



Improving travel decision support satisfaction with smart tourism technologies: A framework of tourist elaboration likelihood and self-efficacy



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ARTICLE INFO

Article history:

Received 30 March 2016

Received in revised form 22 September 2016

Accepted 26 October 2016

Available online 2 December 2016

Keywords:

Smart tourism technology

Elaboration likelihood model

Self-efficacy

Human-computer interaction

Travel decision support satisfaction

ABSTRACT

Information technology-supported tourism services and platforms have made it easier for individual travelers to plan and manage their trips. But with smart tourism, a number of human-computer interaction issues, such as the decision support in the context of tourists' information processing, have surfaced. This study investigates the impact of the important smart tourism technology (STT) characteristics on travel decision support satisfaction and the moderating effects of self-efficacy on the main relationships. We adopted the elaboration likelihood model as an overarching theory to develop our hypotheses that revolve around both the central route and peripheral routes in the elaborated process, and tested the model with survey data collected from South Korea. The findings illustrate that STT characteristics of information quality, source credibility, interactivity, and accessibility have a positive influence on travel decision support satisfaction. Self-efficacy toward STT use was found to have a positive moderating impact on a hypothesized central route but negative moderating influence on three peripheral routes. Theoretical contributions and managerial implications of this study are discussed.

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1. Introduction

Information technology (IT) has played an important role in tourism since the early days of computer networks through the applications of flight ticketing and hotel reservation (Gretzel et al., 2015), and the prevalence of the Internet communication technologies (ICT) has significantly expanded the impact of IT on tourism. For example, online travel agencies, such as expedia.com, not only facilitate direct interactions with service providers but also greatly expand trip options for the travelers. The influence of IT on tourism receives even more attention with the advent of smart tourism. Smart tourism, defined as the convergence of tourism content, service, and IT devices (GooglePlay, 2016), helps tourists to extend their cognitive boundary of travel planning with the destination details visualized and enhances the decision quality with data-driven, context-specific recommendations. As such, smart tourism greatly extends and sets apart from the earlier “e-tourism,” which provides information via websites in pre-/post-travel phase, by offering smart technology-mediated tourism experiences through information

aggregation, ubiquitous connectedness and real-time synchronization. As a result, smart tourism provides more relevant information, greater mobility and better decision support over e-tourism (Gretzel et al., 2015).

Smart tourism technologies (STTs) in this study refer to any forms of IT that tourists interact for information search, transaction, communication, and content generation. Rooted deeply in computing devices, sensors, and mobility, STTs aggregate and harness data derived from physical infrastructure, social connections, government/organizational sources, and human bodies/minds in combination with the use of advanced technologies to transform tourist's travel experiences. Examples of STTs can include smartphone apps, websites of online travel agencies, destination smart infrastructure, to name a few. Generally, STTs support the travel planning process by providing relevant information and services to users in an interactive manner, thereby facilitating tourist's informed decision. In this fashion, travel decision support satisfaction, defined as the psychological state resulting from the capability of STTs in assisting travel decision-making and better experience of the travel planning, is enhanced. For example, Smart Tourism Taiwan app helps tourists discover new attractive destinations and schedule activities, and provide personalized information push with the use of intelligent analytics (GooglePlay, 2016). With such diverse applications of STTs, travelers can now easily obtain tourism information that was expensive or even impossible to get only a few short years before.

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Given the importance of STTs, a multitude of studies have examined various aspects of smart tourism and the related technologies. For instance, the definition of smart tourism (Gretzel et al., 2015), STT adoption and usefulness (Chung et al., 2015), e-service quality of STT (Ho and Lee, 2007), and influence of social media on tourism (Xiang and Gretzel, 2010) have been addressed in the literature. While these studies all suggest the positive influence of STTs on tourism and thereby promote the adoption of STTs, the development of understanding about how different degree of STTs use by the tourists would result in differential level of the benefits is still lacking (Gretzel et al., 2015). In particular, while STTs play a significant role to support travelers with informed travel decisions, we have not yet seen any studies on how the tourist interacts with STTs to enhance travel decision support satisfaction (TDSS) in the literature. Due to the dearth of literature in this important aspect of STTs, the current study is set to examine how important STT characteristics, such as information quality, interactivity, and accessibility, influence traveler's decision making process and thus lead to their TDSS. In so doing, we can further investigate how individual user's diverse states of information processing interact with differential properties of STTs toward decision support. For instance, each tourist has different attitude and skills toward the use of STTs: Some tourists are familiar with STTs and fully utilize the interface and services, while others maintain minimum interaction with technology. Such differences may lead to disparate levels of demands for and expectations of STTs, which might lead to individual tourist's unequal satisfaction with STT use as a result.

