

Investigating the Product Impulsive Buying in Tourism Mobile Commerce

Completed Research Paper

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Abstract

The purpose of this study is to investigate what motivates buyers to purchase tourism products through mobile-commerce applications, and how these motives have an impact on consumers' impulse buying behavior. For this study, we conducted a mixed-methods approach that combines qualitative and quantitative research methods. First, we interviewed via the qualitative research methods to study motivation for mobile-commerce application use. Then, we extracted the motivation factors and examined how these factors affect impulse purchase intentions for tourism products through mobile-commerce applications. To do this, a questionnaire survey was conducted. Based on the results of the questionnaire, we conducted a hypothesis test of the research model set up through the previous research study. In addition, fuzzy-set qualitative comparative analysis (fsQCA) provided in-depth analysis of factors that may influence impulse buying. As a result of the study, it was found that the characteristics of mobile devices had a positive effect on perceived value. The perceived value, transaction characteristics, and impulsiveness of the individual had a positive influence on urge to buy impulsively.

Keywords: mixed-methods, mobile, impulse buying, online travel agency, fsQCA

Introduction

The search and purchase of products through mobile environments are increasing rapidly. In particular, in Korea, where smartphone penetration rates are relatively high, the use of Internet search engines on smartphones is significantly higher than in other countries (Robin, 2015). In addition, more than a quarter of online shoppers use mobile devices (Robin, 2015). From this point of view, smartphones will become more involved in our daily lives. In the field of tourism, consumers also purchase goods such as hotel rooms, airline tickets, or tourist packages through mobile commerce applications. Online travel agencies (OTA) have developed apps to adapt quickly to the mobile environment as well as to the web.

In the online and mobile context, impulse purchasing has become an important phenomenon in the transaction between the supplier and the consumer, as the real-time search and settlement of goods and services becomes increasingly easier and more convenient. Furthermore, this trend also affects tourism products and a few tourism-related studies on impulse purchasing behavior have been reported in the

literature. For example, reasons such as changes in tourism product trading environments, marketing strategies of sellers, changes in individual perceptions of travel, and personal temperament could motivate consumers' impulse buying (Rezaei, Ali, Amin & Jayashree, 2016). However, not enough impulse purchasing research has been done in tourism (Lee, Chung & Lee, 2017). In addition, there is a lack of in-depth qualitative research in the study of impulse buying.

Current research on mobile commerce has been mainly focused on understanding consumer behavior (Liu, Ben & Zhang, 2019). Early research has focused on topics such as mobile commerce adoption, trust, perceived risk, and group buying. Recently, this research stream has been combined with research on social commerce. In particular, most studies on mobile commerce in the tourism industry have focused on studies of planned behavior such as theory of planned behavior (TPB), theory of reasoned action (TRA), and goal directed behavior (Hwang & Fesenmaier, 2011). This is because we have seen that tourism will be made through planned and rational decision-making.

However, as mentioned above, because impulse purchasing is becoming an important transaction type in tourism, studying transactions focusing on planned behavior could have limitations in tourism research. Nevertheless, little is known about factors affecting impulsive buying behavior in tourism mobile commerce. In order to reduce these research gaps, it is important to understand why impulse buying is taking place in an environment where mobile commerce transactions increase. In this study, we explore the reasons for the transaction activity using mobile devices and examine the structural equation model in regard to how these reasons cause impulse buying desires. Furthermore, we apply fuzzy-set qualitative comparative analysis (fsQCA) to derive deeper research results by looking for relationships or patterns that can induce impulse buying.

Importantly, when dealing with mobile tourism products, it helps to understand users' impulse buying behaviors and grasp their motivations. Therefore, we set up the following research questions. What purchase motivations affect the intention to buy tourism products in mobile environments? How do these motivations affect consumer impulse buying behaviour (urge to buy impulsively)? Finally, this study seeks to identify the multiple influences among the causes of impulse purchasing and to find existing transaction patterns. To obtain appropriate answers for the research questions, we combine qualitative and quantitative research methods to suggest unified views of understanding impulsive buying of tourism products in mobile environments. Further, this study also aims to provide academic and practical implications for researchers and practitioners in the relevant field.

