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Factors Affecting Mobile Device Use at Festival Attractions

Abstract

To better comprehend mobile device acceptance and use at attractions and during tourism experiences broadly, we need to know and understand the factors that influence the decision to use technology in varying contexts. This presentation will discuss the Unified Theory of the Acceptance and Use of Technology 2 in relation to mobile device use at festivals. On-site interviews and survey data collection from 9 festivals reveals 5 new items that should be incorporated into this technology use model going forward. The implications will enable attraction staff and mobile device experience designers to ascertain appropriate ways to integrate mobile technology in the visitor's experience.

Introduction

For nearly a decade, most Canadian households have had people who own a cell phone (Industry Canada, 2008) and while this technology is generally accepted by the public in everyday day life and work environments, it may not be accepted and used equally in all contexts of our lives. With advances in technology, our daily lives increasingly incorporate our mobile devices into the varying activities and tasks we undertake; however, much of the research on acceptance is based on work environments and there is a need to better understand technology adoption and diffusion in free-choice environments (Straub, 2009; Van Winkle, Cairns, MacKay, & Halpenny, 2016). How and why people do or do not accept mobile devices in free-choice contexts is an important step in exploring the complexity of information and communication technology (ICT) in our lives. Past research has demonstrated that it is necessary to examine ICT models and theories in a range of contexts (Hong, Chan, Thong, Chasalow, & Dhillon, 2014; Van Winkle, Cairns, MacKay, & Halpenny, 2016). In this paper, festivals are the selected free-choice context for examining factors affecting mobile technology adoption and outcomes of technology use. Increasingly festivals integrate ICT into attendees experiences by offering on-festival-site internet access, developing digital media device applications, and creating social networking profiles in order to attract new audiences and satisfy existing visitors. Festivals are an appropriate leisure and tourism context in which to examine acceptance, use and outcomes of mobile device use because they range considerably in the experience opportunities they provide attendees.

The purpose of this research is to advance our understanding of technology acceptance and non-acceptance in a free-choice context by applying the Unified Theory of the Acceptance and Use of Technology 2 (UTAUT2) in a free-choice context and exploring additional variables relevant to the leisure/tourism setting. Understanding acceptance and non-acceptance in settings where people are not required to use technology leads to a better understanding of use, has implications for technology manufacturers, and inform decision makers in these voluntary settings. Leisure and tourism settings (including festivals) provide an opportunity to examine voluntary behaviour as freedom to participate and choice are key elements of leisure experiences. This presentation explores the UTAUT2's appropriateness in a leisure/tourism context
and identifies context specific variables not presently included in the UTAUT2. Specifically, the presentation will address the following research questions: Which

UTAUT factors predict festival patrons' mobile device acceptance/non-acceptance at a festival? What additional factors should be considered as part of the UTAUT2 when studying mobile acceptance and use is a leisure / tourism context?

Literature

Research examining ICT at festivals is scant; however, studies examining technology acceptance in other settings provide insight to guide this research. Two widely accepted theories exist that describe ICT acceptance and use – the Technology Acceptance Model (TAM) and the United Theory of Acceptance and Use of Technology (UTAUT) (Straub, 2009). TAM suggests that perceived ease of use and perceived usefulness affect the adoption of a new technology (Davis, 1989; Straub, 2009). This model has been critiqued because it does not take into account individual differences. The UTAUT builds on TAM and proposes that performance expectancy, effort expectancy, and social influence can predict behavioural intention to use IT and in turn predict usage behaviour. In this model gender, age, experience, and the perception of voluntariness of change are all moderating factors for intention to use technology (Venkatesh, 2000). In 2012 Venkatesh at al proposed the UTAUT2 where additional factors were added to the model based on research. These new factors were hedonic motivation, habit, and price value. While the UTAUT 2 is based on previous research, this model has not been extensively tested (Straub, 2009; Wang & Shih, 2009) and the theory has not been used to understand non-users. Examination of the UTAUT2 variables in various settings is needed to help validate the existing model of acceptance as well as uncover additional variables relevant to specific settings especially since contextual factors can affect use (Hong et al., 2014; Rogers, 1995).

Methods

This research is part of a multi-stage mixed methods program of research addressing how and why mobile devices are integrated into leisure / tourism contexts. Data collected during stage one and two of this research program are discussed here. The first stage of this research involved on-site interviews and observations of visitors at 6 different festivals across Canada. Research team members were located in Toronto, Winnipeg and Edmonton, Canada and so festival inventories of each of these areas was undertaken to understand the range of mobile device experience offerings at festivals in these regions. Festivals were selected to represent a range of mobile device experience opportunities and were chosen from the festival inventory conducted by the research team. In total 2 Low, 2 medium and 2 high technology festivals were selected (see Table 1).

