

## **A Study on the Use of Rural Community Tourism Information Services via Smartphones –Focused on The Theory of Planned Behavior-**

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### **ABSTRACT**

*This study attempted to suggest a strategy for providing rural community tourism information services using smartphones. Study subjects were men and women among 300 who currently use smartphones. Empirical analysis was done on 249 of the 300 subjects. Upon verification of the effect factors of adults' smartphone usage and rural community tourism information services usage, they were both statistically significant based on Ajzen's(1991) Theory of planned behavior. Hence, behavior, subjective norms, perceived behavioral control should be augmented in order to increase smartphone usage behavior to access rural community tourism information services. Especially, behavioral intent and usage behavior was increased proportionately to behavioral control. We suggested that plans to provide applications free of charge and building a social consensus on utilizing rural community tourism information are important in achieving such status.*

**Key words:** *Smartphone, Rural Community Tourism Information, TPB.*

### **1. INTRODUCTION**

Information Technologies(IT) such as the internet, mobile phones, and ubiquitous, are highly useful and valuable in the tourism information industry in which they are used and applied. The rapid development of the internet and IT networks have introduced "e-Tourism" where the tourist can directly plan and alter the travel course or schedule to his or her own taste [5], [17], [40]. Since then, the ubiquitous environment has arrived, announcing the beginning of a "u-Tourism" era where one is not limited by time nor place, because obtaining tourism information has become significantly easier due to enhanced mobility and convenience. The Ministry of Culture, Sports, and Tourism is putting forth various efforts to newly establish a tourism information guidance system and to provide location-based services in order to actively adapt to an informational environment changes in the ubiquitous paradigm [14]. In the tourism industry, smartphones, which are representative of ubiquitous service tools, are starting to be used as the main medium for advertisement [15]. Mobile tourism information service as a medium is expected to be more widely implemented by local governments as well as its utilization by tourists [14]. It is predicted that by 2011, the number of smartphone users will exceed 20 million. Meanwhile, as tablet

PCs and smart TVs become more common, online marketing channels will also rapidly become more diversified. Tourism no longer resembles carrying around thick tour guide books or large maps, but rather simply a smartphone, making it literally a "smart tour". Quick and swift measures to adhere to such change is necessary because tourists collect information in an effort to reduce the risks and uncertainties of tourism products resulting from the fact that they are immaterial commodity [16]. The gathering of readily accessible tourism information is made possible through the use of smartphones regardless of time and place [15].

Mobile service means freely sending and receiving internet data and information through mobile phones. Mobile tourism information service means the mobile service of tourism information, which includes all necessary information required for tourism behavior [17].

Tourists are using both existing methods and alternative ways to obtain tourism information, so the characteristic of mobile tourism information is becoming more prominent as an important factor. There have been studies on tourism information that are printed on paper, tourism information source, or information from the internet. However, there are only few studies that discuss tourism information provided via smartphones [17]. An increasing number of persons are using information obtained through smartphones because it is accessible, easy, provided real-time, a two-way communication, and more. Tourists are influenced by the characteristics of mobile medium, social influence, perceived usefulness, and

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perceived easiness when deciding whether to accept mobile medium as a source of tourism information. Preceding research that used Technology Acceptance Model(TAM) are Kim and Lim(2005), Kim, Park and Morrison(2008), An and Kim(2009), Oh, Lehto and Park(2009), Jeong and Lee(2010), Choi and Choi(2010), Lee, Youn and Park(2012). Research that combined TAM and social impact theory are Kim and Kim(2002), Park, Nam & Park(2006), Park and Kwon(2007). There are also studies that used experiential values such as Park(2008), Park, Park, Lee and Kim(2011), and many others.

Davis(1989) first introduced TAM in attempt to explain the behavioral intent of potential users of new technology [30]. There are many studies on behavioral intent of using new technologies based on TAM. However, although TAM is a helpful tool in developing an acceptance model of mobile tourism information services, we will use Theory of planned behavior(TPB) in this study because TPB includes human will [13]. Also, we will examine preceding studies to deduce characteristics of smartphone tourism information and analyze attitudes of tourists who use smartphones as well as empirically analyze how their attitudes effect the will and behavior of continuous tourism information usage. The purpose of this study is to suggest ways to provide rural community tourism information using smartphones.