Theoretical Development

Impulse Buying

Impulse buying is a purchase that is unplanned, the result of an exposure to a stimulus, and is decided on the spot (Piron, 1991, p. 512). Unlike the rational and reasonable consumers' decision-making process of evaluating and comparing alternatives before consumption (Häubl & Trifts, 2000), impulsive buying behavior occurs from a sudden burst of hedonic and positive affect (Dhurup, 2014; Chung, Song & Lee, 2017). Consumers can act impulsively due to external stimuli and therefore are more likely to make impulsive purchases when exposed to an environment where they can buy goods directly (Floh & Madlberger, 2013). Impulse purchasing is basically characterized by a short and spontaneous decision-making process. And, as mentioned above, it can be based on unplanned behavior and could be influenced by an emotional state (Verhagen & van Dolen, 2011).

Consumer impulse purchases slightly different from habitual purchasing or instinctual conditions (Rook, 1987). Therefore, not only the external stimuli but also the individual's mental state should be considered. This can be viewed in the same way that impulse buying can be linked to individual pleasurable experiences or values (Rook, 1987). Therefore, because it is difficult to directly measure the impulse buying behavior itself, we attempt to estimate impulse buying behavior by identifying the impulse buying intention of consumers (Chung et al., 2017).

Urge to buy impulsively is an emotional status enabling consumers to purchase impulsively (Parboteeah, Valacich & Wells, 2009; Verhagen & van Dolen, 2011) and is defined as "the state of desire that is experienced upon encountering an object in the environment" (Beatty & Ferrell, 1998, p.172), although

not all urges to buy impulsively result in impulsive buying behavior (Chung et al., 2017). Accordingly, the impulsiveness of the individual should be considered first when confirming a person's impulse. Many studies have examined impulse buying based on various personality and demographic characteristics (Turkyilmaz, Erdem & Uslu, 2015). However, impulse buying behavior is only partially explained by a person's temperament, and external factors due to the changing environment should be explored as well (Wells, Parboteeah, & Valacich, 2011). Therefore, in addition to individual characteristics, this study also considers variables set from the external environment.

Originally, impulse buying research was framed as studies of habitual purchase or unplanned behavior (Rook, 1987). After that, impulse purchasing research was conducted according to purchasing environment or the buying stimulus of sellers (Xu, 2007). Impulse buying was further studied as product categories or with consumer tendencies and basic information. Recently, impulse buying research has been combined with online shopping. Many empirical studies have demonstrated how various online cues can stimulate consumers' urge to buy impulsively (Dawson & Kim, 2009; Floh & Madlberger, 2013; Liu, Li & Hu, 2013).

In the study of impulse buying in tourism, March and Woodside (2005) compared the planned and actual behavior of tourists. According to their research results, the planned behavior of tourists can create a gap with the actual behavior depending on the destination type, time issue, and unexpected situational issue. It can be linked to unplanned behavior. Rezaei et al. (2016) presented empirical research results that the personality of a website selling tourism products stimulates consumers' hedonic motivation of web search, which in turn has a positive effect on impulse buying. There are also studies involving consumers facing time pressure or impulse buying tendency, which could promote their purchase activity when they shop as a tourism activity (Lin & Chen, 2013; Sohn & Lee, 2017).

The study of impulse buying in mobile commerce is as follows. According to Alliance (2008), a mobile payment service could induce consumers to buy impulsively before the launch of a smartphone. The researchers then investigated the consumer's impulse buying behavior according to the effect of advertising provided by mobile commerce (Drossos & Fouskas, 2010; Drossos, Kokkinaki, Giaglis & Fouskas, 2014). Wu and Ye (2013) empirically demonstrated the influence of consumers' immersion and pleasure on mobile shopping on impulse buying based on flow theory. Lee et al. (2014) explored how mobile transaction features can drive impulse buying and demonstrated that impulsive buying behavior can be closely related to consumer regret. Chen and Yao's (2018) mobile auction study suggests that the characteristics of mobile transactions are strong precursors that can motivate consumers' impulse purchases as compared with the transactions on other buying channels. Meanwhile, Dewan and Benckendorff (2013) assessed influences by dividing users' impulsiveness and the degree of technology use on mobile usage in regard to destinations. According to the results of this study, impulsiveness did not have a great influence on the use of mobile devices in determining a destination.

Significant research examines the effectiveness of the cues provided in a specific environment by looking at tourism and mobile studies on impulse purchases. In addition, there are many empirical studies on the variables or the characteristics of mobile transactions extracted from theory explaining impulse buying. However, no research explores behaviors in consumer mobile transaction environments through a qualitative approach to empirical analysis. In addition, research on impulse buying on mobile devices is still in its early stage (Wu & Ye, 2013). Therefore, we aim to extract mobile usage motives through qualitative analysis and to grasp the influence they have on the consumers' impulse buying decisions.