The observation of festival attendees' mobile device use is beyond the scope of this abstract. The on-site interviews were undertaken by approaching every n[th] (n depended upon the density of the crowd) visitor who passed within a 5-foot radius of the research assistant. Research assistants were located in various high traffic areas throughout the festival grounds at varying times of day (morning, afternoon, and evening). If the visitor was willing to participate in the research they were asked a series of open-ended questions on their festival experience and their mobile device use/non-use in the festival setting. The specific interview questions related to this presentation were:

- Have you already or do you intend to use it (data/wifi/) while you are here? Why (for what purposes) or why not?
- Describe how you use your mobile device while at the festival? (talk, text, email, photo/video, shop)? Is your use directly related to the festival? In what way? What other non-festival related things are you using it for while at the festival, if any (e.g., contacting work, home, friends, etc.)?

Findings from the interviews undertaken during the first stage of the research were used to inform the development of a survey instrument to understand factors affecting mobile device use/non-use in a festival context. In total, 3 festivals were selected for the stage 2 survey research. One festival in each city where a research team member was located was selected. The festivals were selected from the inventory, represented a range of festival genres and form and were based on convenience. The survey data collection sites were: 1) Festival du Voyageur: A French Canadian culture and music festival that takes place outside in Winnipeg during the winter and is a gated/ticketed festival. 2) The Edmonton Fringe Festival: a summer theatre festival that has gated / ticketed element as well as a free outdoor site. 3) The Toronto Busker Festival: takes place at the start of summer and is an ungated street performance festival. Visitors were intercepted in the same manner as they were for the interviews described above. If a visitor agreed to participate they were asked to complete the questionnaire on an iPad device using Fluid Survey.

The survey contained items to understand mobile device use generally and at the festival. Questions were generated from previous the Unified Theory of Acceptance and Use of Technology 2 research (Venkatesh, 2012). In addition, items uncovered during the interviews (but not currently part of the UTAUT2) were also included in the survey instrument.

Results

Interviews

In total 168 people participated in an on-site interview. Interviews were transcribed and analyzed by two coders. Coding was compared until consensus was reached on how to code the data to achieve inter-coder agreement (Creswell, 2014). Venkatesh et al.'s (2012) 7 variables were coded deductively. Inductive coding was used to identify additional variables influencing the use of mobile devices in this context.

Interview data revealed that factors influencing mobile device use included items from both Venkatesh et al, 2012 UTAUT2 as well as from the Mobile User Engagement Model by Kim et al (2013). In total, 5 items not captured within either of these existing models were revealed during the stage 1 on-site interview. These were:
Using my mobile device allows me to capture important information:
Using my mobile device allows me to capture meaningful experiences:
Using my mobile device allow me to capture memorable moments:
I have free time that I like to fill using my mobile device
I can get feedback from others about the festival experience by using mobile internet.

	Level of mobile ICT services		On-site interviews
Festival	Provided by festival	Available on location	
19th Edmonton Festival of Trees	Very low	Moderate	N=23
20th Taste of the Danforth, Toronto	Low-moderate	Moderate-High	N=30
33rd Edmonton International Fringe Theatre Festival	High	Moderate	N=26
33rd Toronto Pride Week	Moderate-high	Moderate-High	N=30
49th Manitoba Sunflower Festival, Altona	Very low	Low	N=29
2014 Festival du Voyager, Winnipeg	Moderate	Moderate	N=30

Table 1 Festival sites for attendee interviews

Surveys
A total of 1179 visitors across the three festivals responded to the on-site survey. 403 festival du Voyageur participants, 357 Busker Festival attendees and 419 Edmonton Fringe Festival goers.

The questionnaire examining mobile device use included items from the existing literature (the 7 constructs from Venkatesh et al, 2012) were included. The 5 items identified from the stage 1 interviews but not captured within either of these existing models were also included in the questionnaire.

Existing technology use models recognize that varying factors affect intention to use and in turn use. Before integrating the 5 newly identified items into a revised model of technology use they need to be examined in relation to intention to use.

Intention to use was measured using items proposed by Venkatesh at al (2012) and adapted for the festival context. The items were: I intend to continue using mobile device in the future.', 'I will always try to use my mobile device' And, 'I plan to continue to use my mobile device". These three items were combined into one intention measure by calculating the grand mean of the three items.

Each of the new items generated from the interviews were significantly related to intention to use a mobile device at the festival.

Table 2 Correlations between items affecting use and intention to use a mobile device

		Intention to Use Mobile Device
Capture Important Information	Pearson Correlation	.303**
	N	653
Capture Meaningful Experiences	Pearson Correlation	.223**
	N	653
Capture Memorable Moments	Pearson Correlation	.197**
	N	648
Fill Free Time	Pearson Correlation	.330**
	N	647
Get feedback from others about my experience	Pearson Correlation	.249**
	N	646

Note. P<.10,*=p<.05**=p<.01***
A complex skip patterns asking visitors about their device ownership and use led to the reduction of N from the full 1179

That these items were significantly related to intention to use mobile device suggests they need to be incorporated into existing theory and models.

The next phase of analysis will involve confirmatory factor analysis (CFA) to identify common factors and determine how these additional items fit within the UTAUT2. Prior to further analysis, a conceptual examination of the items will be discussed here. The CFA is beyond the scope of this abstract but will be presented at the conference.