## **2. THEORETICAL BACKGROUND**

Traditionally, the focus of interest when trying to explain human behavior has been to analyze the relationship between attitude and behavior. Scholars interested in attitude in order to predict behavior have endeavored to clarify the relationship between the two. Fishbein's model was the most popular and widely accepted model by studies that strived to analyze attitude and behavior, but unlike many predicated, numerous problems were detected in explaining the relationship of the two concepts(Lee and Kim,1998). Fishbein and Ajzen(1975) expanded on the previous Fishbein's model and further developed a more reasonable theory of behavior [19].

TPB is an attitude-behavior model that was developed using the Theory of reasoned action [1], [32] by complementing the theory's limitation which is the unrealistic assumption that human behavior is completely under one's own control. TPB expanded the theory of reasoned action by adding the concept of perceived behavioral control and it investigates the relationship among behavior, behavioral intent, attitude towards behavior, subjective norms, and the ability to control perceived behavior [7]. Attitude towards behavior indicates the degree of how friendly or unfriendly one finds the behavior to be. Subjective norm means the perception and motivation to conform to social pressure that demand an individual to behave or not to behave in a certain way that is instigated by persons that such individual consider as important. Perceived behavioral control is the degree of how much behavior is considered to be under the control of an individual. In other words, this means necessary ability and confidence needed to facilitate one's behavior [19]. Intent is one's will regarding thoughts or plans on future behavior, that is, how much effort one is willing to put forth in executing a certain behavior [1].

Behavior is human's social, mental, physical action by an individual that is observable and documented through examination [23]. Whether or not a certain behavior is carried out is influenced by perceived behavioral control and behavioral intent [1].

According to TPB, intent, which leads behavior consists of three components: belief of possible consequences of certain behavior (behavioral belief), belief of others' norms (normative belief), and belief of the existence of factors that facilitate or interfere certain behavior (regulative belief). Behavioral belief forms attitude which is the evaluation of preference (like or dislike) of behavior. Normative belief forms subjective norms which is perceived social pressure that determine whether a behavior is executed. Regulative belief gives rise to perceived behavioral control which is a concept of how much a behavior could be done without difficulty. The combinations of these form behavioral intent, and intent ultimately leads to behavior [7]. Thus, it could be said that attitude, subjective norms, perceived behavioral control influence intent and behavior. Lee and Song(2012) argued that one's intent of carrying out a certain behavior generally increases when one has a more positive attitude and subjective norms towards that behavior and also when perceived behavioral control is greater. In consequence, it is possible to predict actual behavior through understanding one's intent because a person first develops intent in advance of actual behavior [1].

TPB is a psychosocial theory that well explains how cognitive and psychological factors effect behavior [34], [18]. TPB considered social attitude and cognitive and social-environmental factor such as personality characteristics as having an important role in explaining and predicting human behavior [8]. Rice, Grand, Schmiz, and Torobin(1990) suggested that when considering the social characteristic of mobile tourism information services, social influence is limited to influencing each other's behavior within the boundaries of the social relationship. In accepting new technology. Ajzen(1991) first proposed the Theory of Planned Behavior suggesting that factors such as attitude, norms, or behavioral regulation influences human will in using products or services. It is this will that drives users to consume actual products or services [28]. Rogers(1995) said that mass media influences early adopters while people who adopt them later are influenced more by people around them [11]. Park and Kwon(2007) argued that Ajzen's model is applied not only in marketing but also widely in the information systems field.

The type of information seeking of users who search through various forms of online medium can be divided into goal-oriented search and experience-oriented search. Goal-oriented search occurs prior to purchasing and means realizing the need for purchase and searching for information in order to complete the purchasing process. Experience-oriented search is a continuous process of seeking information based on a relatively daily interest regardless of current need for purchase [20], [35], [37]. Internet tourism information can be classified into five groups. Reservation information includes lodging, airline tickets, car rentals, train tickets, reservation cancelation. Travel information includes events, natural scenery, nearby tour spots, information about geography, cultural properties, and historical sites. Experiential information includes

recommended tour sites, travel planning, and information about travel experience. Pricing information includes travel package prices, discounts, and information about deals on lodging and food. Transportation information includes transportation, traffic, train time table, pricing, and more [6], [27].