Methodology

We conducted two studies to qualitatively and quantitatively confirm consumers' motivation of impulse buying at an OTA by using a mobile device. In the first study, the mobile usage motive was identified through a qualitative approach through interviews. In the second study, we set up a research model for quantitative research based on the variables identified via the interviews. In addition, we conducted surveys and analyzed the research model based on the measured items provided in the previous studies. Finally, we carried out fsQCA for additional insights.

Conducting the mixed-method research, we attempted to grasp the impulse buying motives of users in OTA transactions using mobile devices. Therefore, interviews were carried out via qualitative means, and questionnaires were conducted in a quantitative way. We conducted interviews to understand the motives for using mobile devices for purchasing tourist goods. Then, we extracted major factors and set up a research model for Study 2. In Study 2, we conducted an empirical analysis by setting up a research model reflecting the causal relationship based on previous studies. For this process, the validity and reliability of the variables were secured, and the hypotheses were verified using SEM. Finally, we performed fsQCA by modifying the data corresponding to the 7-point Likert scale appropriately.

Qualitative Research (interview)

The qualitative methodology of Study 1 consisted of interviews with self-reported tourism mobile commerce users. In addition to the key questions, we asked the respondents basic information about the tourism products they had purchased. The key question was “Why did you use tourism mobile commerce?” Respondents were also asked about their names, gender, and age. Finally, information about the tourism products that respondents purchased consisted of questions about the mobile commerce companies they used and the tourist products they typically purchased. Samples were made by convenience sampling, and those who had experience purchasing tourism products in mobile environments were targeted. We organized the interview using aliases to protect the respondents’ identity.

Respondents responded to all the reasons for thinking from the question “Why did you use the tourism mobile commerce?” Afterward, the interview contents were coded in three stages. First, for the data collected from 13 interviews, two coders summarized the motivation type in the form of a keyword for each response. Subsequently, the contents listed were compared and the keywords matched or similar were compiled and reorganized. Finally, the four keywords that appeared the most were selected, and the coding was completed. A list of motivations finalized by agreement between the two coders listed in order of frequency is shown in Table 1.

Table 1. Coding table of interviewees’ mobile commerce usage motivations

Motivation	# of mentioned
convenience	10
perceived value	10
ubiquity	8
notice of special promotion	4
timeliness	1
easy to change	1
trust	1
time killing	1

Except for the top four keywords identified, the remaining motivations were not utilized in subsequent analyses, judging that the frequency mentioned was low and unimportant. The most common motivational factors mentioned were convenience, perceived value, ubiquity, and special promotion. The motivations of easy to change, trust, and time killing were excluded. In this study, the technology-specific perception is composed of convenience and ubiquity. Perceived value and special promotion consisted of transaction-specific perceptions.

First, for the technology-specific perception of convenience, not only are the contents of the interview about convenience, but the contents such as searching for real-time information were also included and coded in the convenience keyword. The contents related to the convenience included “Easier to operate than PC” and “Easy to pay and cancel.” Most respondents said that it is convenient to search, book, and purchase while traveling. Examples of interview responses related to convenience are as follows.

Sophie: For certain sites, the app is more convenient to search through so I use the app when I search accommodations.

Ella: The interface or screen when I can see using a mobile is simpler than PC.

Isabella: once signed in, I can confirm and pay for my flight as well as searching information in a short time. It's very simple – a few clicks and that's all.

The second most common motivation for mobile use is perceived value. Perceived value is related to transaction costs through a mobile device, and it mainly considers that using a mobile device is better than a PC in terms of time, effort, and price while trading. This can be applied more broadly than other variables, depending on what users value more in mobile transactions. An example of a response to perceived value from the interviews is as follows.

Ella: The access of mobile commerce is faster than PC.

Oliver: Usually, I use these service to find and list up the places to visit during my trips, to discover a deal to save my money for a travel.

Isabella: I have purchased airline tickets using mobile tourism commerce several times, since I can make a good deal and save time using it.

The third most common motivation for mobile use is ubiquity. Closely related to convenience, ubiquity is a specific characteristic of mobile commerce referring to the ability of mobile devices such as smartphones to make transactions anytime and anywhere. This means that it is possible to make services such as purchasing goods and reservations without being limited by time, place, and space beyond the ease of use. Examples of responses related to ubiquity are as follows.

Mia: I can search for information that I'm looking for whenever and wherever I want.

