online surveys to reach the population of this study, adults 55 years and older who had used mobile devices for tourism. Since the development of the Internet, researchers have used online surveys to efficiently reach populations of interest in tourism fields (Kim et al., 2011). Therefore, the researchers employed a top-ranking online survey firm (www.embrain.com) to collect the data. The online survey firm possessed a panel of 980,000 Internet users recruited via telephone and mobile phones, voluntary participation, recommendations by panel members, and offline promotions. The researchers selected a sample of participants who were 55 years old and over from the nationwide panel. The researchers sent survey notices using the online survey company’s bulk e-mail and short message services mailing system. The data collection system automatically excluded respondents who completed the questionnaire too quickly or provided responses in recognizable patterns merely to receive a reward for participation. The company managed the system to prevent the same respondents from participating in a similar survey for a certain period.

Since this study focuses on seniors’ mobile usage, the authors employed a stratified random sampling frame based upon Internet users’ gender, age, and residence, data that came from the Korea Internet Security Agency (2013) and the Ministry of Security and Public Administration (2013). These data indicate that whereas 53.3% of men have used the Internet, 46.7% of women have used the Internet. Of Internet users, 68.5% were in the age group of 55-64 years, while 31.5% were in the age group of 65 and over. Residents of capital areas represented 49.3%, while residents of non-capital areas represented 50.7%. To select samples from the population, the authors chose participants who had used mobile devices for tourism during the past year. The online survey firm employed screening questions to exclude potential respondents
who had not used mobile devices for tourism. Initially, the researchers provided examples of experiences via mobile devices related to tourism, such as questions involving searching for information and making reservations or purchases, as well as examples that were not associated with tourism.

**Findings and Implications**

The world’s population is growing older because people are living longer, healthier lives; as a result, people are extending their working years and, therefore, have different capabilities and needs (Bloom et al., 2011). Because 55.9% of seniors in Korea use smartphones (National Information Society Agency, 2014), researchers and technology companies that are interested in mobile devices should study seniors’ preferences regarding mobile devices. Research on the relationships among determinant, extrinsic and intrinsic motivations, attachment, and usage intention, with respect to seniors’ tourism-related use of mobile devices, particularly regarding the moderating role of knowledge in these relationships, would be valuable, but it is lacking in the literature. Responding to this gap, the current study explored the relationships among usefulness, ease of use, enjoyment, attachment, and usage intention, as well as the moderating role of knowledge. The findings of this study provide insight to tourism academics and industry professionals.

Ease of use has significant positive effects on usefulness and enjoyment for both the high-knowledge and low-knowledge groups, extending the prior literature (Adams et al., 1992; Davis, 1989). The results of this study assert that ease of use has positive and significant impacts on usefulness and enjoyment during use of mobile devices, indicating that when seniors perceive more ease of use, they experience better usefulness and enjoyment of tourism-related purposes. Moreover, usefulness and enjoyment significantly affect attachment for the entire group as well as the high-knowledge and low-knowledge groups individually; these findings extend those of previous studies (Alexandris et al., 2011; Feeney et al., 2013; Kyle et al., 2004). That is, the findings indicate that if seniors feel usefulness and enjoyment during use of mobile devices, then seniors will become emotionally attached to using mobile devices for tourism. Thus, businesses in the mobile tourism industry should seek to increase seniors’ attachment by enhancing the usefulness functions and potential enjoyment related to their products. Seniors’ level of attachment had significant positive effects on usage intention for the entire group as well as the high- and low-knowledge groups individually, extending the findings of previous studies (Prayag and Ryan, 2012; Ramkissoon et al., 2012). Specifically, the results of this study prove that seniors’ attachment to use of mobile devices is highly linked to their behavioral intention to use mobile devices for tourism-related activities. Therefore, tourism managers must significantly cultivate seniors’ attachment in order to enhance their use of mobile technologies.

Ease of use did not significantly affect attachment for the entire group nor the two subgroups—a finding that is inconsistent with previous research (Smith, 2008) and the researchers’ expectations. Surprisingly, the finding of this study implies that the effect of ease of use is not effective for seniors’ attachment and behavioral intention for use of mobile devices for tourism-related purposes. Besides that, the result of this study is somewhat inconsistent with the prior literature (Venkatesh, 2000); when individuals feel more ease to use technologies, they have less anxiety attachment. The plausible reason for this outcome could be that current mobile
devices are already extremely user friendly to the point that demonstrating ease of use features does not necessarily lead to senior users’ emotional attachment. In addition, this study identifies the moderating role played by knowledge in seniors’ use of mobile devices for tourism, and these findings extend those of previous studies (Marquié et al., 2002; Palau-Saumell et al., 2013), and they reveal differences between the high- and low-knowledge groups. Interestingly, the results indicate that seniors’ knowledge as moderator has an adequate reliability and validity in the context of using mobile devices for tourism.

Specifically, the relationships between ease of use and usefulness, ease of use and enjoyment, and enjoyment and attachment were stronger for the high-knowledge group than for the low-knowledge group. Conversely, the relationship between usefulness and attachment was stronger for the low-knowledge group than for the high-knowledge group. These results are not consistent with the previous literature (O'Brien et al., 2012). It assumes that low-knowledge senior users of smartphones and tablets use mobile devices mainly because of usefulness that leads to attachment to the devices. Therefore, to exploit market segmentation, practitioners should employ different marketing strategies depending on whether they are targeting high- or low-knowledge seniors. In other words, destination marketers should highlight the strength of usefulness features of their destination mobile sites when they target tourist groups with low-knowledge seniors, and destination marketers should emphasize the strength of the enjoyment characteristics of their destination mobile sites when they target tourist groups with high-knowledge seniors.

In terms of theoretical implications, this study confirms the importance of the attachment construct in the proposed research model. Accordingly, the findings support the basic theoretical propositions of the causal relationships of attachment with determinants and usage of mobile devices, demonstrating that the research has moved the body of scientific knowledge forward. In particular, this study illuminates the significant relationships among extrinsic (i.e., usefulness) and intrinsic motivations (i.e., enjoyment), attachment, and usage intention, extending previous research by Davis et al. (1992). As a result, this study offers insightful implications on research on seniors’ mobile adoption, contributing to the formation of knowledge in the tourism field. If seniors have high extrinsic and intrinsic motivations, then they will have higher attachment to mobile device use, which, in turn, will influence their mobile device usage intention for tourism. In addition, this study significantly expands the understanding, from prior research, that attachment influences users’ behavioral intention (Ren et al., 2012). The implications of the findings are that seniors’ attachment to smartphones and tablets considerably influences their behavioral intention to use the devices in the tourism context, extending the findings of previous research (Choi, 2013).

As another theoretical contribution, this study finds that knowledge plays a significant moderating role within the research model. As a result, this study provides a research framework that captures seniors’ knowledge of utilizing mobile devices for tourism-related purposes by extending the technology acceptance model to incorporate the knowledge within the context of senior tourism. In other words, this study proves there are significant differences in mobile device use between low- and high-knowledge groups, extending previous research (Marquié et al., 2002). That is, senior users’ level of knowledge of mobile devices has a significant moderating effect on the relationships among usefulness, enjoyment, and attachment. Therefore,
the originality of this study has advanced an understanding of seniors’ behavior concerning the use of mobile technologies. Consequently, the result of this study, by introducing the concept of knowledge as a moderator for use of mobile devices, provides a strong implication for tourism academics.

**Expected Outcome:**

This research project was submitted to *International Journal of Contemporary Hospitality Management* and accepted for publication. The article is expected to be published in 2016.