In a study about evaluation factors of tourism information websites that influence user satisfaction and revisiting intention, Hong, Jang and Lee(2010) suggested that general factors and quality evaluation factors influence user satisfaction and user satisfaction influences revisiting intention. Hyun and Park(2012)'s study of quality evaluation of hotel websites that influence online and offline visiting intentions showed that user's satisfaction of websites influence revisiting intention and hotel visiting intention. Shin(2012) states in the study of the influence of characteristics of online spreading of words about tourist spots on acceptance and visiting intentions, acceptance of online spreading of words influences visiting intentions.

Park, Nam, and Park(2006) stated that perceived value from the user acceptability analysis of mobile tourism information services influences behavioral will, and behavioral will influences satisfaction. In Park and Kwon(2007)'s study, characteristics of mobile tourism information services, behavioral will, and perceived value derived from analysis of actual usage relationship influence behavioral will, and behavioral will influence use will. Park(2008), in a study of customer behavior analysis according to the experience of mobile tourism information services, argued that while pleasure value and practical value influence behavioral will, behavioral will does not influence frequency of use. Park, Park, Lee, and Kim(2011) studied smartphone customers to investigate the relationship among characteristics of mobile tourism information services, experiential value, trustworthiness, satisfaction, use intention. The study revealed that aesthetic experiential value, economical recreational value, and service experiential value influence trustworthiness and satisfaction, and they in turn, influence use will. In Lee, Youn, and Park(2012)'s research on intention to use mobile tourism information services, they state that when it comes to tourists' attitude of acceptance, perceived usefulness is a greater influence on continuous intention to use compared to perceived easiness of obtaining information. Also, they argue that although tourism information obtained via a mobile medium itself is very useful, the general public may still have difficulties in using such mobile devices. They further state that aforementioned difficulties can be solved over time as the devices become more advanced and as people spend more time using them.

### 3. STUDY METHOD

#### 3.1 Subject and research model

The subjects of this study were 300 male and female smartphone users currently residing in G-city. We used survey method using convenience sampling as the method of sampling. A total of 249 surveys were chosen for analysis among 250 surveys that were collected, disregarding 1 survey which had inconsistent responses or was completed without sincerity.

The measuring instrument for this study was surveys. The survey used for this study was based on surveys from preceding studies [28], [29], [33], [41], [44]-[47] and ultimately used a modified and supplemented survey from, Ko(2012). 6 questions each were matched for adult smartphone users' attitude on utilization, subjective norms, and perceived behavioral control, 5 questions for use intentions, 2 questions for behavior, and 2 questions for smartphone behavior in using rural community tourism information. The variables were measured using a 5-point Likert type interval scale with 'not at all' being 1 point, 'moderately' being 3 points, and 'Always' being 5 points. A 1 point answer for all factors means a strong denial towards the question, while a 5 point answer means a strong affirmation of what is asked. The higher the average score of the answers, the more positive one perceives various variables. A nominal scale was used for 6 demographics questions. Question configuration for each factors is as shown in Table 1.

Table 1. Questionnaire Constitutes

Factor	Items	Source
Attitude	6	Rosers(1983), Davis, Bagozzi & Warshaw (1989), Kim(2004), Park(2007), Lim(2008), Ko(2009)
Subjective norms	6	Granzin & Olsen(1991), Triandis(1971), Kim(2004), Park(2007), Lim(2008), Ko(2009)
Perceived behavioral control	6	Bandura(1977), Kim(2004), Park(2007), Lim(2008), Ko(2009)
Smartphone usage intentions	5	Ajzen(1991), Kim(2004), Park(2007), Lim(2008), Ko(2009)
Smartphone usage behavior	2	
Smartphone behavior in using rural community tourism information	2	Added to this study
census	6	
total	33	

\*reconstruction by Ko(2012)

SPSS 12.0 for Windows was used for data collected for frequency analysis and verifying reliability. Factor analysis was done in order to analyze validity and confirm the suitability of the factors. Hypothesis testing was done using regression analysis. Also, AMOS 7.0 was used to check the suitability of the model.