Poppy: I use the tourism mobile commerce because I can search and buy whenever and wherever I want. My school trip takes about an hour, and I can find tourist attractions that I'm interested in on the way to the subway.

Amelia: I am not with my laptop all the time so I find mobile commerce is way more convenient when you can check it anywhere, at anytime.

The last motivational factor to be used in this study is the notice of special promotions. This motivational factor was seen as one of the characteristics that appears in transactions through mobile devices with perceived value. Mobile users can carry mobile devices all the time, unlike their desktop, and, if they set up alarms, they can receive information on special promotions for tourism products in real time. Marketing that characterizes these mobile transactions not only drives people's impulse to travel but also drives a desire to buy tourism products. The following are examples of interviews related to this.

Olivia: Since hotels offer discounted coupons for social commerce just before the dates are passed, I can book a hotel room more cheaply and impulsively through a mobile social commerce than through other online shopping websites.

Emily: The m-commerce sites offer special promotions (e.g., coupons) to mobile customers only.

Harry: I can use the coupon that is offered only when I booked through reservation service of mobile.

The analysis of Study 1 identified eight motivations for mobile use. Motivations mentioned only once were removed, judging that they were not important motivators. The remaining four motivational factors were identified as core constructs for a research model of mobile tourism impulse buying intention. Based on insights gained from Study 1 and further literature review, several hypotheses were developed, such that the research model analyzed in Study 2 included two mobile characteristics and two transactional characteristics confirmed through Study 1 and, additionally, one individual characteristic was used.

Development of hypotheses

The early concept of convenience emerged as a study of what factors would affect consumers' visits to a particular store by in offline settings. . Consumer consumption can be affected by product diversity,

price fairness, or convenience, depending on what value they seek. Since then, research on the use of online environments and mobile devices has appeared, and the convenience of purchasing has been studied in terms of ease of use (Van der Heijden & Verhagen, 2004). The perceived ease of use of a technology has been found in many studies to have a positive effect on use intention (Venkatesh et al., 2012). In this study, the convenience mentioned directly in the interviews was applied as an independent variable of the study instead of ease of use. In other words, the convenience that can be felt in mobile commerce will give consumers value for their consumption. Thus, we set the following hypothesis:

H1. Convenience has a positive effect on perceived value in mobile commerce usage.

One of the primary features of mobile commerce is the portability and mobility of the devices used to collect information and make transactions (Clarke, Flaherty & Madison, 2003). In addition, there is a ubiquity of network connections for doing activities related to transactions through the Internet. In particular, tourism products require searching and purchasing while traveling, and real-time transactions can be activated as the smart tourism environment further expands (Koo, Joun, Han & Chung, 2016). As a result of real-time sharing of tourism information through the combination of smartphones and social networking services, the ubiquity feature as well as the mobility of the device itself will make the value of the mobile use more to tour merchants. Therefore, we set the following hypothesis:

H2. Ubiquity has a positive effect on perceived value in mobile commerce usage.

When people buy goods, they feel more valued and satisfied about the transaction if it takes less time and effort. In addition, OTAs traditionally help consumers make purchasing decisions by telling them how much discount they offer on tourism products (Liu & Zhang, 2014). In addition, special prices or unusual product configurations can be temporarily presented to convey the value of transactions to consumers who value financial benefits.

On the other hand, most tourist products have the characteristics of perishability in that the same goods are not available again after the time of use. Therefore, OTAs try to minimize the loss of goods via special promotions before the product disappears. This strategy is particularly well suited for mobile users who are comfortable accessing real-time information. If consumers set an alarm on the temporary benefits offered by their apps, they can easily participate in special promotions anytime and anywhere. It is also possible to promote consumer transactions by emphasizing that these are temporary and limited transactions. So, if you give your mobile a guide to a special promotion, it can drive impulse buying by consumers. Based on this background, we set the following two hypotheses:

H3. Notice of special promotion has a positive effect on perceived value.

H4. Notice of special promotion has a positive effect on urge to buy impulsively in mobile usage.

Perceived value is a variable that is widely used in consumer behavior research. This basically results from the interaction of the customer with the service or product (Payne & Holt, 2001). Perceived value may appear self-orientated, but it may also occur other-oriented (Holbrook, 1999). Service or product providers have made great efforts to convey value to customers from this point of view, as customers who feel valued have any intention or change of attitude in future (Chen & Chen, 2010; Chung & Koo, 2015). As mentioned earlier, there are several environmental cues that will trigger impulse buying. These external factors convey value to the customer, which may lead to decision-making of impulse purchases. In other words, a customer's perceived value can be a trigger for impulse buying. Thus, the following hypothesis was established.