In the context of smart tourism, informed decisions or travel planning mainly come from the processing of tourism information and services provided via STTs, and, as such, the satisfaction with respect to travel decision support depends on the individual self-efficacy and propensity when going through the elaborated process of using STTs. Furthermore, Individual may undergo diverse processes when making travel decisions; for example, some prefer information-based STTs, while others may be swayed by a friendly interface or an active review forum. Developing the understanding of the interplay between individual's variations on information processing and the different properties of STTs for travel decision support is largely ignored in prior literature.

To examine these possible gaps and issues regarding information processing in using STTs, we adopt elaboration likelihood model (ELM) as the main theoretical lens of this study. We find that tourists' STT-supported travel planning and decision making process mimics the information processing through both central and peripheral routes in ELM, because, for instance, accepting the travel information provided by STTs or completing transactions in STTs can be regarded as a process that STTs persuade users. In this sense, ELM can be used to explain tourist-STT interactions and the decision supporting role of STTs and provide guidance as to how STT contents and formats should be prepared and presented based on users' characteristics. Using the framework of ELM, we theorize the antecedents of travel decision support satisfaction and look into the role of individual characteristics that moderate the interaction between tourist and STTs.

Specifically, this current study intends to address the following research questions: (1) What central and peripheral routes in STTs influence tourists' travel decision support satisfaction? (2) Does self-efficacy determine the route as elaboration likelihood? To answer these questions, we conducted an individual-level study using the survey data collected from a travel club in South Korea, and the results of the study offer important contributions to the current literature on tourism. Through the noble framework of ELM, we identify central and peripheral factors that influence travel decision support satisfaction in the smart tourism context. Our analysis also illustrates that tourists' technology self-efficacy levers the STT-supported travel planning and decision making process, which improves the tourist decision support satisfaction.

The rest of this article is structured as follows: We first introduce prior studies on smart tourism technologies. In the next section, we

present the elaboration likelihood model as an overarching theory of our study and propose hypotheses including moderating relationships based on relevant arguments and literature. The research methodology and result analysis are then discussed. We conclude the paper with the implications of our findings.

2. Literature review on smart tourism technologies

Still in its infancy, the literature on STTs can be classified into three major themes: the role of STTs in the tourism industry, features and characteristics of STTs, and the adoption of STTs in tourism industry. First, several researchers have looked into how STTs influence the entire map of stakeholders in the tourism industry. For example, Xiang et al. (2015) found that while using the Internet to search for primary products such as airline tickets, car rental, and accommodation already reached a level of maturity, information searches and transactions have increasingly included secondary products such as museum tickets, shopping, or dining through STT-like mobile apps. Similarly, Buhalis and Law (2008) argued that growing content and services based on STT provide the info-structure for the tourism industry that will likely overtake all mechanistic aspects of tourism transactions. Furthermore, it was also suggested that because tourists are becoming sophisticated and experienced and therefore difficult to please, the future of tourism requires STT capabilities such as the recommender system (Rabanser and Ricci, 2005) and social media in travel information search (Xiang and Gretzel, 2010) for travel organizations to dynamically interact with their customers. And the role of smart technology in developing smart destination with more engaging at-destination experiences would be a key differentiator that sets smart tourism apart from previous e-tourism (Gretzel et al., 2015).

Another stream of literature is focused on the important features of STTs. For example, the content and interface of mobile apps are becoming a critical part of tourists' travel planning, and the presentation of information search results and communication functions within the apps have been shown to promote interactivity and effectiveness of the STTs (Kennedy-Eden and Gretzel, 2012; Tierney, 2000). Another study tested the usability of STTs and illustrated that when tourists perceive accessibility, ease of navigation, and visual attractiveness in STTs, tourists' overall travel quality increases (Perdue, 2002). Features of STTs from the service quality perspective and multidimensional factors including content, responsiveness, and personalization were also considered (Park and Gretzel, 2006).

The third research theme is the STT adoption. Several important factors related to tourists' STT adoption have been examined. For example, enjoyment was found to be the most important factor affecting perceived value and actual usage of social media in smart tourism (Chung and Koo, 2015). The influence of STT characteristics on perceived STT usefulness in trip planning has also been well examined (Kaplanidou and Vogt, 2006). Usoro et al. (2010) suggested that, in addition to usefulness and ease of use, task technology fit and perceived trust significantly influence transaction intention. The adoption of STTs for decision support has also been studied, mostly from the organizational perspective. For example, with the growing availability of data in tourism, Wöber et al. (Wöber, 2003) emphasized the importance of IT-driven decision support for marketing and forecasting. Furthermore, managing human-technology interactions is expected to rise in importance with increasing technical capabilities and growing system interactivity and learning abilities for IT-based decision support in tourism (Woeber and Gretzel, 2000). From the user perspective, Dye et al. (Dye and Shaw, 2007) investigated the spatial decision support and found that easy-to-use graphic user interfaces help tourists to choose and plan their activities more effectively to match their personal preferences and constraints.

The existing literature on STTs directs us to the important but yet-to-be-addressed issues of how STT features interact with different types of users to affect the link between travel decision support and information

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