This study applied the Theory of planned behavior suggested by Ajzen(1991) to verify adults' smartphone utilization and the influence factors of rural community tourism information usage. Our study attempts to analyze attitude towards using smartphones, behavioral intention according to subjective norms, usage intention and smartphone usage based on perceived behavioral control, smartphone usage based on behavioral intention, and the relationship between smartphone

usage and utilization of rural community tourism information. In order to evaluate the causal influence of which the relationship of each measured variables will have on establishing the mobile rural community tourism information services, we have developed the following model (Fig. 1).

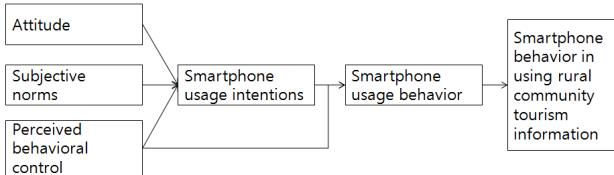


Fig. 1. Study Model

The hypotheses formulated to investigate the influence of attitude towards smartphone usage, subjective norms, and perceived behavioral control have on smartphone usage intentions and usage behavior as well as the influence of smartphone usage on the behavior of rural community tourism information usage is as follows.

- H1. Attitude towards smartphone usage will have a positive(+) influence on smartphone usage intentions
- H2. Subjective norms on smartphone usage will have a positive(+) influence on smartphone usage intentions
- H3. Perceived behavioral control on smartphone usage will have a positive(+) influence on smartphone usage intentions
- H4. Perceived behavioral control on smartphone usage will have a positive(+) influence on smartphone usage behavior
- H5. Smartphone usage intentions will have a positive(+) influence on smartphone usage behavior
- H6. Smartphone usage behavior will have a positive(+) influence on smartphone usage behavior for rural community tourism information services.

**3.2 Reliability and validity**

Our study verified the measurement tool's reliability of internal consistency and used Cronbach's alpha coefficient as the reliability coefficient in order to find out the stability, consistency, and prediction probability of each item in the survey. In the results, all of them showed a value greater than 0.700, meaning that all contents in the survey showed reliability greater than 0.700. To verify the validity, the characteristic values of factors of perceived value obtained by exploratory factor analysis must exceed 1.0. Most of the characteristic values of the factors in the survey surpassed the level of significance, accumulation/distribution was analyzed to be more than 0.600, and factor loading was found to be over 0.500. There were 3 independent variables and 3 dependent variables. They are shown in Table 2 and Table 3.

Independent variables were attitude, subjective norms, perceived behavioral control with characteristic value of 3.8434 and accumulation/distribution 67.650. Cronbach's alpha was 0.926 for attitude, 0.896 for subjective norms, and 0.881 for perceived behavioral control. It is shown in Table 2.