H5. Perceived value has a positive effect on urge to buy impulsively in mobile commerce usage.

In order to study impulsive behavior, mental issues must be considered. Also, as mentioned earlier, various studies of impulse buying revealed differences in external factors while considering the internal nature of the individual. In this study, several variables for mobile use may also result in an impulse buying desire, but it is necessary to clarify whether this is caused by individual characteristics or not. Thus, we established the following hypothesis:

H6. Impulsiveness has a positive effect on urge to buy impulsively in mobile commerce usage.

To summarize the research model, mobile characteristics are expected to result in impulsive buying through perceived value. Meanwhile, the direct impacts on impulsive buying are also investigated, considering that the transactional characteristics could have a direct effect on impulsive buying. In addition to the direct impact of the notice of special promotion variables among the transactional characteristics, the effect on perceived value was also investigated because the purchase could be made if the value of notice of special promotion variable is recognized. This study also set the impulse tendency of individuals as an independent variable, as this psychological characteristic has been found to have a great influence on impulse buying in previous studies.

Quantitative Research (Survey)

In order to test the research model in Study 2, we constructed the questionnaire by adjusting the measurement items of the variables used in previous studies to the domain of this research. In order to verify the hypothesis, we confirmed the reliability and validity of the research model through measurement model analysis. The hypotheses were then verified.

Survey instrument

The measurements for the study were derived from previous literature pertaining to the six constructs of the research model. In particular, four variables except for impulsiveness and urge to buy impulsively were derived through Study 1, and the item with the most similar contents in the existing literature was applied to complete the questionnaire items. Four convenience items were adapted from a study conducted by Van der Heijden (2004), three ubiquity items were adapted from a study performed by Lee et al. (2015), four perceived value items were drawn from the research of Chung and Koo, 2015, four notice of special promotion items were adapted from Song et al, (2015), four impulsiveness items were adapted from the research of Chien-Huang and Chuang, (2005). Finally, four urge to buy impulsively items were adapted from Beatty and Ferrell, (1998). All items were measured by 7-point Likert scale.

Data collection

The online survey was conducted for ten days from July 1 to 10, 2016. Potential respondents (about 20,000) were extracted from a customer membership database of one of the largest Korean travel agencies. All participants in this survey were contacted and solicited using e-mail and then they responded via survey websites. The screening question was first presented to find out the subject that meets the condition. Respondents were requested to answer a screening question about whether they have bought tourism products in a mobile application or website, and only those who answered “Yes” could proceed to the remaining questions. A total of 426 valid responses were used to analyze the research model. The demographic information of the sample is shown in Table 2.

We applied the way used in the previous study to confirm the non-response bias that may exist between the respondent and the rest of them in the same pool. We separated the top 10% of those who initially participated in the response for the entire response period from the top 10% who participated in the survey at the end (Armstrong and Overton, 1977). And we verified the mean difference between the values between the two groups. And we verified the mean difference of the values between the two groups. As a result, there was no statistically significant difference between the two groups. This suggests that non-response bias is relatively weak in our study.

Table 2. Demographic characteristics of respondents

Variable	Percent	Variable	Percent
Gender		Job	
Male	30.3	Student	7.5
Female	68.8	Office manager	31.9
Not Answered	0.9	Sales service	8.2
Age		Technician	9.4

Under 20	0.2	Profession	21.1
20 - 29	30.5	Self employed	4.7
30 -39	45.3	Public servant	4
40 - 49	16.9	Housewife/husband	6.8
50 - 59	6.1	Others	6.3
Over 60	1	Monthly average income	
Education		Below £ 690	8.2
Lee than High School	8.2	£ 690 - £ 1379	16.7
College or University	11.7	£ 1380 - £ 2069	32.4
Graduate	65	£ 2070 - £ 2759	17.1
Masters	3.1	£ 2760 - £ 3448	11.5
Doctoral	11.7	Over £ 3448	14.1
Other	0.2	Total	100

Data Analysis and Results

Measurement Model

The measurement model was tested with confirmatory factor analysis using AMOS. For a good model fit, $\chi^2/d.f$ should be less than 3.0 (Bollen, 1989). And we also check the goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI) and comparative fit index (CFI) which is recommended to be more than 0.9 (Doloi et al., 2010). The results of these indices reported in Figure 1 suggest an acceptable model fit.