Discussion

"Capturing important information" was discussed by participants during the stage 1 interviews and was related to the intention to use one's device. As mobile devices have become increasingly integrated into our daily lives how we use them has evolved beyond talking, texting and taking photos. Interview participants discussed taking down information about the festival and from other attendees. For example, one participant noted taking a photo of a leaflet to archive the information for later use. This item seems related to the utilitarian function of the device. As such, it is expected that it will correlated with the existing usefulness factor of the UTAUT2.

"Using my mobile device allows me to capture memorable moments" was another item mentioned during the interviews that was correlated with intention to use one's device at the festival. This item was discussed by participants in relation to taking photos / video and posting on social media. Tung and Ritchie explored the essence of memorable tourism experiences in their 2011 paper. In the article, 4 dimensions of experiences were presented. These were affect, expectations, consequentiality and recollection. Considering these dimensions in relation to mobile device use one can see how the device contributes to capturing the memorable moment. By taking pictures, videos and posting content online people are able to remember and share those moments that had a strong emotional element (e.g. watching children have fun), met or exceeded expectation, were an important outcome of the experience (e.g. spending time with friends and family). The confirmatory factor analysis should consider whether this item is a new factor or part of one of the existing factors (such as hedonic motivation or social influence). Modeling in the next stage will examine where this item fits best.

"Capturing meaningful experiences" was also described by interviewees and related to intention to use one's device. Meaningful experiences have previously been examined in the free-choice learning and the mindfulness literatures within the visitor studies and tourism fields (Falk, Ballantyne, Packer, & Beckendorff, 2012; Frauman & Norman, 2004; Langer, 2000; Moscardo, 1999; Van Winkle & Backman, 2011). Meaningful experiences are thought to result from mindfulness during experiences. Mindfulness is a state where one is consciously aware of context and remains sensitive to information and perspectives (Langer, 2000 & Moscardo, 1999). During this state people have demonstrated meaningful learning and greater satisfaction (Frauman & Norman, 2004; Van Winkle & Backman, 2011). Using one's device may allow attendees to capture those moments where one feels they are fully aware of the unique context they are experiencing at the festival. Furthermore, meaningful experiences are likely part of co-creation of value that has been shown to occur during festival experiences. Co-creation research in

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tourism has demonstrated that by enabling consumers to participate in creating the experience, meaning is added that augments the value to the overall experience (Neuhofer et al., 2014; Terblanche, 2014, Van Winkle & Bueddefeld, 2016). Certain types of mobile device use allow attendees to link, organize, sense and perform during the festival experience (Korn & Pine, 2011; Van Winkle, Cairns, MacKay, & Halpenny, 2016) contributing to their ability to meaningfully contribute to their own experiences. The confirmatory factor analysis must consider whether this item is part of a new factor or part of one of the existing factors (such as hedonic motivation or perceived usefulness). Further modeling is needed to determine where this item fits best.

Attendees stated that "filling free-time" drives them to use their device in the festival context. The existing UTAUT2 model identifies two factors that this item likely fits within. The first is hedonic motivation. Depending on how the device is used during free-time it may be that it creates a pleasurable experience in an otherwise mundane moment (such as waiting in a long line). Alternatively, using one's device to fill time may be a function of habit. When there is an empty moment, attendees may attend to their phone as a function of automatic behavior. If this item loads strongly on either of these factors and does not seem independent of existing items it may be removed from the model or included in the existing factor.

"I can get feedback from others about the festival experience by using my mobile device" was the final item identified during the interviews that was added to the questionnaire to enhance the UTAUT2. It seems reasonable that this item is related to social motivation; however, Venkatesh et al. (2012) conceptualize the social factor as social influence (much like subjective norms within the theory of planned behaviour). Social influence does not capture the range of social factors influencing use. Kim et al. (2013) proposed the Mobile User Engagement model (MoEn), which offers a different perspective on the social factor. Here, the social factor is described as social motivation, a desire to engage socially. It seems likely that while this item may not be a part of the social influence factor in the current UTAUT2 it is likely related to the social motivation in the MoEn model. Further model testing will reveal how this item is related to existing factors within the UTAUT2 model and if it does not fit within the exist model likely suggests the need for a social motivation factor beyond social influence.

This abstract identified 5 new items that need to be considered within the UTAUT2 for it to be appropriate for a leisure / tourism context such as a festival. Further model testing will result in a modified version of the UTAUT2 that will be useful in a range of leisure and tourism settings to understand factors influencing use of mobile technology in these contexts.

If this abstract is selected for visual presentation the research will be showcased in 3 distinct infographics. Infographics are used to simplify complex information in a stylized graphics display of data. A graphic designer will work with the researchers to produce the infographics to ensure high quality images. Infographic 1 will summarize the findings from stage 1, infographic 2 will summarize the findings from the correlational data from stage 2, and infographic 3 will summarize the proposed model that results from including the new items in the modified UTAUT2.

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