Verification of Reliability and Validity of Independent Variables

Table 2. Verification of Reliability and Validity of Independent Variables

Item	Attitude	Perceived behavioral control	Subjective norms	Cronbach's $\alpha$
Using smartphones is desirable	<b>0.809</b>	0.153	0.270	0.926
Using smartphones is meaningful	<b>0.803</b>	0.127	0.301	
Using smartphones is worthwhile	<b>0.803</b>	0.132	0.286	
Using smartphones is beneficial	<b>0.785</b>	0.215	0.183	
Using smartphones is a good thing	<b>0.764</b>	0.218	0.327	
Using smartphones is joyful	<b>0.759</b>	0.299	0.209	
If I want, I often use smartphones	0.189	<b>0.775</b>	0.213	0.881
I have the necessary conditions to use smartphones	0.136	<b>0.766</b>	0.210	
Whether or not I use smartphones is entirely up to me	0.042	<b>0.766</b>	0.120	
I am able to use smartphones at will	0.144	<b>0.752</b>	0.198	
I am confident in using smartphones	0.244	<b>0.743</b>	0.193	0.896
It is easy to use smartphones	0.319	<b>0.676</b>	0.143	
Peers expect me to use smartphones	0.114	0.268	<b>0.759</b>	
Friends are helpful in using smartphones	0.288	0.238	<b>0.741</b>	
Family understands my use of smartphones	0.305	0.174	<b>0.739</b>	
I think it is good to use smartphones	0.260	0.320	<b>0.730</b>	
Family thinks I should use smartphones	0.300	0.024	<b>0.718</b>	0.896
Friends think positive of my use of smartphones	0.339	0.273	<b>0.695</b>	
Eigen Value	4.418	3.925	3.834	
Variance	24.543	21.806	21.301	
%Variance	24.543	46.349	67.650	

KMO=0.902, Barlett's sphericity test=2970.875(p<0.000), degree of freedom=153

Dependent variables were abstracted to three, which are usage intentions, tourism information utilization behavior, and rural community tourism information utilization behavior. The characteristic value was 1.507, accumulation/distribution was 78.566, usage intention of Cronbach's alpha was 0.913, tourism information utilization behavior was 0.766, and rural community tourism information utilization behavior was 0.751. It is shown in Table 3.

Table 3. Verification of Reliability and Validity of Dependent Variables

Item	Smartphone usage intentions	Smartphone usage behavior	Smartphone behavior ,in using, rural community tourism information	Cronbach's $\alpha$
Intend to actively use smartphones	<b>0.856</b>	0.162	0.218	0.913
Will make an effort to use smartphones	<b>0.841</b>	0.006	0.244	

Plan to continue to use smartphones	<b>0.828</b>	0.273	0.046	
Considering investing time to use smartphones	<b>0.813</b>	0.145	0.282	
Intend to use smartphones frequently	<b>0.784</b>	0.044	0.305	
Will use smartphones to search rural community tourism information	0.124	<b>0.884</b>	0.039	0.766
Will download rural community tourism information App if provided	0.128	<b>0.873</b>	0.140	
Will use smartphones regardless of surrounding situation	0.269	0.110	<b>0.910</b>	
Investing time to use smartphones	0.595	0.154	<b>0.612</b>	
Eigen Value	3.859	1.705	1.507	
Variance	42.883	18.940	16.743	
%Variance	42.883	61.823	78.566	

KMO=0.884, Barlett's sphericity test=1258.161(p<0.000), degree of freedom=36

**4. RESULTS**

**4.1 Preliminary data analysis**

We did a frequency analysis to analyze the demographics of the respondents regarding smartphone usage. The analyzed group's gender was 129 males (51.81%) and 120 females (48.19%), and the age distribution was 78 respondents in the 20's (31.33%), 110 in the 30's (44.18%), 45 in the 40's (18.07%), and 16 in the 50's (6.43%). Depending on the smartphone usage experience, those who used less than a month was 14 (5.62%), 1-3 months were 24 (9.64%), 4-6 months were 50 (20.08%), 7-11 months were 71 (28.51%), and more than 12 months were 86 (34.54%). Those who used less than 30 minutes of average smartphone usage time excluding telephone usage were 40(16.06%), 31-60 minutes were 64(25.70%), 91-120 minutes were 41(16.47%), and more than 121 minutes were 63 (25.30%). As for information searching abilities using smartphones, 8 (3.21%) were completely incapable, while 15(6.02%) could not, 105(42.17%) could moderately, 75(30.12%) could fairly well, and 45(18.07%) could very well. Regarding whether users will download rural community tourism information app if provided, 15(6.02%) said they absolutely would not, 18(7.23%) would not, 89(35.74%) would moderately, 86(34.54%) would, and 40(16.06%) would absolutely download. For having to pay for downloading apps, 56(22.49%) absolutely would not, 92(36.95%) would not, 23(9.24%) would moderately, and 5(2.01%) would absolutely purchase. For willingness to search rural community tourism information through smartphones, 11(4.42%) would never, 30 would not, 104(41.77%) would

moderately, 70(28.11%) would, and 31(12.45%) said they absolutely would. It is shown in Table 4.