In order to confirm the validity of constructs, we checked the convergent validity and discriminant validity as follows. First, all standardized loadings of measurements should exceed 0.5, and values of composite reliability (CR) should exceed 0.7, average variance extracted (AVE) should exceed 0.4 and Cronbach's α for each construct are required larger than 0.7. Table 3 shows that the values of CR and Cronbach's α for each construct meet these criteria.

Table 3. Results of convergent validity testing

Construct	Item	Standardized loadings	Construct Reliability(CR)	Average Variance Extracted(AVE)	Cronbach's α
Convenience	conv1	0.801	0.888	0.664	0.910
	conv2	0.832			
	conv3	0.828			
	conv4	0.798			
Ubiquity	ubi1	0.777	0.756	0.513	0.890
	ubi2	0.786			
	ubi3	0.564			
Perceived Value	Per_val1	0.631	0.842	0.573	0.878
	Per_val2	0.786			
	Per_val3	0.820			
	Per_val4	0.776			
Notice of special promotion	noti1	0.796	0.882	0.651	0.885
	noti2	0.834			
	noti3	0.775			

	noti4	0.821			
Impulsiveness	impul1	0.838	0.926	0.757	0.914
	impul2	0.900			
	impul3	0.861			
	impul4	0.881			
Urge to buy impulsively	urgetobuy1	0.777	0.859	0.671	0.888
	urgetobuy3	0.857			
	urgetobuy4	0.821			

For discriminant validity of the measurement model, we checked some numerical values by comparing the square root of the AVE for each construct and the correlations between that construct and the others. If the square root of the AVE is larger than the correlations between that construct and other constructs, then this value fulfills the conditions for discriminant validity (Fornell & Larcker, 1981). As shown in Table 4, the minimum value of square root of the entire AVE of constructs (0.716) is higher than the maximum value of correlations among the constructs (0.706). Therefore, discriminant validity was secured.

Table 4. Correlation and descriptive statistics

Constructs	conv	ubi	Per_val	noti	impul	urgetobuy	mean	standard deviation
conv	<i>0.815</i>						3.46	0.80
ubi	0.706	<i>0.716</i>					3.56	0.82
perval	0.600	0.657	<i>0.757</i>				3.54	0.75
promo	0.439	0.398	0.528	<i>0.807</i>			3.42	0.85
impuls	0.080	0.116	0.076	0.143	<i>0.870</i>		2.75	1.03
urgetobuy	0.277	0.224	0.311	0.414	0.544	<i>0.819</i>	2.89	1.00

*Note: *italic* digits mean square root of AVE

Hypothesis testing

The results of hypothesis verification are summarized in Figure 1. As can be seen in Figure 1, all hypotheses were supported. 61.1% of the variance in perceived value was explained by the model. The model also explains 46.7% of the variance in urge to buy impulsively. .

Hypotheses 1 addresses the structural relationships between convenience and perceived value for mobile usage. Convenience has a positive effect on Perceived value for mobile usage ($b = 0.187$, t -value = 2.842) and was statistically significant at $p < 0.01$, supporting Hypothesis 1. Hypotheses 2 shows the cause and effect relationships between ubiquity and perceived value for mobile usage. Ubiquity has a positive effect on perceived value ($b = 0.454$, t -value = 6.616, $p < 0.001$), supporting Hypothesis 2. Notice of special promotion has a positive effect on perceived value ($b = 0.282$, $t = 5.927$, $p < 0.001$). Therefore, Hypothesis 3 was supported. To sum up, both mobile characteristics and transactional characteristic which is represented by notice of special promotion have significant positive relationships with perceived value.

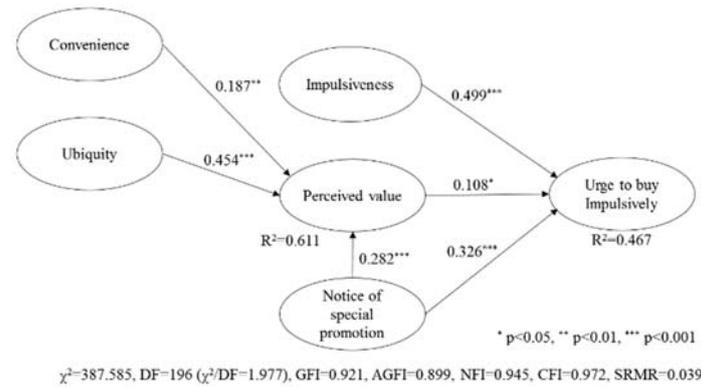


Figure 1. The estimated structural model

The variables impulsiveness ($b = 0.499$, $t\text{-value} = 10.412$, $p < 0.001$), perceived value ($b = 0.108$, $t\text{-value} = 1.984$, $p < 0.05$), and notice of special promotion ($b = 0.326$, $t\text{-value} = 5.613$, $p < 0.001$) were each found to have a significant positive effect on urge to buy impulsively in mobile commerce. Thus, the results support H4, H5 and H6.