Table 4. Demographic analysis

Division	Factor	Frequency	%	Division	Factor	frequency	%
Gender	Male	129	51.81	Will download rural community tourism APP if provided	Not at all	15	6.02
	Female	120	48.19		No	18	7.23
Age	20's	78	31.33		Maybe	89	35.74
	30's	110	44.18		Yes	86	34.54
	40's	45	18.07		Absolutely will	40	16.06
	50's	16	6.43		No answer	1	0.40
Experience with smartphones	less than 1 month	14	5.62	Will download APP even if it is not free	Not at all	56	22.49
	1-3 months	24	9.64		No	92	36.95
	4-6 months	50	20.08		Maybe	72	28.92
	7-11 months	71	28.51		Yes	23	9.24
	more than 12 months	86	34.54		Absolutely will	5	2.01
	no answer	4	1.61		No answer	1	0.40
	Average Daily Smartphone Usage Time (not including phone calls)	less than 30 mins	40		16.06	Search Rural community Tourism information using Smartphones	Not at all
31-60 mins		64	25.70	No	30		12.05
61-90mins		40	16.06	Average	104		41.77
91-120mins		41	16.47	Yes	70		28.11
more than 121mins		63	25.30	Absolutely	31		12.45
no answer		1	0.40	No answer	3		1.20
Search Ability using smartphones	Not at all	8	3.21	Total		249	100.00
	Poorly	15	6.02				
	Average	105	42.17				
	Well	75	30.12				
	Very well	45	18.07				
	no answer	1	0.40				

**4.2 Model suitability verification**

To assess the suitability of the designed model, we first used the Pearson correlation method in order to analyze the correlation coefficient among factors. When we take a look at the correlation of each factors, attitude and usage intention is most highly correlated, while attitude and rural community tourism information usage behavior through smartphones is the least correlated. The relationships are organized. It is in Table 5.

Table 5. Analysis of Correlation

Factors	1)	2)	3)	4)	5)	6)
1)Attitude	1					
2)Subjective norms	0.658**	1				
3)Perceived behavioral control	0.496**	0.541**	1			
4)Smartphone usage intentions	0.731**	0.675**	0.537**	1		

5)Smartphone usage behavior	0.495**	0.473**	0.471**	0.665**	1	
6)Smartphone behavior in using rural community tourism information	0.261**	0.295**	0.289**	0.302**	0.291**	1
Average	3.52	3.47	3.61	3.31	2.97	3.40
Standard Deviation	0.926	0.865	0.832	0.915	1.001	0.922

We used criteria such as  $\chi^2$  statistic, p-value, goodness of fit index(GFI), and adjusted goodness of fit index(AGFI), in order to evaluate the overall suitability. The results were,  $\chi^2=12.696$ ,  $p=0.048$ ,  $AGFI=0.942$ ,  $GFI=0.985$ ,  $RMSEA=0.047$ ,  $NFI=0.981$ ,  $NNFI=0.974$ , and  $CFI=0.990$ . The suitability of the model suggested in this study satisfied most of the requirements. This is shown in Table 6.

Table 6. Suitability of the Model

$\chi^2(p)$	df	GFI	AGFI	RMSEA	NFI	TLI (NNFI)	CFI
12.696 (0.048)	6	0.984	0.942	0.047	0.981	0.974	0.990

Path suitable model derived from path analysis is shown in Fig. 2.

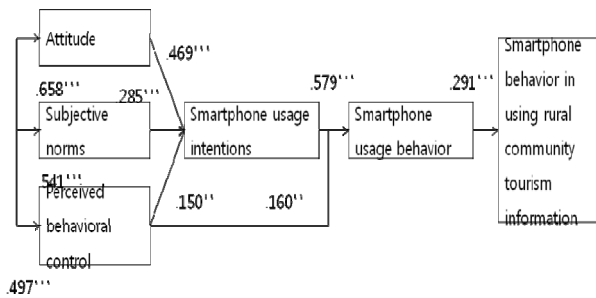


Fig. 2. Path suitable model

4.3 Hypotheses testing

Regression analysis was done to examine the hypothesis based on the research model.

H1. Attitude towards utilizing smartphones will have a positive(+) effect on smartphone usage intentions showed to be significantly influential( $p=0.000$ ), so hypothesis 1 was adopted.  $F=284.193$  and the power of explanation was adjusted  $R^2=0.533$ . Influence of attitude on usage intentions was  $\beta=0.731$ .

H2. Subjective norm on smartphone utilization will have a positive(+) effect on smartphone usage intentions showed to be significantly influential( $p=0.000$ ), so hypothesis 2 was adopted.  $F=206.920$  and the power of explanation was adjusted  $R^2=0.454$ . Influence of subjective norm on usage intentions was  $\beta=0.675$ .

H3. Perceived behavioral control of smartphone utilization will have a positive(+) effect on smartphone usage intentions showed to be significantly influential( $p=0.000$ ), so hypothesis 3 was adopted.  $F=99.854$  and the power of explanation was adjusted  $R^2=0.285$ . Influence of perceived behavioral control on usage intentions was  $\beta=0.537$ .

H4. Perceived behavioral control of smartphone utilization will have a positive(+) effect on smartphone usage behavior showed to be significantly influential( $p=0.000$ ), so hypothesis 4 was adopted.  $F=70.238$  and the power of explanation was adjusted  $R^2=0.218$ . Influence of perceive behavioral control on smartphone usage behavior was  $\beta=0.471$ .

H5. Smartphone usage intentions will have a positive(+) effect on smartphone usage behavior showed to be significantly influential( $p=0.000$ ), so hypothesis 5 was adopted.  $F=195.729$  and the power of explanation was adjusted  $R^2=0.440$ . Influence of usage intentions on smartphone usage behavior was  $\beta=0.665$ .

H6. Smartphone usage intentions will have a positive(+) effect on rural community tourism information usage behavior through smartphones showed to be significantly influential( $p=0.000$ ), so hypothesis 6 was adopted.  $F=22.791$  and the power of explanation was adjusted  $R^2=0.081$ . Influence of usage intentions on rural community tourism information usage behavior was  $\beta=0.291$ . It is in Table 7.

Table 7. Hypothesis testing results

Dependent Variable	Independent Variable	Unstandardized coefficient		Standardized coefficient	t	F	Corrected R <sup>2</sup>
		B	SE	$\beta$			
Usage Intention	(constant)	0.764	0.156		4.893	284.193***	0.533
	H1: Attitude	0.723	0.043	0.731	16.858		
	(constant)	0.833	0.178		4.692	206.920***	
Smartphone usage behavior	H2: Subjective norms	0.714	0.050	0.675	14.385		0.454
	(constant)	1.180	0.219		5.394	99.854***	
	H3: Perceived behavioral control	0.590	0.059	0.537	9.993		
Smartphone behavior in using rural community tourism information	(constant)	0.917	0.251		3.650	70.238***	0.218
	H4: Perceived behavioral	0.569	0.068	0.471	8.381		
	(constant)	0.552	0.179		3.077	195.729***	
Smartphone usage intentions	H5: Smartphone usage intentions	0.730	0.052	0.665	13.990		0.440
	(constant)	2.604	0.175		14.855		
	H6: Smartphone usage behavior for Rural Community Tourism Information	0.267	0.056	0.291	4.774	22.791***	

\*\*\*  $p<0.001$

The following regression equation could be applied

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \varepsilon_i$$

[A] H1 :  $0.764+0.723 = 1.487$

H2 :  $0.833+0.714 = 1.547$

H3 :  $1.180+0.590 = 1.770$

From the above equation, H3. Perceived behavioral control of smartphone utilization will have a positive(+) effect on smartphone usage intentions.

$$[B] H4 : 0.917+0.569 = 1.486$$

$$H5 : 0.569+0.730 = 1.299$$

From the above equation, H4. Perceived behavioral control of smartphone utilization will have a positive(+) effect on smartphone usage behavior.