Fuzzy-set qualitative comparative analysis (fsQCA)

Using fsQCA, researchers can find some patterns or interrelationship between antecedents and dependent variables. Compared to SEM, fsQCA is suitable for complex and non-linear models. In addition, this method is useful in exploring the combined patterns by combinations of variables rather than proving processes that focus on the directionality between variables. Previous researchers use this analysis to find out the optimal combinations, not the causal relationship. Then they confirmed the characteristics of each type. In addition, the more sophisticated and diverse research results can be obtained by partially presenting how influential all of the variables presented are in each type, unlike the clustering analysis method (Ragin, 2008).

As mentioned above, consumers' impulse buying is not a simple form of consumption. Of course, impulse buying can be done on an impromptu basis and without planning, but it can be affected by internal temperament, external environment, or multiple stimuli. In addition, whether variables that directly or indirectly have an influence can vary depending on different purchase situations or items, as shown by existing empirical studies. In other words, a limited study can be presented if it is studied simply with causality. Therefore, in this study, we first conducted hypothesis verification through SEM and further fsQCA to present the expanded research results.

fsQCA results

We examined the combination and influence of variables that can stimulate consumer's urge to buy impulsively in mobile commerce. For this, fsQCA was performed based on five causal conditions: convenience, ubiquity, perceived value, notice of special promotion, and impulsiveness. The complex solution and the parsimonious solution, which are summarized and two patterns are derived. That is, how the combination of causal variables explains the outcome condition. Unique coverage refers to the degree to which the constituent combinations of causal variables overlap with other combinations (Ragin, 2008). Consistency, on the other hand, is generally judged to have an appropriate level if it has a value higher than 0.75 (Schneider and Wagemann, 2013). Regarding the analysis results, Type 1 shows that urge to buy impulsively results from low convenience, ubiquity, perceived value, and notice of special promotion and high impulsiveness. This type has a consistency of 0.75 and explains a good number of cases (raw coverage = 0.57). Type 2 indicates high convenience, ubiquity, perceived value, notice of special promotion, and super-high impulsiveness. This type explains the less is more cases (raw coverage = 0.51) and has a consistency of 0.89. In other words, Type 1 can be considered to be a group heavily influenced by internal motivation. Type 2, on the other hand, is a group that has impulsive desire under the influence of multiple factors. To sum, both types contain the high or low conditions of mobile, transactional and individual characteristics, which implies that these conditions are not mandatory for impulse buying except for impulsiveness. Table 5 shows the detail output from fsQCA.

Table 5. Configurations leading to urge to buy impulsively

Type	Causal conditions					Raw coverage	Unique coverage	Consistency
	Conv	Ubi	Per_val	Noti	Impul			
1	⊗	⊗	⊗	⊗	●	0.576684	0.131574	0.75636
2	●	●	●	●	●	0.512997	0.067886	0.89064
solution coverage: 0.644571, solution consistency: 0.764043, consistency cutoff: 0.75636								

Note: Black circles indicate the presence of a condition, white indicate the absence of condition

Large circles represent major elements, small circles represent peripheral elements

Discussion and Implications

Generally, tourism is expensive and time-consuming, and, unlike other consumer goods, it is highly involved. However, from the assumption that all consumers do not act with a plan when purchasing or preparing tourism-related goods, unplanned behavior and further research on impulse purchasing have continued. Since then, much research has been done on mobile usage or impulse buying behavior in tourism. However, there has not been enough research on what motivations consumers feel when making a transaction that causes impulse buying. This study examined the motivation for mobile use in trading tourism-related products by applying a mixed research method and investigated how motives invoke impulsive purchasing desire.

Results of Study 1 are summarized as follows. Through interviews, we identified four major variables. We find convenience and ubiquity are mobile characteristics motivating mobile tourism impulse purchase intention. This finding is consistent with existing research that classifies mobile features into ubiquitous, mobility, ease of use, and ease of access (Yang, 2010). Perceived value and notice of special promotion were designated as transaction characteristics of mobile commerce motivating mobile tourism impulse purchase intention. These variables were then compiled into a hypothesized research model of causal relationships supported by established prior research.

In Study 2, the hypotheses developed from Study 1 were tested by a research model analysis. The six hypotheses presented by the analysis were all supported. In particular, impulsiveness was shown to have the greatest effect on urge to buy impulsively. These findings can be interpreted as a result consistent with existing studies that consumer impulsive behavior is influenced by individual mental characteristics (Turkyilmaz, Erdem & Uslu, 2015). It was also shown that notice of special promotion has a great influence on urge to buy impulsively. This can be interpreted in the same context as a result of a previous study, in which suppliers actively use facilitators such as quantity limits and time pressure as promotional strategies (Chung et al., 2017).

In addition, we conducted fsQCA to explore the nonlinear relationships that were not presented in the study model or the combined influence of variables toward the dependent variable. Our study found that impulsiveness itself has a key impact on the urge to buy impulsively. This result is different from that in the previous study in that cues as various sales strategies used in online shopping malls induce the consumers' impulse buying (Wells et al., 2011). For other groups, however, we found that convenience and ubiquity also had an impact on impulse buying. This can be considered as a similar result of previous studies that show that the convenience of mobile payment services enables consumers to buy impulsively (Alliance, 2008).

Our research has several theoretical implications. First of all, we have explored the impulse buying behavior of consumers in purchasing tourism products through mobile commerce, which has not been fully achieved before. While many researchers have traditionally focused primarily on the planned behavior of consumers in tourism studies, this study focuses on consumption patterns of unplanned behavior. This study combined qualitative research methods with empirical analysis and presented the in-depth study results. Besides such methodological progress could be helpful for future impulse buying studies.

Second, our research has led to theoretical advances in mobile research by qualitatively exploring why consumers use mobile in purchasing travel-related products. In previous studies, motivation for using mobile was taken from the characteristics of mobile or selected from the results of previous studies. However, in this study, interviews were conducted to extract variables. Our research will provide an additional basis for future mobile research.

Finally, we have identified the types of consumers who show impulse buying behavior through fsQCA and have presented each type of characteristic. By doing so, our study has overcome some of the limitations of not sufficiently identifying a combination of psychological and external environmental factors in many previous impulse purchasing studies. That is to say, we have supplemented the limitations of causal verification of many existing empirical studies through further analysis.

For practical implications, this study can be used as a resource to build a sales strategy for mobile commerce to OTA practitioners. Practitioners need to pay attention not only to the four major motivations for mobile use, but also to the other factors mentioned. In addition, they can confirm the details of the interview through our research. In other words, our research is an appropriate study for practitioners at a time when mobile use is increasing in tourism.

Second, our research can provide some practical implications for OTAs in setting up a sales strategy to drive impulse buying by consumers. To stimulate consumers' impulsive desire, practitioners need to focus on the value consumers can have by using mobile. They should also make active use of special programs because such promotions are not only a means of conveying value to consumers but also a means of arousing a desire to purchase directly. Additionally, since impulsiveness is the greatest motivation for consumers' impulse buying, practitioners must operate sales strategies that drives the customer's internal motivation and psychological factors.

Conclusion

This study was forged from three steps to scrutinize consumers' impulsive consuming behavior. This process was composed of interviews, hypothesis testing and fsQCA. Firstly, interviews for qualitative insights were conducted to investigate motivation of mobile usage. Through this process we acquired constructs including convenience, ubiquity, perceived value and notice of special promotion which correspond respectively to explain urge to buy impulsively. Secondly, a research model was established based on the constructs identified through the qualitative interviews and existing literature. The empirical findings show support for the direct and indirect effects of urge to buy impulsively in mobile commerce to buy tourism products. Finally, fsQCA was utilized for more in depth investigation. By doing this, we can propose additional implications. The study contributes to the promising research field of impulse buying and mobile commerce, especially to the tourism field.

However, our research has the following limitations. First, the variables obtained from the qualitative research in this study were not sufficiently considered for the variables previously identified in studies of impulse buying behavior. Besides, only impulsiveness was considered in this study as an individual characteristic to identify impulse buying desires. In other words, future studies require a holistic view that considers the variables identified in impulse buying studies. Second, we divided the types of consumers who showed impulsive buying behavior through fsQCA, but only two groups were identified. Therefore, future work needs to find out the results by applying the fsQCA in a wider area.

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