Thus, measures to increase perceived behavioral control should be devised because it is the most influential factor for smartphone usage intentions or usage behavior.

## 5. CONCLUSION

This study provides theoretical background in understanding acceptance of rural community tourism information by securing the reliability and validity of every measurable variables while proving that the Theory of planned behavior model is applicable in analyzing all factors regarding smartphone users' acceptance intention of rural community tourism information. Also, we re-verified the legitimacy of the analytical process of precedent studies based on Theory of planned behavior and the usefulness of the theory.

Frequency analysis for demographic analysis of participants about smartphone usage was done. Among the entire subjects of analysis, male(51.81%), 30's(44.18%) who have used smartphones for more than 12 months(34.54%), for 31-60 minutes per day(25.70%), with moderate information search abilities(42.17%) were the most frequent. Also, most were moderately willing to download apps of rural community tourism information if provided(35.74%), but said no to downloading if required to purchase(36.95%). Most participants would moderately search rural community tourism information through smartphones(41.77%). Especially, since 87% responded moderately and higher that they would download rural community tourism information app if provided, 88% said they would moderately and less if required purchasing, and 82% would use smartphones to search rural community tourism information, it could be expected that if app was provided at no cost, app would be utilized to consume tourism information.

Results of model verification through AMOS showed that the suitability of the model provided in this study satisfied the requirements. Also, regression analysis of hypotheses verification showed that the results were all statistically significant. Results of the study could be summarized as follows. First, attitude of smartphone users had a positive(+) influence on the usage intentions. That is, the more one perceives smartphone usage as desirable, meaningful, valuable, beneficial, good, and pleasant, the higher the usage intention becomes. Second, subjective norm of smartphone users had a positive(+) influence on the usage intentions. In other words, the more positively family, friends, and colleagues perceives smartphone usage, the higher the usage intention becomes. Third, perceived behavioral control of smartphone usage had a positive(+) influence on the usage intentions. In other words, the higher the level of control one has over smartphone usage, the higher the usage intention becomes. Fourth, perceived behavioral control of smartphone usage had a positive(+) influence on smartphone usage behavior. In other words, the higher the level of control one has over smartphone usage,

usage behavior becomes more frequent. Fifth, smartphone usage intention had a positive(+) influence on the usage behavior. That is, the higher the will of time investment and continuous usage of smartphones, the higher the usage behavior becomes. Sixth, smartphone usage behavior had a positive(+) influence on the usage behavior of rural community tourism information. In other words, rural community tourism information usage increases with behaviors such as searching information using smartphones or using apps.

Based on the results of this study, we suggest a theoretical and practical implications of acceptance will of rural community tourism information using smartphones. There have been many studies on acceptance will of new technology in regards to TAM. However, by utilizing TPB, we are able to find meaning and support studies by Moon(2011), Lee and Song(2012), Ko(2012). It is possible to suggest the following strategies in order to improve usage rates of rural community tourism information provided via smartphones.

First, apps developed for maximizing the use of rural community tourism information should be spread by providing it free of charge. Generally, apps are dispersed quickly when it is a game or have entertainment quality. It could be said that tourism information, more specifically rural community tourism information will not spread as quickly even when it is provided. Thus, as shown in the study results, apps should be free and focus on supplying them to the public first. Second, social consensus on utilization of tourism information should be established. If rural community tourism information emphasize excellence, recentness, and convenience, while government and local governments actively publicize such information, social consensus forming would be possible. If social consensus is established, the users may accept the information more quickly according to their autonomic decision making. This is shown in the results of the study as tourism information usage intention is influenced in the order of perceived behavior control, subjective norm, and attitude. Usage behavior is influenced in the order of perceived behavioral control and usage intention. Perceived behavioral control is the degree of considering a certain behavior is under the control of oneself and ultimately an equivalent of autonomic decision making or self determination because it means the necessary ability and confidence one needs to execute certain behaviors [19]. Thus, technologies that enable an easier use of smartphones must be continuously developed. Also, policies to provide rural tourism information applications for free and efforts to building a social consensus on utilizing such information are essential.

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